THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES.

VOL. XII. PART III.

REPORT FOR 1939-40

(WITH BALANCE-SHEETS FOR 1939, 1940, AND 1941)

BY

THE HONORARY EDITORS,
E. C. WALLACE,
2 Stratford Rd., Sutton, Surrey.
A. J. WILMOTT,
Natural History Museum, Cromwell Road, - London, S.W.7.

PRICE 10s.

PUBLISHED BY
T. BUNCLE & CO. LTD., MARKET PLACE, ARBROATH.

1942.

NOTICES TO MEMBERS.

APPLICATIONS FOR MEMBERSHIP.

Applications for Membership should be sent to the Acting Secretary, Mr A. J. Wilmott, Natural History Museum, Cromwell Road, London, S.W.7.

SUBSCRIPTIONS.

Subscriptions should be paid to the Treasurer, Mr J. E. Lousley, at 7 Penistone Road, Streatham Common, S.W.16. The Annual Subscription for Ordinary Members is Ten Shillings, payable on the 1st of January annually. Owing to the enforced restriction of the activities of the Society the Committee have decided that this should be reduced to Five Shillings per annum for the years 1941, 1942, and 1943. Some members have generously offered to continue payment at the old rate. Exchange Members need subscribe only at the same rate as Ordinary Members during the period when the distribution of plants is in abeyance.

MATERIAL FOR THE NEXT REPORT.

Material for the next Report—Records, Notes, etc.—should be sent to Mr A. J. Wilmott, as Mr E. C. Wallace has now joined H.M. Forces (R.A.F.).

SPECIMENS FOR IDENTIFICATION.

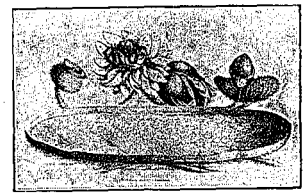
Ordinary Specimens for identification may be sent to the Acting Secretary. Before sending critical material to the Society's Referees (see 1937 Report, 599-616), members should first ascertain from the Referee concerned whether he is in a position to determine specimens, as in existing circumstances any temporarily overdue list is made at any time to become inaccurate.

PAST REPORTS REQUIRED
to improve the Society's stock:
1919, 1923, 1929, 1939.

THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES.

(VOL. XII. PART III).

Victoria Regina.



Floreat flora.

REPORT FOR 1939-40

BY

THE HONORARY EDITORS,

E. C. WALLACE,

2 Strathearn Rd., Sutton, Surrey.

A. J. WILMOTT,

Natural History Museum, Cromwell Road, - London, S.W.7.

PRICE 10s.

The Editors do not hold themselves responsible for Statements in Signed Contributions.

Printed by T. Buncle & Co. Ltd., Market Place, Arbroath.

1942.

CONTENTS.

	PAGE
Officers, ...	211
List of Members, 1942, ...	212
Accounts for the Years ending 31st December 1939, 1940 and 1941, ...	220
Summary of Proceedings of Meetings (November 1939-March 1942), ...	224
Honorary Acting Secretary's Report, ...	226
Honorary Treasurer's Report, ...	227
Report on the Reconstruction of the Membership List, ...	228
Honorary Joint Editors' Report, ...	230
Obituary, ...	231
Personalia, ...	231
Report on Excursions arranged in 1939, ...	232
Plant Notes, ...	251
Plant Records, ...	265
The Weather of 1939 and 1940 and its Effects, ...	308
Nomenclature and Corrections to British Plant List, by A. J. Wilmott, ...	310
Druce's Comital Flora: Additions and Corrections, by A. Wilson, ...	319
Additions and Corrections to Comital Flora for Devon, by E. C. Wallace, ...	331
Notes on the Flora of Buxton and District, by F. T. and R. H. Hall, ...	338
An Unworthy Tangle: Phuopsis stylosa Benth. et Hook. fil. (Crucianella stylosa Trin.)—Not "Asperula ciliata Rochel"—in Britain, by Nicholas Polunin, ...	356
Schkuhria in the British Plant List, by N. Y. Sandwith, ...	359
Some Remarks on British Rhinanthus, by A. J. Wilmott, ...	361
Some Redeterminations of Melampyrum Specimens Recently Distributed by the B.E.C., by C. E. Britton, ...	380
Book Notices and Reviews, ...	382
Abstracts from Literature, ...	393
Bibliography, ...	407

THE BOTANICAL SOCIETY & EXCHANGE CLUB OF THE BRITISH ISLES.

OFFICERS.

CONFIRMED IN OFFICE FOR THE DURATION OF THE STATE OF EMERGENCY AT OR SINCE THE ANNUAL GENERAL MEETING, MARCH 13TH, 1940.

Chairman—The Rt. Hon. H. T. Baker, P.C.
Vice-Chairman—Dr J. Ramsbottom, O.B.E., Dr.Sc., M.A., V.P.L.S.
Hon. Acting Secretary—*Mr A. J. Wilmott, M.A., F.L.S.
Hon. Treasurer—*Mr J. E. Lousley.
Hon. Joint Editors—*Messrs E. C. Wallace and A. J. Wilmott.
*Elected March 1942.

COMMITTEE.

Elected March 1936.
[Mr J. E. Lousley (till Mar. 1942).]
Mr N. Y. Sandwith, M.A., F.L.S.
Mr N. D. Simpson, M.A., F.L.S.
Mr A. L. Still, B.A.

Elected March 1937.
Mr A. H. G. Alston, M.A., F.L.S.
Mr C. E. Britton, A.L.S.
Mr H. W. Pugsley, B.A.
Lt.-Col. A. H. Wolley-Dod.

Elected March 1938.
[Mr R. H. Corstorphine, B.Sc., F.L.S., died Mar. 1942.]
Lady Davy.
Mrs Foggitt.
Dr W. A. Sledge, Ph.D.

Elected March 1939.
Mr J. E. Dandy, M.A., F.L.S.
Mr E. Milne-Redhead, B.A., F.L.S.
Mr A. E. Wade, F.L.S.
[Mr A. J. Wilmott, M.A., F.L.S. (till Mar. 1942).]

Co-opted Members:—Dr R. C. L. Burges (Oct. 1941-). Mr J. S. L. Gilmour, M.A., F.L.S. (March 1939-). Miss E. Vachell (Oct. 1941-). Mr E. C. Wallace (Oct. 1941-).

SUB-COMMITTEES.

Editorial Sub-Committee.
[Mr R. H. Corstorphine.]
Mr N. Y. Sandwith.
The Hon. Joint Editors.

Excursions and Field-work Sub-Committee.
(Not appointed from 1940-).

Rules Sub-Committee.
The Editorial Sub-Committee with the addition (March 1942) of the Chairman, in place of the late Mr Francis Druce.

LIST OF MEMBERS, 1942.

(Corrected to April 22nd, 1942.)

*—Signifies Members of the Exchange Club.

L—Signifies Ordinary Members who have paid Life Composition.

†—Signifies Members who have contributed Notes or Records to this Report.

PATRONESS.

H.R.H. THE PRINCESS ROYAL, COUNTESS OF HAREWOOD, Harewood House, Yorkshire.

HONORARY MEMBERS.

Aellen, Dr Paul, Oberwilerstrasse 126, Basle, Switzerland.
Almquist, Dr E. B., 80 Ostermalmsgaten, Stockholm, Sweden.
Beauverd, Prof. G., Conservatoire, L'Institute de Botanique de L'Université, Genève, Switzerland.
Chodat, Prof. Dr R., L'Université, Genève, Switzerland.
Danser, Prof. Dr B. H., Botanical Laboratory of the University of Groningen, Holland.
Domin, Prof. Dr K., Director of the Botanical Institute and Garden, Praha VI, Czechoslovakia.
Fernald, Prof. M. L., The Gray Herbarium, Harvard University, Cambridge, Mass., U.S.A.
Jansen, P., Frans van Mierisstraat 128, Amsterdam, Holland.
Kükenthal, Dr G., Alexandrinestrasse 7, Coburg, Germany.
Livingstone, B. E., John Hopkin's University, University Parkway, Baltimore, U.S.A.
Masaryk University, 63 Kounicova, Brno, Czechoslovakia.
Missouri Botanical Gardens, St Louis, U.S.A.
Montreal Université (de Lab. Botanique), 185 Rue St Denis, Montreal. (Dr Fr. Marie-Victorin.)
Probst, Dr R., Langendorf, near Solothurn, Switzerland.
Rechinger, Dr K. H., Friedrichstrasse 6, Wien I, Austria.
Ronniger, Dr Karl, Strohbergasse 29, Wien XII/2, Austria.
Schinz, Prof. Dr Hans, Biberlinstrasse 15, Zurich, 7, Switzerland (died Oct. 1941).
Seine Maritime, Linnéenne Société de la, 56 Rue de Lycée, Le Havre, France.
†Senay, P., 10 Rue Dupré, Asnières, France.
Swedish Academy of Sciences, Dr Arne Holmberg, Chief Librarian, Stockholm 50, Sweden.
University of California, Berkeley, California, U.S.A.
Vermeulen, P., Woodenstraat 14III, Amsterdam-Zuid, Holland.
Zahn, Prof. Dr K. H., Hirschstrasse 63, Karlsruhe, Baden, Germany (died Feb. 1940).

CORRESPONDING MEMBERS.

Drabble, Mrs E., Tregudda, Ayr, St Ives, Cornwall.
Goode, G., M.A., Lyndhurst, de Freville Road, Cambridge.
Lumb, D., 1 Market Place, Dalton-in-Furness.
Pickard, J. F., 57 Richmond Ave., Headingley, Leeds 6.
Sherrin, W. R., A.L.S., South London Botanical Institute, 323 Norwood Road, S.E.24.
Swanton, E. W., M.B.E., A.L.S., Educational Museum, Haslemere, Surrey.

ORDINARY AND EXCHANGE MEMBERS.

Abell, Miss L., Thorndale, Andoversford, Glos.
Ackerley, Miss M. E., Mitton Vicarage, near Whalley, Blackburn, Lancs.
L Adair, G. S., M.A., F.R.S., Low Temperature Station, Downing Street, Cambridge.
†Adams, Rev. J. H., M.A., Landulph Rectory, Saltash, Cornwall.
Adams, L. T., 96 Burnam Road, Shirley, Warwickshire.
Adamson, Prof. R. S., M.A., Dept. of Botany, University of Cape Town, S. Africa.
Adeane, Hon. Mrs H., West Hall, Mundford, Thetford, Norfolk.
Airy-Shaw, H. K., B.A., Daglingworth Rectory, Cirencester, Glos.
†Alston, A. H. G., M.A., F.L.S., Dept. of Botany, British Museum (Nat. History), Cromwell Road, S.W.7.
Amherst, C. T., Luttrell Arms Hotel, Dunster, near Minehead, Somerset.
*†Ash, G. M., Lower Birtley Farm, Witley, Surrey.

Baker, C. M., C.I.E., Meopham Green, Kent.
Baker, Edmund G., F.L.S., 3 Cumberland Road, Kew, Surrey.
Baker, F. T., F.R.E.S., Curator, City and County Museum, Lincoln.
Baker, Rt. Hon. H. T., The Warden's Lodgings, Winchester College, Hants.
Barnes, Mrs Egbert, Hungerdown, Seagry, Chippenham, Wilts.
Basden, E. B., "Budleigh," Farnham Royal, Bucks.
†Bemrose, G. J. V., City Museum and Art Gallery, Hanley, Stoke-on-Trent.
Biggar, Miss Ethel I., Corbieton, Castle Douglas, Scotland.
Birchall, Lady, Cotswold Farm, Cirencester, Glos.
Birmingham Public Libraries, The City Librarian, Birmingham 1.
*Bishop, Edmund B., Lindfield, Marshall Road, Godalming, Surrey.
Blackburn, Dr K., Botany Dept., King's College, Newcastle-on-Tyne 2.
Bloomer, H. H., Longdown, Sunnydale Road, Swanage, Dorset.
Boucher, W. W., White Lodge, Malvern Wells, Worcs.
Bradshaw, David B., 38 Morehampton Road, Dublin, Eire.
*Braid, Major K. W., West Garth, 27 Craigmillar Ave., Milngavie, Glasgow.
†Brenan, J. P. M., 9 Longwall Street, Oxford.
Brighton Public Library, Church Street, Brighton 1.
†Britton, C. E., A.L.S., 85 Hamsey Green Gardens, Warlingham, Surrey.
Brokenshire, Fred. A., 2 Rock Avenue, Barnstaple, Devon.
†Brown, Geo. C., 16 Lion Walk, Colchester.
Brown, Miss M., Stocks, Tring, Herts.
Brunker, J. P., 18 Grosvenor Place, Rathgar, Dublin.
Bull, Mrs H., Upper House, West Burton, Pulborough, Sussex.
Bunker, Herbert E. 27 Broad Oak Lane, Penwortham, Preston, Lancs.
†Burder, Lewis A. W., Denes, East Chiltington, Lewes.
†Burges, Dr R. C. L., 133 Soho Hill, Birmingham.
Butcher, R. W., B.Sc., Ph.D., F.L.S., Culford House, Ewe Lamb Lane, Bramcote, Notts

L Cadbury, Miss Dorothy A., 40 Edgbaston Park Road, Birmingham 15.
Cambridge, The Botany School, The University.
Cardew, Major J. W., 44 Putnoe Lane, Bedford.
Cator, Miss Diana, St Anne's, Happisburgh, near Norwich, Norfolk.
Chapman, Hon. Mrs D. B., c/o National Provincial Bank Ltd., Caernarvon, N. Wales.
*Chapple, Lieut. J. F. G., F.L.S., 41 A.A.Bde.H.Q., Horstead Hall, Coltishall, Norwich.
Charteris, Hon. G., Bishopstone, Bridge-Sollars, Herefordshire.
Chase, Capt. C. D., Campbell College, Portrush, Co. Antrim, N.I.
Chesher, W., M.A., 51 Queen's Drive, Mossley Hill, Liverpool 18.
Chilman, Rev. G. H., Dalton Parsonage, Thirsk, Yorks.
†Clark, Dr William A., Dept. of Botany, King's College, Newcastle-upon-Tyne 2.

Cobbe, Miss A. B., Lingworth, Sea Road, Felpham, Bognor Regis.
Cooke, R. B., Kilbryde, Corbridge, Northumberland.
Cornell, New York State College of Agriculture, Cornell Univ., Ithaca, N.Y., U.S.A.
*Corstorphine, Mrs Margaret, Hillside House, Arbroath, Angus.
Cory, Miss A. M., Fullerton Manor, Andover, Hants.
Creed, Dr R. S., M.A., New College, Oxford.
Crerar Library, John, 86 East Randolph Street, Chicago, Ill., U.S.A.
Crisp, Wm. C., Schoolhouse, Stewkley, Leighton Buzzard, Beds.
Cross, Edward R., 12 Filey Road, Scarborough.
Cross, Hon. Marjorie, Ash House, Broughton-in-Furness.
†Cruttwell, Rev. N. E. G., The Rectory, Basingstoke, Hants.

Daly, Mrs Bowes, Drumlanrig Castle, Thornhill, Dumfries-shire.
†Dandy, J. E., M.A., F.L.S., British Museum (Natural History), The Zoological Museum, Tring, Herts.
David, Miss Aileen M., Hillside, Llandaff, Cardiff.
Davy, Lady, Green End, Keyhaven, Lymington, Hants.
Day, Miss E., 32a St Peter Street, Sandwich, Kent.
†Day, Francis M., The Downs School, Colwall, Malvern.
Dent, G., Speedwell, Wych Cross, Forest Row, Sussex.
Dent, Mrs R. W., O.B.E., Flass, Maulds Meaburn, Penrith.
Devonshire, The Duke of, Chatsworth, Buxton, Derbyshire.
†Dony, John G., B.Sc., Ph.D., 41 Somerset Ave., Luton, Beds.
Ducie, Rt. Hon. The Earl of, c/o The Tortworth Estate Office, Falfield, Glos.
Dufferin, Brenda, Marchioness of, Sheldon Manor, Chippenham, Wilts.
Duncan, Miss Ursula, Parkhill, Arbroath, Angus.
*Dunston, Capt. Ambrose E. A., Burltons, Donhead St Mary, Wilts. (via Shaftesbury, Dorset).
Durham University, (Miss K. M. Chalklin, M.Sc.) Dept. of Botany, University Science Laboratories, South Road, Durham.

*†Edees, E. S., M.A., 19 Dartmouth Avenue, Westlands, Newcastle, Staffs.
Eire, National Museum, The Acting Director, Kildare Street, Dublin, Eire.
Eire, Controller, Stationery Office (Publications Branch), Dublin.
Eliot, Lady Alethea, Newtimber Place, Hassocks, Sussex.
†Ellis, A. E., M.A., F.L.S., Epsom College, Surrey.
Ellis, E. A., Castle Museum, Norwich.
Ellis, Edgar W., Gedham, Ossett, Yorks.
L Evans, Dr A. H., F.R.S.E., Cheviot House, Crowthorne, Berks.
†Evetts, Mrs E. F., J.P., Wood House, Tackley, Oxon.
Eyre, Mrs R. S. K., Woodside, Crowborough, Sussex.

Fanshawe, D. B., Fairydene, Wheeler Ave., Oxted, Surrey.
Findeisen, K. D., Yonder Fowdon, Churston Ferrers, South Devon.
*Fleming, Dr G. W. T. H., F.L.S., Barnwood House, Gloucester.
Foggitt, Mrs G., 22 Haslemere Road, Sketty, Swansea.
Frankland, J. N., 59 Otley Road, Skipton, Yorks.
†Fraser, G. T., B.A., 71 Fore Street, Kingskerswell, Newton Abbott, S. Devon.

L Geldart, Miss A. M., 2 Cotman Road, Norwich, Norfolk.
German, Mrs P., Newlands, The Plantation, Durrington, Worthing, Sussex.
Gilmour, J. S. L., M.A., F.L.S., Royal Botanic Gardens, Kew, Surrey.
Glyn, Hon. Mrs Maurice, 28 Albert Hall Mansions, S.W.7.
Godalming Nat. History, Footpath and Rambling Society, (Hon. Sec.) E. B. Bishop, Lindfield, Marshall Road, Godalming, Surrey.
†Goddard, H. J., The Knap, Skew Bridge, Wilton Road, Salisbury, Wilts.
Gomersal, Mrs M., High Kelling, Holt, Norfolk.
L Gordon, Seton, C.B.E., Upper Duntuilm, Isle of Skye.

Gough, Mrs H., Raford, Athenry, Co. Galway, Eire.
†Gough, J. W., M.A., 43 Sandfield Road, Headington, Oxford.
Graham, Mrs E., 9 Ralston Street, Tedworth Square, S.W.3.
Graham, Rex, 9 Ralston Street, Tedworth Square, S.W.3.
Graham, Prof. R. J. D., M.A., D.Sc., F.R.S.E., Dept. of Botany, The University, St Andrews.
Graveson, A. W., M.A., Tintagel, Stoke Road, Beaminster, Dorset.
Gray, Henry, Yewtree, West Malling, Kent.
Gray Herbarium, The, Harvard University, Cambridge, Mass., U.S.A.
Green, T. H., Sabinal, Weston, Bath.
Gregor, Rev. A. G., M.A., B.D., Firle Vicarage, near Lewes, Sussex.
*†Grose, J. D., 18 Regent Street, Swindon, Wilts.

Haines, John W., Midhurst, Green Lane, Hucclecote, Gloucester.
Haines, Mrs J. W., Midhurst, Green Lane, Hucclecote, Gloucester.
†Hall, Fredk. T., 2 Hartington Terrace, West Road, Buxton, Derbyshire.
Hall, Miss Margaret, The Gables, Weobley, Hereford.
†Hardaker, W. H., 451 City Road, Edgbaston, Birmingham 17.
Hardinge, Hon. Lady, St James's Palace, London, S.W.1.
†Hare, Dr C. Leighton, The Jodrell Laboratory, Royal Botanic Gardens, Kew, Surrey.
†Harrison, Prof. J. W. Heslop, D.Sc., F.R.S., King's College, Newcastle-upon-Tyne.
Hartley, J. W., Irene, Marple Road, Stockport.
†Harvey, Rev. H. H., Clawton Vicarage, Holsworthy, Devon.
†Hassall, Mrs B., The Manor House, Wheatley, Oxford.
Haughton, Dr J. W., Tawnachie, Wood Lane, Falmouth.
Haynes, Gerald, 8 Canterbury Road, Oxford.
*Hayward, Miss Ida M., F.L.S., 7 Abbotsford Road, Galashiels, Selkirkshire.
Heron, Miss May, Erclands, Ercall Lane, Wellington, Salop.
Hichens, Mrs, c/o Mrs Hingston, Windward House, Tavistock, Devon.
Hill, S. Ashton, Carnaby, 19 Jordan Road, Four Oaks, Warwickshire.
Horticultural Society, The Royal, Vincent Square, Westminster, S.W.1.
*Howarth, W. O., D.Sc., F.L.S., Botany Dept., The University, Manchester 13.
Hull, University College, The Librarian, Hull.
Hurst, Miss Barbara, Rusper Nunnery, Horsham, Sussex.
Hurst, C. P., F.L.S., Landulph Rectory, Saltash, Cornwall.
Hutchinson, R. R., 11 Fryston Avenue, Croydon, Surrey.

Jack, James, F.L.S., Luggiebank, Cumbernauld Station, Glasgow.
Jackson, A. Bruce, A.L.S., 3 The Avenue, Kew Gardens, Surrey.
Jekyll, Francis, Munstead Wood, Heath Lane, Godalming, Surrey.
Jowett, Miss Edith B., Oreton Mount, Grange-over-Sands, Lancs.

Kennedy, Mrs C. Moore, c/o Westminster Bank Ltd., Bromley, Kent.
Kew, H. Wallis, Penmoil, Cock Lane, High Wycombe, Bucks.
Kirby, Mrs G. E., Sankey House, Brook, near Ashford, Kent.
Knight, H. H., M.A., The Lodge, All Saints Villas Road, Cheltenham.

*Lang, Mrs D. K., Wyse Hill, Finchampstead, Berks.
*Last, G. V. C., F.L.S., M.R.C.S., L.R.C.P., 22 Rutland Ave., Sefton Park, Liverpool.
Lawn, J. G., C.B.E., Hon. D.Sc., Little Barrs, West Clandon, Surrey.
Leadbitter, E. C. E., C.V.O., 160 Addiscombe Road, Croydon.
Leake, Miss P., 17 Westmorland Road, Bromley, Kent.
Leather, Miss Vivien M., Wyards, Studland, near Swanage, Dorset.
Lee, John R., 96 Finlay Drive, Dennistoun, Glasgow, E.1.
†Legard, Lady Edith, Maes Court, Tenbury, Worcester.
Leicester Museum and Art Gallery, Leicester.
Lewis, J. Spedan, Leckford Abbas, Stockbridge, Hants.

Linnean Society of London, The, Burlington House, Piccadilly, W.1.
Little, Miss K. D., 19 The Avenue, Hitchin, Herts.
London Natural History Society (Botanical Section), G. R. A. Short (Secretary), 36 Parkside Drive, Edgware, Middlesex.
†Long, Jas. W., Hillside, St John's Road, Newport, Isle of Wight.
L Longfield, Miss C. E., 20 Pont Street, London, S.W.1.
†Lousley, J. E., 7 Penistone Road, Streatham Common, S.W.16.
Lucas, Baroness, 22 Sussex Square, Hyde Park, W.2.

†McClintock, Capt. D., Park Grove, Withyham, Tunbridge Wells, Sussex.
McGill, J. F., Ardantrae, 5a Racecourse Road, Ayr.
McInnes, Latimer, Briarlea, Campbeltown, Argyll.
†Mackechnie, Robert, B.Sc., 9 Skirving Street, Shawlands, Glasgow, S.1.
Mackenzie, Major Roderick, Fawley Court, Henley-on-Thames.
McLean, Prof. R. C., University College, Newport Road, Cardiff.
MacLeay, Kenneth N. G., Botany Dept., St Andrews University.
Makins, F. K., F.L.S., Great Down Cottage, Bruton, Somerset.
Manchester Museum, The, The University, Manchester 13.
†Marks, C. E., Islington Cemetery, East Finchley, N.2.
Marsden-Jones, E., F.L.S., Close Cottage, Littleton Panell, Devizes, Wilts.
Marsh, Miss F. H. B., J.P., F.L.S., Thornleigh, Mordiford, Hereford.
†Martin, Rev. W. Keble, M.A., F.L.S., The Vicarage, Torrington, Devon.
Matthews, Prof. J. R., Botany Department, The University, Old Aberdeen.
†Melville, R., B.Sc., Ph.D., F.L.S., Royal Botanic Gardens, Kew, Surrey.
†Mills, J. N., 131 Woodstock Road, Oxford.
Mills, Dr W. H., 23 Storey's Way, Cambridge.
Milne, James Fairweather, M.A., M.B., Ch.B., Rocksley House, Boddam, Peterhead, Aberdeenshire.
Milne-Redhead, E., B.A., c/o Mrs Edgar Milne-Redhead, Green Leaze, Cirencester, Glos.
Milvain, Mrs M., Green Close, Snowshill, near Broadway, Worcs.
Montgomery, Mrs R., 46 Frenchgate, Richmond, Yorks.
Morley, Earl of, Saltram, Plympton, Plymouth, Devon.

†Nelmes, E., Daglingworth Rectory, Cirencester, Glos.
Nelson, George A., Ph.C., F.L.S., 37 The Crescent, Adel, Leeds 6.
New York Botanical Garden (W. J. Robbins, Director), Bronx Park, New York, N.Y., U.S.A.
Northamptonshire Natural History Society, c/o H. G. Allen, B.Sc. (Hon. Sec., Bot. Sec.), Ivydale, Wootton, Northampton.
Norton, F., "Westward Ho," 3 Pencisely Rise, Cardiff.
*Nottingham Public Natural History Museum, Wollaton Hall, Nottingham.

Oxford University, Dept. of Botany, The Librarian, Oxford.
Oxford University, Dept. of Forestry, The Librarian, Oxford.

Palmer, The Hon. W. J. L., The Old House, Wonston, Sutton Scotney, Hants.
Parkin, J., M.A., F.L.S., Blaithwaite, Wigton, Cumberland.
Patton, Dr Donald, M.A., B.Sc., Ph.D., F.R.S.E., 15 Jordanhill Drive, Glasgow, W.3.
Penson, J. H., 11 Well Walk, Hampstead, N.W.3.
Phelps, Mrs J. V., Woodbury, East Avenue, Bournemouth, Hants.
Phillips, Edwin Masson, 26 Cheltenham Place, Plymouth, Devon.
Pickard, Miss Kathleen, Harveys, Glynde, Lewes, Sussex.
Pownall, Rev. G. C., Glenroy, Windmill Road, Minchinhampton, Glos.
†Price, W. R., Cockleford Mill, Cowley, near Cheltenham.
Priestley, Prof. J. H., B.Sc., D.S.O., Dept. of Botany, The University, Leeds.
Prime, C. T., M.A., F.L.S., 24 Hurst View Road, Croydon, Surrey.
†Pugsley, H. W., B.A., Andor, Allen's Green, Sawbridgeworth, Herts.

Ramsbottom, J., O.B.E., M.A., Dr.Sc., P.P.L.S., Keeper, Dept. of Botany, British Museum (Natural History), Cromwell Road, S.W.7.
Rawlins, Miss E., Dysertmore, New Ross, Co. Wexford.
Rea, Carleton, B.C.L., M.A., 6 Barbourne Terrace, Worcester.
Rees, Mrs F. L., 5 Hill Park, Tenby, Pembrokeshire.
†Rees, John, B.A., M.Sc. (Adviser in Agricultural Botany), University College (S.W. & M.), Cathays Park, Cardiff.
L Richards, Mrs H. M., Caerynwch, Dolgelley, N. Wales.
Ridley, H. N., C.M.G., F.R.S., 7 Cumberland Road, Kew Gardens, Surrey.
Ridley, Hon. Mrs J., Mockbeggars Hall, Claydon, Suffolk.
*Rilstone, F., A.L.S., Lambourne Hill, Penhallow, Truro, Cornwall.
*†Rob, Miss C. M., Catton Hall, Thirsk, Yorks.
†Roche, The Lady, Chadlington, Oxford.
*Rose, Mrs Eric, Lewesto̊n Manor, Sherborne, Dorset.
Russell, Lady Victoria, The Ridgeway, Shere, Guildford, Surrey.

Salisbury, Prof. E. J., C.B.E., D.Sc., F.R.S., F.L.S., Willow Pool, 4 Gills Hill Lane, Radlett, Herts.
Salmon, Miss Hilda M., Harwood, Horsham, Sussex.
†Sandwith, Mrs Cecil, 26 Canynge Square, Clifton, Bristol, 8.
†Sandwith, N. Y., M.A., F.L.S., The Herbarium, Royal Botanic Gardens, Kew, Surrey.
Saunders, Miss E. F., Ortler, Bouncers Lane, Prestbury, Cheltenham, Glos.
Severn, Lady, Winterbrook Lodge, Wallingford, Berks.
Seward, Mrs O. G., Weston House, near Petersfield, Hants.
Short, G. R. A., 36 Parkside Drive, Edgware, Middlesex.
†Simpson, N. Douglas, M.A., F.L.S., F.R.M.S., Maesbury, 3 Cavendish Road, Bournemouth, Hants.
Skene, Prof. Macgregor, D.Sc., University, Bristol, 8.
*†Sledge, Dr W. A., 9 St Chad's Drive, Headingley, Leeds, 6.
Small, Prof. J., D.Sc., Dept. of Botany, Queen's University, Belfast, N.I.
†Smith, Dr H. B. Willoughby, M.B., F.R.C.S., St Clements, 9 Carson Road, Gainsborough, Lincs.
Smith, R. L., 24 Grand Avenue, Ely, Cardiff, Glam.
Smith, Prof. Sir Wm. Wright, D.Sc., Royal Botanic Garden, Edinburgh, 4.
L Southall, A. W., Clifford's Mesne, Newent, Glos.
South London Botanical Institute, 323 Norwood Road, London, S.E.24.
Sowter, F. A., Ashstead, 9 North Avenue, Leicester.
Stationery Office, H.M., Princes Street, Westminster, S.W.1.
†Stephenson, Rev. Dr T., D.D., Irfon, Aberystwyth.
Stern, Colonel F. C., O.B.E., M.C., Highdown, Goring-by-Sea, Sussex.
Stevenson, Miss E. H., 28 Foxcombe Road, Weston, Bath, Somerset.
Stewart, Mrs M. E., Partney, Spilsby, Lincs.
Stewart-Sandeman, Mrs, Achnashellach, Ross-shire.
†Still, A. L., B.A., Long Hayne, Cove, Tiverton, Devon.
Stuart, Mrs C. U., 120 London Road, Worcester.
Stuart-Edwards, J. J., Imperial Hotel, Exmouth, S. Devon.
Swaine, Miss A. K., Pisang Cottage, Nailsea, Somerset.
Swann, Eric L., 282 Wootton Road, King's Lynn.

Tahourdin, C. B., M.A., 86 Manor Road, Wallington, Surrey.
L†Taylor, Dr G., British Museum (Natural History), Cromwell Road, London, S.W.7.
Taylor, Miss M., 6 Kent Gardens, Ealing, W.13.
†Taylor, S. A., 34 Nelson Street, Leicester.
†Temperley, Geo. W., Restharrow, Apperley Road, Stocksfield, Northumberland.
†Templeman, A., Geological Museum, Exhibition Road, South Kensington, S.W.7.
Thomas, Charles, Arden, 48 Manor Road North, Edgbaston, Birmingham 16.

Thomas, Miss E. Mary, Moorfield, Nottage, Porthcawl, Glam.
Thorold, C. A., Hele, Bradninch, Devon.
Tindall, Mrs K. B., West Downs, Winchester, Hants.
Todd, Miss E. S., Aldbourne, Marlborough, Wilts.
Toke, Chas. Hugh, The Haven, Green Lane, Crowborough, Sussex.
Travis, W. G., 9 Barton Road, Liverpool 9.
Trethewy, A. W., Artillery Mansions, Victoria Street, S.W.1.
Tristram, Mrs R. M., F.L.S., Revillo, Ash Bank, Stoke-on-Trent, Staffs.
Tunbridge Wells Municipal Museum, 6 Upper Grosvenor Road, Tunbridge Wells, Kent.
Turnbull, Miss E., Stone Lodge, Vines Lane, Hildenborough, Kent.
Turner, A., 140 Pine Street, Nelson, Lancs.
Turrill, W. B., D.Sc., F.L.S., The Herbarium, Royal Botanic Gardens, Kew, Surrey.

Ullman, Lt. Col. R. B., Trove, New Road, Esher, Surrey.

†Vachell, Miss Eleanor, F.L.S., Fairfield, Ely Road, Llandaff, Cardiff.
†Valentine, D. H., M.A., Ph.D., Botany School, Cambridge.
Victoria, The Public Library of, Melbourne, c/o Henry Sotheran Ltd., 2 Sackville Street, Piccadilly, W.1.
†Vivian, Miss C., F.L.S., 37 Wilton Crescent, London, S.W.1.

†Wade, A. E., F.L.S., Dept. of Botany, National Museum of Wales, Cardiff.
Waldy, Hon. Mrs H. P., Sonamerg, Higher Sea Lane, Charmouth, Dorset.
*†Wales, National Museum of, Dept. of Botany (Keeper, H. A. Hyde, M.A.), Cardiff.
*†Wallace, E. C., 2 Strathearn Road, Sutton, Surrey.
†Wallis, J. R., Timberlog, Parsonage Lane, Lamberhurst, Kent.
Warner, S. Allen, M.P.S., Whitelea, Broadway, Didcot, Berks.
L Warren, W. E., Selborne, Horsell Rise, Horsell, Woking, Surrey.
Washington, U.S. Dept. of Agriculture, The Librarian, Washington, D.C., U.S.A.
Watchorn, Dr Elsie, 25 Luard Road, Cambridge.
Watson, Wm., 245 Southlands Road, Bickley, Bromley, Kent.
Watts, Lt. Col. G. A. R., Highbury, Victoria Road, Fleet, Hants.
†Webster, Subaltern M. McCallum, A.T.S., c/o Bank of Scotland, Macduff.
L Wedgwood, Mrs, 2 Hatherley Road, Kew Gardens, Surrey.
Wedgwood Herbarium, The, Marlborough College, Wilts.
†Welch, Mrs B., B.Sc., 49 Lichfield Court, Richmond, Surrey.
Wells, Mrs E. M., 91 Colum Road, Cardiff.
Weyer, Major B. G. Van de, South Marston Manor, Swindon, Wilts.
Weyer, Major William Van de, Clyffe, Dorchester, Dorset.
Whellan, J. A., 2nd Lieut., R.A.O.C., 42 Stamford Street, Liverpool 7.
Whyte, James E., 31 Hayswell Road, Arbroath, Angus.
†Wilkinson, J. S., 26 Golder's Rise, Hendon, N.W.14.
Willan, Mrs Hugh, Bridges, Teffont, Salisbury.
Williams, Mrs F. R., 234 Highland Avenue, Winchester, Mass., U.S.A.
Williams, I. A., West Hall, Kew Gardens, Surrey.
Williams, M. L., Layton Villa, Linden Road, Bognor, Sussex.
†Wilmott, A. J., M.A., F.L.S., Dept. of Botany, British Museum (Natural History), Cromwell Road, S.W.7.
†Wilson, Albert, F.L.S., Tir-y-Coed, Ro Wen, near Conway.
Winter, W. P., B.Sc., F.G.S., 6 Grange Avenue, Saltaire, Yorks.
†Wolley-Dod, Lt. Col. A. H., Berkeley Cottage, Mayfield, Sussex.
Woodhead, J. E., B.Sc., F.I.C., Ph.C., 325 Kennington Road, London, S.E.11.
L Wright, Dr F. R. Elliston, Braunton, N. Devon.

Yeoman, Miss Ruth, The Green, Brompton, Northallerton, Yorks.
York Public Library, City of, York.

Young, Rev. Andrew, Stonegate, Tunbridge Wells, Kent.
L Young, Miss Gertrude A., 5 Woodlands Terrace, Glasgow, C.3.
Yuill, Edward, Norwood, Towthorpe Lane, Haxby, York.

ORDINARY MEMBERS ABROAD.

(The following are still regarded as members although the difficulty or impossibility of communicating with them under present conditions has prevented confirmation. Those members living overseas who have been able to return the Reconstruction Form are included in alphabetical order in the main list.)

Arsene, Bro. Louis, Maison St Joseph, Highlands, Jersey.
Bergen Museum, Botaniska Avdeling, Bergen, Norway.
Brooklyn Botanic Gardens, Brooklyn, N.Y., U.S.A.
Genève, Switzerland, Le Directeur du Conservatoire et du Jardin botanique de la Ville de.
Holland, J. S. (Westwell Manor, Burford, Oxon.), New Modderfontein Staff Mess, P.O. Van Ryn Benein, S. Africa.
Lindquist, Dr B., Skogshogskolan Experimentalfaltet, Stockholm, Sweden.
McCrea, Mrs M. A., 4 Springfield Terrace, King's Road, Guernsey.
Nannfeldt, Dr John Axel, Botaniska Institutionen, Uppsala, Sweden.
Oslo, The Botanical Museum of the University of, Norway.
Pharmacie Bibliotheque de la Faculté de, 4 Avenue de la Observatoire, Paris, France.

SUMMARY OF THE ABOVE MEMBERSHIP LIST.

Non-Subscribing Members.		
Honorary Members	23	
Corresponding Members ...	6	
	——	29
Subscribing Members.		
Ordinary Members	280	
Life Ordinary Members ...	13	
Exchange Members	20	
	——	313
Total Membership		342

ACCOUNTS FOR THE YEAR 1939.

GENERAL FUND.

To Balance from 1938 ...	£184	2	0	By Insurance	£0	6	0
„ Subscriptions Received in 1939 (including £20 paid in advance)	180	7	3	„ Printing (other than Report) and Stationery and Binding	23	11	7
„ Excursion Fees	0	10	0	„ Printing Report	105	7	6
„ Sales of Reports and Reprints	3	14	7	„ Expenses of Distributor (1938)	1	9	10
				„ Cheque Book	0	4	2
				„ Honorarium to Hon. Secretary	25	0	0
				„ Postages and Petty Expenses :—			
				Hon. Sec., ... £9 12 4			
				Act. Hon. Sec. 1 8 9			
					11	1	1
				„ Balance	201	13	8
	£368	13	10		£368	13	10

PUBLICATIONS FUND.

To Balance from 1938 ...	£137	7	4	By Balance	£152	3	0
„ Sales of Comital Flora, Plant List, etc.	14	15	8				
	£152	3	0		£152	3	0

LIFE MEMBERS' FUND.

To Balance from 1938 ...	£144	8	0	By Balance	£144	8	0
	£144	8	0		£144	8	0

MISS TROWER'S FUND.

To Balance from 1938 ...	£16	7	11	By Balance	£16	7	11
	£16	7	11		£16	7	11

BENEVOLENT FUND.

To Balance from 1938 ...	£41	3	6	By Balance	£41	3	6
	£41	3	6		£41	3	6

BALANCE SHEET AT 31ST DECEMBER 1939.

General Fund	£201	13	8	500 National Savings Certificates, at cost	£400 0 0
Publications Fund	152	3	0	Cash at Bank	134 16 1
Life Members' Fund	144	8	0	Post Office Savings Bank Deposit (Life Members' Fund)	21 0 0
Miss Trower's Fund	16	7	11		
Benevolent Fund	41	3	6		
	£555	16	1		£555 16 1

(Signed) FRANCIS DRUCE,
Hon. Treasurer.

Examined and found correct.
February 5th, 1940.

(Signed) H. W. PUGSLEY,
Hon. Auditor.

ACCOUNTS FOR THE YEAR 1940.

GENERAL FUND.

To Balance from 1939 ...	£201	13	8	By Insurance	£0	6 0
,, Subscriptions Received in 1940 (including £18 12s 6d paid in advance)	198	1	7	,, Printing and Stationery	1	14 0
				,, Advertisement (Wild Flower Magazine)	0	10 0
,, Sales of Reports and Reprints	2	17	10	,, Honorarium to Hon. Secretary (half-year)	12	10 0
				,, Postages and Petty Expenses (Hon. Sec.) ...	5	9 7
				,, Balance	382	3 6
	£402	13	1		£402	13 1

PUBLICATIONS FUND.

To Balance from 1939 ...	£152	3	0	By Balance	£154	19 9
,, Sales of Comital Flora and Plant List	2	16	9			
	£154	19	9		£154	19 9

LIFE MEMBERS' FUND.

To Balance from 1939	£144	8	0	By Balance	£144	8 0
	£144	8	0		£144	8 0

MISS TROWER'S FUND.

To Balance from 1939 ...	£16	7	11	By Balance	£16	7 11
	£16	7	11		£16	7 11

BENEVOLENT FUND.

To Balance from 1939 ...	£41	3	6	By Balance	£41	3 6
	£41	3	6		£41	3 6

SUMMARY OF PROCEEDINGS OF MEETINGS (NOVEMBER 1939—MARCH 1942).

A meeting of the Committee was held on November 2nd, 1939. It was agreed that the Treasurer, Mr Francis Druce, who had taken over the secretarial work when Mr Chapple was mobilised for active service, should continue as Acting Secretary during Mr Chapple's absence, and that plants normally sent to the Hon. Secretary for identification should be sent either to the Keeper of Botany, British Museum (Nat. Hist.), Cromwell Road, S.W.7, or to the Director, Royal Botanic Gardens, Kew, Surrey, who had kindly offered to deal with them so far as possible having regard to the exigencies of the position at the time. It was decided to cancel the Conversazione arranged for November 15th. It was arranged that Mr Druce should notify members of those arrangements made which affected them.

A meeting of the Committee was held on March 13th, 1940, at which it was decided that in view of the state of war the present Officers and Members of Committee should continue during the war and that the Committee should have power to co-opt to any vacancies on the Committee. It was decided that Excursions, Conversazione, and Plant Distributions should be suspended for the duration of the war. It was decided that, should circumstances permit, an endeavour should be made to hold an autumn meeting on October 15th in place of the Conversazione at the rooms of the Linnean Society, where tea could be provided, at which a talk should be given by Mr Wilmott on some subject of interest to members [; but after the beginning of the air attack on London the arrangements for this were dropped]. The Editor reported that pressure of war work had left him little time to deal with the Reports for 1938 (part 2) and 1939; it was decided that the Reports in preparation should be completed as and how he should be able to find time to do so, but that no Report for 1940 could be contemplated.

At the Annual General Meeting which followed, presided over by the Chairman, the Rt. Hon. H. T. Baker, the recommendations and decisions of the Committee were approved, and the Reports of the Acting Secretary and Treasurer were adopted. The Officers were re-elected, and Mr Francis Druce was elected Acting Secretary.

Owing to the conditions prevailing in London, no meeting of the Committee took place in the autumn of 1940.

A meeting of the Committee was held on March 26th, 1941, at which it was decided that owing to the non-publication of the Reports the Annual Subscription should be reduced for the time being to 5s per annum, should the following Annual General Meeting agree, and that amounts already received or later sent in excess of that amount should be carried forward towards future subscriptions. The Chairman reported that in June 1940 he had received a letter from the Hon. Editor stating that the organisation of the local Defence Volunteers in Fare-

ham—a task urged upon him which he felt unable to refuse—left him with absolutely no leisure to devote to the Society's affairs, and that as he saw no likelihood of being able to deal with the outstanding Reports in the near future, he asked to resign. After appreciation of the valuable services given by the Hon. Editor had been expressed, it was decided that he should be asked to continue, the Reports being left until he should again be able to attend to them. As the medium of the Reports was not available, it was decided to communicate with members by means of a circular letter [; but this fell through owing to the tragic death of the Acting Secretary shortly after the meeting]. In presenting his financial statement, the Treasurer explained that as Mr Pugsley had not been available to audit the accounts, he had arranged for this to be done by Mr Leadbitter, and it was left to the Treasurer to arrange for the audit next year.

As it had been found necessary in existing circumstances to make some departure from the Rules of the Society it was decided that while the Rules should be adhered to so far as possible, no General Meeting should be required for action so taken necessitated by the state of emergency, and that the Chairman and Vice-Chairman together should have power to act on behalf of the Society in any emergency that should arise.

At the Annual General Meeting held the same afternoon the Reports of the Acting Secretary and Treasurer were adopted and the Officers and Committee were re-elected.

A meeting of the Committee, called by the Chairman and Vice-Chairman, was held on October 22nd, 1941, to consider and make arrangements to meet the situation that had arisen through the deaths of the Hon. Treasurer and Hon. Editor in April and August respectively. It was decided that Mr A. J. Wilmott, who owing to the death of the Acting Secretary had made the arrangements for the meeting, should continue as Acting Secretary, that Mr J. E. Lousley should be Acting Treasurer, and that Messrs E. C. Wallace and A. J. Wilmott should be Acting Joint Editors, Mr Wallace having first been co-opted to the Committee. It was decided that the Reports for 1938 and 1939 should be completed as soon as possible, and that if it would save expense the two parts of the 1939 Report could be issued in a single cover. It was agreed that a Report for 1940 should be produced on the usual lines from the material available in Mr Hall's files* and that this should include all ascertainable alterations of addresses and also indication of which members of the Society's Panel of Referees were still available for the determination of specimens. It was agreed that in general all material available for Reports should be published. It was decided that a notice should be sent to all members informing them of the present state of the Society's affairs, and in particular of the reduction of the

*As most of this material was found to belong to the Report for 1939, the Report for 1940, which by itself would have been very slender, has been combined with that for 1939.—ED.

Annual Subscription and of the causes of the enforced changes of officers. Dr R. C. L. Burges and Miss E. Vachell were co-opted to the Committee.

A meeting of the Committee was held on March 25th, 1942, followed in the afternoon by the Annual General Meeting, presided over by the Chairman, the Rt. Hon. H. T. Baker, at which about 20 members attended. The reports of the Acting Secretary and Acting Treasurer, sent out with the notice calling the meeting, were adopted. Mr Wallace's report for the Acting Editors was also adopted. The subscription for 1943 was fixed at the reduced rate of 5s in view of the non-publication of any Reports in 1940 and 1941. The Hon. Acting Treasurer explained his reconstruction of the accounts, and it was agreed that the Society owed him—and the auditor, Mr Pugsley—a great debt of gratitude for the laborious work which had been so successfully accomplished. It was agreed that in future lists of members the names of Life Members should be specially indicated. The following officials were elected: —Hon. Acting Secretary—Mr A. J. Wilmott; Hon. Treasurer—Mr J. E. Lousley; Hon. Joint Editors—Messrs E. C. Wallace and A. J. Wilmott. Mr H. W. Pugsley was appointed Auditor. Messrs J. F. Pickard, W. R. Sherrin, and E. W. Swanton were elected Corresponding Members of the Society. An offer made by Mr E. G. Baker to bequeath to the Society a portrait in oils of his father, Mr J. G. Baker, was accepted; the portrait, by Wilson Foster, 41 by 36 inches in size, was hung in the Royal Academy exhibition, and was the subject of a famous cartoon in " Punch."

HONORARY ACTING SECRETARY'S REPORT.

Somewhat before the outbreak of war, the Hon. Secretary was mobilised for active service with a Territorial A.A. Battery. At the Chairman's suggestion Mr Francis Druce, our Treasurer, undertook the Secretarial work also. Following the Committee Meeting called to settle emergency matters, members were notified early in November 1939 of the arrangements which had been made. The conditions in London in the autumn of 1940 were such that no meeting of the Committee was held, but the Annual General Meeting, preceded by a meeting of the Committee, was held as usual in March 1941, except that the attendance was naturally much reduced.

In April 1941 misfortunes began to fall on the Society. By enemy action it lost its Treasurer and Acting Secretary, together with the Society's documents in his charge. In May the Editor became seriously ill. In addition to his arduous work as Chairman for Hampshire of the Live Stock Control of the Ministry of Food, he had in May 1940 responded to an appeal to organise personally the Fareham Platoon of the local Defence Volunteers. The effects of his overwork had begun to show in March 1941, when he was far from well. In August, when a return to health seemed likely, a sudden relapse proved fatal. The

Society owed much to the energy and capacity of these two, and their loss, together with the absence of the Hon. Secretary, left the Society without executive officers. Acting under their emergency powers, the Chairman and Vice-Chairman arranged that Mr A. J. Wilmott should undertake the secretarial work for the time being. A meeting of the Committee was called, at which the arrangements necessary for carrying on the work of the Society were made. An account of the recent events was issued to all members in November 1941, in the form of a Report on the State of the Society's Affairs. With this Report was included a form to be filled up by members in order to provide the Acting Treasurer with the data necessary for a reconstruction of the destroyed accounts and membership list.

The stock of the Society's publications at Yardley Lodge has been set in order through the kindness of Dr Polunin, in whose charge, on behalf of the University of Oxford, the herbarium of Dr Druce now is. Arrangements have been made for supplying from this stock the wants of members, who should apply to the Acting Secretary. Very few copies of the *Comital Flora* are now left.

Just as it appeared that the misfortunes of the Society had been largely overcome, another blow has fallen upon us through the death of Mr R. H. Corstorphine, who, as Managing Director of T. Buncle & Co. Ltd., for so long has dealt so admirably with our publications. His knowledge and sound judgment have been of invaluable service to the Society. I am glad to be able to state, however, that the firm which he so ably managed will continue their connection with the Society.

A. J. WILMOTT.

HONORARY TREASURER'S REPORT.

The financial affairs of this Society had been in the very capable hands of the late Francis Druce since March 17th, 1937, when he was elected Treasurer after acting in that capacity for about six months. Under his guidance the monetary position of the Society was greatly improved and the Committee had learned to place complete confidence in his sound judgment.

The calamity which deprived the Society of its Treasurer also destroyed the books of account, and when I took over the work of reconstruction on October 22nd, 1941, the only record of transactions carried out during the early part of the year came from a duplicate statement of the Banking Account which was kindly supplied by the Westminster Bank Ltd. It was therefore necessary to appeal to members for the details necessary to reconstruct the accounts; a procedure not without precedent in the history of the B.E.C. After the famous fire at Thirsk three-quarters of a century ago, the then Treasurer, R. D. Carter, sent out a circular dated May 23rd, 1864, appealing to members for information similar to that for which we had to ask on December 1st, 1941.

In the new books of the Society it was necessary to open a " Suspense Fund," to which was credited the difference between the assets shown on the Balance Sheet published on December 31st, 1940, and those traced at the date I took over. Entries to this account were passed as receipts and payments made during the early part of the year were traced. The balance of £30 11s 0d which remained on this account when the books were closed for the year is probably almost entirely composed of subscriptions paid to Mr Druce for which members have not submitted claims. To this extent the figure of £118 12s 9d shown as " Subscriptions Received during 1941 " shows a less serious decrease on the corresponding figure for 1940.

Owing to the considerable number of "Reconstruction Forms" which had not been returned by the end of the year it was not possible to show the amount of " Subscriptions paid in advance " as a separate figure in 1941 accounts, but this practice will be resumed in 1942.

In interpreting the Balance Sheet it must be remembered that the cost of the Distributor's Reports for 1938 and 1939, and the Editor's Reports for 1939, 1940, and 1941 has yet to be charged to the balance of the General Fund.

The subscription for 1941, 1942, and 1943 has been reduced to 5/- per annum for both Ordinary and Exchange Members. This is merely a temporary war-time measure intended by the Committee to allow for the enforced reduction in our publications. Any amounts overpaid will be carried forward to the subscribers' credit for the following year. Several members have generously expressed a wish to continue payment at the old rates. All subscription accounts have been made out in triplicate—copies being held also by Messrs Wallace and Wilmott. This arrangement will be continued while the present emergency exists.

Finally, I wish to express gratitude to those members who returned the " Reconstruction Forms " promptly, and thus facilitated the production of the new accounts and of the new membership list which is considered separately below. To our Hon. Auditor, Mr H. W. Pugsley, I should like to add my personal thanks to those of the Society for the trouble he took in auditing the accounts in a year with so many complications.

J. E. Lousley.

REPORT ON THE RECONSTRUCTION OF THE MEMBERSHIP LIST.

At the time of his death Mr Francis Druce was not only Treasurer of the Society, but also Acting Secretary owing to the absence of Mr John Chapple with H.M. Forces. It thus happened that the membership records were destroyed at the same time as the books of account. The new Treasurer undertook the reconstruction of both sets of records.

Fortunately, a list of members revised to 1939 had been published in the Report for 1938, and this list, subject to corrections known to

the officers (assisted by Mrs Foggitt and Lady Davy) was used to send out on December 1st, 1941, a form which members were asked to complete. The response was very gratifying, and by January 15th, 1942, only 170 members had failed to reply. Further correspondence and enquiry, in which the Treasurer received great assistance from Mrs Foggitt and other members of the Committee, reduced the number outstanding to 44, and efforts are still being made to get in touch with these former members.

The printed list of members in 1939 was made up as follows:—

Honorary Members	24
Corresponding Members	3
Ordinary and Exchange Members ...	419
Total Membership	446

Of these members, 37 have resigned; we have been advised of the death of 30; two state that their names were included in error, and, as mentioned above, 44 have failed to reply. We have added 9 new members to our list, which therefore now totals 342.

Since the last Report we have been advised of the death of the following members:—Miss Lucy Burton, Mrs Barrow Cadbury, Lady Gwendoline Churchill, Mrs James Farrer, Mrs B. Gambier-Parry, Viscountess Gladstone, Mrs H. Graham, Mrs E. M. Macalister Hall, Mrs R. Newman, Lady Margaret Watney, Mrs C. L. Wilde, Miss W. Wilkinson, Monsieur P. Riencourt de Longpré, Rev. Preb. R. J. Burdon, Sir Jeremiah Colman, Col. H. H. Johnston, Rev. H. J. Riddelsdell, Principal A. H. Trow, and Messrs J. E. Arnett, T. Bates Blow, R. H. Corstorphine, Francis Druce, R. J. Flintoff, H. J. Gibbons, Patrick M. Hall, I. Helsby, R. W. Robbins, Lionel de Rothschild, W. A. P. Sprott, and G. Cresswell Turner. Many of the names in this list will be familiar as those of botanists who have in the past done much to further the aims of the Society—their loss is a very serious blow.

The following have resigned:—Miss Winifred Bigg, Miss Violet E. D. Birchall, Lady Colquhoun, Mrs Colville, Lady Edgar, Mrs H. Foster (née Baring), Miss C. S. Fry, Miss C. E. Godman, Miss E. Godman, Miss M. Grenfell, Lady Moyra Loyd, Miss Ann McQuire, Mrs H. Manfield, Lady Evelyn Mason, Miss Narcissa C. Massy, Mrs Oddy, Mrs R. Orme, Miss Mary M. Pinkett, Miss M. de Winton; Rev. W. H. Blythe Martin, Bournemouth Natural Science Society, Dr H. W. Daltry, Board of Greenkeeping Research, Lord Macmillan, Manchester Public Libraries, National Institute of Agricultural Botany (Cambridge), Oxford City Library, Prof. F. E. Weiss, and Messrs W. C. Barton, T. A. Dymes, H. Foster, L. Beeching Hall, F. W. Holder, James Jack (of Arbroath), Joshua Lamb, David Nutt (as Agent), and Hugh Phillips. Many of these resignations date from the early days of the war, and we hope that a large proportion of them will prove to be only temporary.

J. E. Lousley.

HONORARY JOINT EDITORS' REPORT.

The causes of the late appearance of the Society's Reports are indicated in the Summary of Proceedings of Meetings and Report of the Acting Secretary. When Mr Chapple was mobilised, some of the material required for the second part of the Report for 1938 was still outstanding, both from leaders of excursions and from some of the Referees in connection with the plant distribution. Mr Hall's attempts to obtain these were only partially successful. Some of this needed material had been sent to Yardley Lodge, but in Mr Chapple's absence it could not be found. The Reports of the Distributors for 1938 and 1939 were therefore completed by Mr Hall as far as he was able to do so, and corrected proofs of both were returned to the printers. Mr Hall subsequently became so fully engaged in war work, both day and night, that he had absolutely no free time to devote to these matters before he became ill, and these proofs remained with the printer until they were returned to the Acting Secretary in the autumn of 1941.

Our first duty in the capacity of Joint Editors was to prepare and send out the much needed Report on the State of the Society's Affairs, but at the same time requests were sent to all who had led excursions in 1938 and 1939 to send in accounts of those which they had conducted. We would now express our thanks to all those who after so great a lapse of time prepared these accounts so that our Reports could be brought up to date. As Mr Hall had already completed the Distributor's Report for 1938, except for enlarging his Editorial introduction to bring it up to date, we considered it best to leave that part unaltered, and merely add to the second part of the Report for 1938 the promised account of the excursions held in that year and an introductory paragraph.

The " Plant Records " and papers for the Report for 1939 had been filed ready for attention by Mr Hall, and only required editing. As no extra material, except for a few " Plant Records," had been received towards a Report for 1940, it seemed best to deal with these two years together, especially as there was no Distribution for 1940. " Plant Notes " have been compiled as in the past. Some Abstracts from Literature have been added, mostly supplied by Messrs H. A. Hyde and A. E. Wade, but circumstances have not permitted this section to be dealt with as fully as usual. The Summary of Proceedings of Meetings had perforce to be reconstructed from memoranda and memory, as the Society's documents had been destroyed, but an endeavour has been made to bridge the gap between the publication of the first part of the Report for 1938 and the present time. The leaders of the excursions held in 1939 all supplied accounts of them, with the exception of Mr Chapple, who is not in a position to do so, but several of those who took part in the Mull excursion have supplied information for the preparation of the account included here, and to them we offer special thanks. We hope that with the publication of the present Report all outstand-

ing matters will have been dealt with. Every effort has been and will be made to maintain the standard of our Reports, but as regards future Reports, little material is at present available. Those who have any Plant Records or papers suitable for publication should send them to either of the Joint Editors.

The additions and corrections entered by Mr Hall in his copies of the *Comital Flora* and *Plant List*, ed. 2, in preparation for new editions of these works, the former nearly out of print, have been or are being entered into their own copies by the Joint Editors and the Treasurer, as a safety measure to avoid the loss of so great an amount of work should Mr Hall's copies be destroyed. The card-indexing of Plant Records begun by Mr Hall is being continued by Mr Wallace.

E. C. Wallace; A. J. Wilmott.

OBITUARY.

Harold Stuart Thompson, A.L.S. (1870-1940). Although H. Stuart Thompson was better known as an official of the Watson Botanical Exchange Club, he was a member of our Society for a time after the closing of the other Club in 1934. He was born at Bridgwater, a member of a Quaker family, and educated at Sidcot, Bootham, University College, Bristol, and Christ's College, Cambridge. Much of his time before the last war was spent on the Continent, when he produced books on Alpine plants, followed later (1914) by *Flowering Plants of the Riviera*. After the war he settled in Bristol and became well known and respected by a wide circle of Somerset and other botanists. He was most generous with his duplicate plants and, before he died, gave away most of his herbarium to the Universities of Birmingham and Reading. He was a frequent contributor to the *Journal of Botany*, and also to *The Field*, writing on many branches of natural history. Water-colour drawings and photography were other interests carried on during a full life.

E. C. Wallace.

PERSONALIA.

FLORA OF HERTFORDSHIRE (v.-c. 20).

The Hertfordshire records of the late J. E. Little are with Mr A. G. Harrold (5 Baron's Gate, East Barnet), who is working on the Flora of the county on behalf of the Hertfordshire Natural History Society.

FLORA OF BEDFORDSHIRE (v.-c. 30).

Our member, Mr J. G. Dony (41 Somerset Avenue, Luton) is working on the Flora in spite of the prevailing conditions. Through the kindness of Miss K. D. Little, the Bedfordshire records of her late father,

Mr J. E. Little, have been transcribed by Mr Dony, who is assisted by several local botanists. Anyone able to do field work in the county is invited to communicate with Mr Dony. Helpers with other researches would be welcomed.

REPORT ON THE EXCURSIONS ARRANGED IN 1939.

Five excursions were arranged, four of which took place.

June 17-18. Oxfordshire and Northamptonshire, v.-cc. 23 and 32. Elm Hunt. Leader: Dr R. Melville.

Most botanical excursions have as their objective one or a few small pieces of territory which are examined in some detail. This plan could hardly be followed where a study of our native elm population was concerned as it was necessary to range over a large area. This elm hunt was essentially a mobile affair.

Eight, shall I say mechanised, botanists met at Oxford and proceeded via Oddington to Charlton on Otmoor, where some interesting and graceful hybrids of *Ulmus Plotii* Druce were examined as well as a number of Dutch elms, *U. hollandica* Mill. var. *major* Rehd., many of which were ravaged by elm disease. The route then lay by Bletchington and Bloxham to Banbury. On the way a densely pubescent form of *U. glabra* Huds. was examined with leaves as narrow as the var. *montana* Lindquist, and a number of individuals of the hybrid *U. glabra* × *Plotii* mostly with the habit of *U. glabra* and various combinations of the leaf characters of the two species. At West Barr Street, Banbury, the type tree of *U. Plotii* was studied as well as some young specimens and several hybrids. Then followed a short trip along the Warwick road to inspect some fine trees of Moss's *U. nitens* var. *Sowerbyi* and back into Banbury to stay the night.

The hunt continued in Northamptonshire on the Sunday, which was marred by showery weather, by way of Thorpe Mandeville and Abthorpe to Towcester, in country not previously explored for elms by any of the party. Forms of the hybrid *U. glabra* × *Plotii* were frequent and in the Abthorpe area hybrids of *U. Plotii* with another species, probably *U. carpinifolia* Gleditsch., were observed. The Plot elm itself was notably absent from this region, which consists largely of low rolling hills, and was not seen again until the afternoon, when a number of trees of all sizes were found along the river at Towcester. Tea was obtained in Towcester and the party then broke up. It was generally agreed that further excursions to survey the distribution of critical species and genera in the flora would add much to our knowledge.

R. M.

June 30-July 3. Pembrokeshire, v.-c. 45. Leader: Mr A. E. Wade, F.L.S.

Seventeen members and friends attended, most of whom stayed at headquarters, the Castle Hotel, Haverfordwest. In spite of the very poor weather experienced in June and July, we were fortunate in having a fine week-end. Each morning the party set out at about ten o'clock, provided with sandwich lunch; tea being taken on Saturday and Sunday at Goodwick and Tenby respectively.

Saturday, July 1st. A visit was paid to the marshes and pools at Mathry and the fields and cliffs at Strumble Head; the outward journey was made via Treffgarne Rocks and the homeward journey via the picturesque Gwaun Valley. The Treffgarne Rocks and an extensive marsh in the Gwaun Valley were examined. The latter place would well repay further exploration.

Sunday, July 2nd. The salt marshes by the Eastern Cleddau and the Daucleddau were examined at Minwear, Lawrenny, Garron Pill and Carew. Canastan and Minwear woods were visited and short stops were made at several places to examine small marshes.

Monday, July 3rd, was spent on the coast near Marloes; a short stop was also made at Broadhaven on the outward journey. As most of the members wished to return home on this day the party returned to Haverfordwest for tea.

An effort was made during this week-end to avoid as far as possible the more or less well-worked parts of Pembrokeshire and to concentrate upon botanically unworked areas.

PLANTS OBSERVED IN PEMBROKESHIRE.

Ranunculus Baudotii Godr. Pool, near Mathry.
Aquilegia vulgaris L. Near Holloway Farm, near Tenby.
Fumaria Boraei Jord. Near Strumble Head and near Marloes.
Nasturtium officinale R. Br. var. *microphyllum* Boenn. Martin's Haven.
Brassica nigra L. Broadhaven.
Diplotaxis tenuifolia (L.) DC. Haverfordwest.
Lepidium Smithii Hook. Near Marloes and near Strumble Head.
Viola canina L. emend. Rchb. Strumble Head.
Polygala dubia Bellynck. Broadhaven.
Silene maritima With. A compact form with small leaves, 5-12 × 2-4 mm. Cliff edges, Martin's Haven.
S. anglica L. Cultivated fields and roadsides near Marloes and near Strumble Head.
Lychnis alba Mill. × *dioica* L. Near Strumble Head.
Cerastium tetrandrum Curt. Martin's Haven.
Stellaria Dilleniana Moench em. Druce var. *palustris* (Retz.) Druce. Near Mathry.
Sagina subulata (Sw.) Presl. Abundant at Martin's Haven and Strumble Head.
S. maritima Don. Salt marsh by Minwear Wood.
Spergularia rupicola Lebel ex Le Jolis. Near Gateholm Island, Marloes, and Martin's Haven.
S. marginata (DC.) Kittel. Garron Pill.
S. rubra (L.) J. & C. Presl. Near Strumble Head.
Hypericum Androsaemum L. Minwear Wood.
Geranium lucidum L. Lawrenny.

Erodium maritimum (L.) L'Hérit. Martin's Haven.
Trifolium scabrum L. Fishguard.
Lotus uliginosus Schkuhr. var. *glaber* Bréb. Near Mathry.
Prunus domestica L. Carew.
Potentilla reptans L. var. *mollis* Borb. Near Marloes Mere and Treffgarne Rocks.
P. palustris (L.) Scop. Llanerch, Treffgarne Rocks and near Mathry.
Rosa tomentosa Sm. Llambed Farm, near Mathry [S.].
R. spinosissima L. Near Strumble Head.
**Callitriche intermedia* G. F. Hoffm. [S.], growing with the var. *pedunculata* (DC.) Druce. Near Mathry.
Peplis Portula L. Near Mathry and Llanerch.
Apium graveolens L. Carew and Haverfordwest.
A. inundatum (L.) Rchb. f. Near Mathry.
Carum verticillatum (L.) Koch. Near Gumfreston and near Redberth.
Oenanthe Lachenalii C. Gmel. Salt marsh by Minwear Wood.
Valeriana officinalis L. f. *dentatifolia* (Druce) Drabble. Near Treffgarne Rocks.
Achillea Millefolium L. var. *lanata* Koch. Near Strumble Head.
Inula Helenium L. Near Holloway Farm, near Tenby.
Petasites fragrans Presl. Lawrenny.
Senecio sylvaticus L. Broadhaven and near Strumble Head.
**Oxycoccus quadripetalus* Gilib. Near Llanerch, Gwaun Valley.
Samolus Valerandi L. Salt marsh by Minwear Wood and Martin's Haven.
Centaurium umbellatum Gilib. var. *subcapitatum* (Corb.) Gilmour. Strumble Head and Martin's Haven.
Menyanthes trifoliata L. Near Llanerch, near Treffgarne Rocks, and near Mathry.
Solanum Dulcamara L. var. *ovatum* Dunal. Near Gumfreston.
Linaria vulgaris Mill. A tall broad-leaved form, the leaves measuring 45-55 × 7-12 mm., near Strumble Head.
Digitalis purpurea L. var. *nudicaulis* Saunders. Near Strumble Head.
Veronica scutellata L. Near Mathry.
Euphrasia micrantha Rchb. With purplish flowers, Strumble Head [S.].
E. occidentalis Wettst. Broadhaven, Strumble Head and near Martin's Haven. The latter with unusually large flowers. Det. H. W. Pugsley.
E. confusa Pugsl. f. *albida* Pugsl. Near Mathry. Det. H. W. Pugsley.
E. brevipila Burnat & Greml. Canaston Wood. Det. H. W. Pugsley.
Pedicularis palustris L. Near Mathry.
Thymus neglectus Ronn. Strumble Head.
T. britannicus Ronn. Broadhaven, Strumble Head and near Marloes.
Satureia ascendens (Jord.) Druce. Lawrenny.
Prunella vulgaris L. A form with pale blue or pale bluish lilac flowers, abundant in pastures near Strumble Head.
Stachys officinalis (L.) Trev. var. *hirta* (Leyss.) Rouy. Strumble Head and near Marloes.
Galeopsis Ladanum L. var. *angustifolia* Pers. Railway track, Treffgarne Rocks.
Rumex crispus L. var. *trigranulatus* Syme. Carew.
*×*Ulmus hollandica* Mill. Carew.
Salix pentandra L. Near Letterston.
S. repens L. var. *fusca* (L.) Wimm. & Grab. Near Redberth.
Orchis latifolia L. sec. Pugsl. var. *pulchella* (Druce) Pugsl. Near Mathry. Near Llanerch, Gwaun Valley, det. P. M. Hall [S.].
O. ericetorum (Linton) Marshall × *latifolia* L. sec. Pugsl. var. *pulchella* (Druce) Pugsl. Near Llanerch, Gwaun Valley, det. P. M. Hall [S.].
Scilla verna Huds. Strumble Head.
Juncus effusus L. var. *compactus* Lej. & Court. Near Redberth.
Baldellia ranunculoides (L.) Parl. Near Mathry.
Potamogeton Berchtoldii Fieb. (*P. pusillus* auct.). Near Mathry.
Scirpus Tabernaemontani C. Gmel. Salt marshes by Minwear Wood and Fishguard.
S. cernuus Vahl. Marloes Mere.

S. fluitans L. Marloes Mere.
Carex rostrata Stokes in With. Near Mathry, near Llanerch and Treffgarne Rocks.
C. helodes Link. Near Llanerch and Canaston Wood.
C. distans L. Salt marsh by Minwear Wood.
C. Hostiana DC. (*C. fulva* Host non Good.). Near Llanerch.
C. extensa Good. Carew.
C. divulsa Stokes. Lawrenny.
C. paniculata L. Near Llanerch and Minwear Wood.
C. diandra Schrank. Near Mathry.
Anthoxanthum odoratum L. var. *villosum* Lois. Near Marloes.
Agrostis canina L. var. *mutica* Gaud. Near Treffgarne Rcoks.
Arrhenatherum tuberosum (Gilib.) Druce. Near Marloes.
Glyceria fluitans (L.) R. Br. var. *triticea* (Fr.) M. T. Lange. Marloes Mere.
Bromus lepidus Holmb. Near Strumble Head [S.].
Agropyron repens L. var. *Vaillantianum* (Wulf. ex Schweigg & Koerte) R. & S. Carew.
Asplenium marinum L. Strumble Head.
Athyrium Filix-foemina (L.) Roth var. *convexum* Newm. Treffgarne Rocks.

Specimens of most of the above are in the National Museum of Wales: some additional plants collected by Mr N. D. Simpson are indicated by "[S.]."

A. E. WADE.

July 15. Gloucestershire, v.-c. 33. A Day in the Neighbourhood of Gloucester. Joint Meeting with the Cotteswold Naturalists' Field Club. Leaders: Mr J. W. Haines and Mr G. B. Milne-Redhead.

Eleven members of the B.E.C. attended this excursion, the main object of which was to visit the Brick Pits at Walham, which is just outside Gloucester on the river bank near Sandhurst. The weather was unfortunately bad and much rain fell, but the spirits of the party were by no means damped. The brick pits, which are now disused and full of water, contain an incredible mass and variety of water plants. Waste ground in the neighbourhood was prolific in aliens. The following plants were observed:—*Ranunculus arvensis* L.; *Sisymbrium altissimum* L.; *Lepidium ruderale* L., abundant; *Coronopus didymus* (L.) Sm.; *Oenanthe aquatica* (L.) Poir.; *Erigeron canadensis* L.; *Senecio vulgaris* var. *radiatus* Koch, with very large flowers; *Lysimachia Nummularia* L.; *Epilobium adenocaulon* Hausskn. (an interesting alien first observed in Gloucestershire near Stroud during the last war and now spreading widely and hybridising with native species); *Myosotis palustris* (L.) Hill approaching var. *strigulosa* (Reichenb.); *Scutellaria galericulata*, *Carex Otrubae* Podp. (*C. vulpina* auct. non L.); and several Characeae which were taken by Mr Ash for further examination.

Lunch was taken under somewhat damp conditions, and the party then proceeded a short distance in the direction of Sandhurst to a pond where *Rumex maritimus* L. was found. The fruiting plants were of a striking golden appearance; their presence here seems to be due to their proximity to the brackish river Severn, a short distance away, though there is no water connection except in flood time. *Eleocharis multicaulis* Sm., the distribution of which is little known, as it is seldom recorded, was found round here.

A visit was then paid to some withy beds on the water meadows beyond Westgate Bridge, where the uncommon grass *Poa palustris* L. was seen. In a withy bed on the Gloucester side of Over Bridge Mr Ash found a plant of ×*Stachys ambigua* Sm.

A good tea was obtained at the Dog Inn at Over, after which the party divided. Mr Milne-Redhead took some members to visit the Cold Pool Nature Reserve at Badgeworth near Cheltenham, where *Ranunculus ophioglossifolius* Vill. is preserved by the Society for the Promotion of Nature Reserves. The preservation of this rare British plant is entirely due to the generosity of the late Mr G. W. Hedley of Cheltenham, former Secretary of the Botanical Sub-Committee of the C.N.F.C., who in 1933 purchased the pond when it was in imminent danger of being filled up. Since then the plant has been carefully preserved and systematic observations have been made of its biology and recorded in the Proceedings of the C.N.F.C. In good years when in full flower the whole pond is coloured with it, but such years are periodic and depend not only on the amount of rainfall, but more especially on its distribution. Unfortunately this year was not a good one.

Mr Haines took the remaining members to Crickley Hill, near Birdlip, now the property of the National Trust, where *Polygonatum officinale* All. and *Herminium Monorchis* (L.) R. Br. were seen. A large clump of *Galium erectum* Huds. was observed by the roadside at Ullenwood.

W. R. PRICE.

July 25th to 31st [to August 11th]. V.-c. 103. The Island of Mull. Leader, Mr J. F. G. Chapple. [Compiled by A. J. Wilmott.]

In addition to the leader, ten members took part, viz.:—Mrs Bull, Miss Cadbury, Mrs Evetts, Mrs Gomeral, Lady Edith Legard, Miss Swain, Miss Taylor, Mr Temperley, Mr Templeman, and Miss Vachell. A request for some account of the excursion was therefore sent to each of these, and the present compilation has been made from the replies received, which are now gratefully acknowledged. The most detailed account was sent by Mr Templeman, and this compilation is largely based on his MS., from which the quotations made have been taken.

Mr Chapple was mobilised soon after he returned from this excursion and is unable to prepare an account of it himself. He tells me that the specimens which he took for critical examination were sent to Mr Hall, but unfortunately they have not yet been found. A complete account cannot therefore be given of the botanical results, but as it is uncertain when the next Report will appear, it seemed better to prepare as good an account as possible now, rather than omit all description of this interesting expedition. A few specimens were given to the British Museum herbarium by Mr Templeman in January 1940, and others are in Herb. E. Vachell, but some of the records may require confirmation from the main series taken by the leader.

It is generally agreed that the whole excursion was admirably arranged and most enjoyable, and that John Chapple proved both an

excellent leader and most capable organiser. Each evening after dinner members met at the Western Isles Hotel to discuss the day's finds and to make a list of all the plants seen. It is a great pity that Mr Chapple's data cannot be found, so that a suitable finish could be put on his efforts. The chartering of a bus for transport was generally approved, for it kept the party together and did away with unnecessary delays.

At selected spots the bus was stopped, and the members of the party explored lochs, marshes, or rocks at will. Unfortunately the weather was not fine and Ben More (3169 ft.) remained too continuously enshrouded in mist to be explored by the whole party.

July 25th. After lunch the bus conveyed the party to the high ground near Tobermory Reservoir, fully a mile above the town, where *Subularia aquatica*, *Pinguicula lusitanica*, and *Potamogeton alpinus* were among the plants found. The route thence was by Loch Peallach (with *Botrychium Lunaria*, etc., nearby) and the chain of Mishnish Lochs to Dervaig (near the head of Loch Cuan), where a salt marsh was found to contain *Scirpus rufus*, *Carex extensa*, and other interesting plants. The next stop, at Calgary Bay, provided the best botanising of the day, on the sands and also on the rocky shore on the north side, towards and beyond the pier.

July 26th. The party proceeded in the bus from Tobermory along the S.E. high road (with views over the Sound of Mull to Morven) to Aros and Salen, then across to and along the southern shore of Loch na Keal to the Gribun, obtaining on the way fine views of Inch Kenneth Island, Staffa, the Dutchman's Cap and other Treshnish Isles, etc., and observing *Saxifraga aizoides* and other hill plants on rocks by the roadside near sea-level opposite Eorsa Island. The road along Glen Seilisdeir was then followed to and around the shores of Loch Scridain via Kinloch, Pennyghael, and Bunessan to Fionphort and the Iona Ferry. On this granitic portion of the Island nothing of special interest was seen, but in the bogs *Pinguicula lusitanica*, *Drosera anglica*, *Anagallis tenella*, and *Schoenus nigricans* were noted. On the sands and granite rocks *Arctostaphylos Uva-ursi* was found in plenty. The party also examined Loch Poit ha h-I (with marsh plants, orchids and *Utricularia minor*, etc.) and the small and interesting boggy tarn of Loch an t'Suidhe, near Bunessan, where *Nymphaea alba*, *Cladium Mariscus*, *Rhynchospora alba*, *Carex limosa* and *C. lasiocarpa* were seen. On the way back, turning off by Pennyghael, Carsaig was reached, where *Campanula latifolia* and *Lepidium Smithii* were found. Returning to Pennyghael, the outward route was followed to Tobermory.

July 27th. A circular bus tour afforded a fine opportunity of seeing the island. The first stop was at Aros, where a few specimens of *Avena strigosa* were seen amongst the crop in a cornfield. The salt-marsh on the way to Aros Castle contained *Cochlearia anglica*, *Suaeda maritima* and *Salicornia herbacea*. Near Aros Cottage †*Cotoneaster microphylla*, †*Campanula Trachelium*, and *Sagina subulata* were seen, and on Aros Castle rocks *Sisymbrium Thalianum* was found. The bus continued

via Salen across to the northern shore of Loch na Keal, where near Kellan several interesting plants were observed:—*Radiola Linoides* and *Centunculus minimus*, *Mimulus guttatus* and *M. moschatus*, *Carex distans*, also *C. Hostiana* and *C. flava*. *Galeopsis speciosa* was in fine condition in the fields. The motor then followed the coast road northwestwards (fine views of Ulva and Gometra Islands and the Treshnish Isles were obtained), past Torloisk with *Campanula latifolia*, *Quercus petraea* (*sessiliflora*), etc., in the woods, and over to Calgary Bay. The woods at Calgary produced *Cirsium heterophyllum*, *Dryopteris Linneana* and *D. Phegopteris*, etc. A second search on the north shore of Calgary Bay produced some additional species, including *Sagina apetala*, *Ligusticum scoticum*, *Carlina vulgaris*, and *Orobanche rubra* growing on *Thymus* on the slopes above the rocks. The return was made via Dervaig and the Mishnish Lochs.

July 28th. The day was spent in visiting Loch Spelve and Loch Buie in the south-east of the Island, a district which promised well, but the climatic conditions made plant-hunting very difficult. Botanising a short distance up Glen Lirein from Oakbank, *Osmunda regalis*, *Galium boreale*, oak and beech ferns, etc., were found. On the shore and cliffs at Loch Buie the finds included †*Meconopsis cambrica*, *Corydalis claviculata*, *Geranium pratense* (plentiful near the old castle), *Scirpus maritimus*, *Cystopteris fragilis*, *Asplenium marinum* and *A. Trichomanes*. Return was made over the same route.

July 29th. The route taken was via Salen and the south shore of Loch na Keal round the foot of Ben More. Near Balnabard, marsh and sands by the shore produced *Parnassia palustris*, *Oenanthe Lachenalii*, and *Gentiana campestris* var. *baltica*. The party had the pleasure of seeing some mountain plants at last, by climbing into the mist to explore the Gribun rocks at the base of the Ben More massif. Near sea-level there occurred *Silene acaulis*, *Sedum Rosea*, *Saxifraga aizoides*, and *Asplenium marinum*. At the foot of the rocks of Creag Brimishgan were *Saussurea alpina* in unusual abundance and beauty, with *Carex Bigelowii* (*C. "rigida"*) and Saxifrages—*S. aizoides*, *S. platypetala*, *S. oppositifolia* and *S. stellaris*—all below 1000 ft. O.D. *Trollius europaeus* and *Cirsium heterophyllum* were also seen. Some members of the party ascended to the top of Dunan nan Nighean, finding *Schoenus nigricans*, carices, and bog plants, etc. On the way down by the waterfall to Derryquaig, much ivy of a narrow-leaved variety was seen on the streamside rocks, also several subalpine plants noted above.

July 30th. In the morning some members of the party explored the grounds of Aros House (the "Drumfin Woods" of G. Ross's "Flora of Mull") and saw "an interesting woodland flora, including *Pyrola minor* (not *P. media*), *Neottia Nidus-avis*, *Rubus saxatilis*, *Cirsium heterophyllum*, *Veronica montana*, beech and oak ferns, *Prunus Padus*, *Circaea intermedia* (not *C. alpina*), *Carex sylvatica* and *C. remota*, *Milium effusum*, *Poa nemoralis*, *Calamagrostis epigeios*, and other ferns and grasses, etc. The introduced shrubs included *Pernettya*, *Andromeda*

japonica, etc. *Juncus macer* was seen on a pathway and both yellow and white water-lilies in the lake (Lochan a Ghurabain)." In the afternoon several of the party proceeded on foot from Tobermory over by the Golf Course (with *Juncus macer*) towards the lighthouse and along the cliffs towards Bloody Bay. Here along the sea-cliffs there was a good show of *Sedum Rosea*, *Juniperus*, sea-pinks, sea-campions, etc., and a few interesting bog and marsh plants were found a short distance inland.

July 31st. The excursion ended, and most of the party returned by the morning boat from Tobermory. Mr Templeman, however, remained until Aug. 1st, and after visiting Iona from Aug. 3rd to 7th, returned to Tobermory from Aug. 8th to 11. As Mull has been so little explored and his explorations arose out of and continued the work of the official expedition, the results of his further stay are appended to the account of the excursion proper, and the plants noted included in the list of plants found, but within ( ). On the 31st, Mr Templeman and Mr Temperley examined some of the lochs and bogs around Tobermory, but found none of them to compare with the small tarn near Bunessan. They set off through the Aros Woods and up by the large waterfall to Loch nam Miol, and Glac Uamharr (with *Nymphaea occidentalis*, *Drosera anglica*, *Pinguicula lusitanica* and *Rhynchospora alba*) to Loch na Crithe and Caol Lochan (*Nymphaea occidentalis*). *Carex pauciflora* was found in this vicinity with other bog plants, and they had a good view of about 40 red deer as they proceeded direct to Loch Peallach. They ascended to Lochan's Airde Beinn, where *Lobelia Dortmanna* and *Littorella* were found, and on the way down to Tobermory they saw *Lycopodium Selago*.

August 1st. Mr Temperley left Mull, and Mr Templeman, left alone, went by the Iona Ferry bus from Tobermory to the N.W. base of Ben More on the shore of Loch na Keal, and decided to take the most direct route to the summit on account of the dense mist (and rain), which was down to about 800 ft. O.D. at mid-day and rarely above 1000 ft. for the rest of the day, with visibility about 60-100 yards. He followed the Abhainn Dhiseig above Dishig, a shallow gorge with steep sides in places and several waterfalls. " In the lower part were Rowan, Honeysuckle, many ferns (including *Dryopteris Phegopteris*, *Dryopteris Oreopteris*, and *Cystopteris fragilis*), with *Solidago* and *Hieracia*, *Antennaria dioica*, *Galium boreale* and Juniper. Higher upstream, but below a triple curtain fall at about 1250 ft., *Trollius europaeus*, *Cochlearia* sp., *Alchemilla alpina* and *A. vulgaris*, *Geum rivale*, *Valeriana officinalis*, *Saxifraga stellaris*, *Cirsium heterophyllum*, *Crepis paludosa*, *Oxyria*, *Festuca vivipara*, etc. Above the curtain falls the stream doubles for a short distance to several more falls, one of 25-30 ft., on the S.W. side of which was a fine patch of *Saussurea alpina*, also *Lycopodium Selago*, *Vaccinium Vitis-idaea*, etc. Higher still was a good spring on the S.W. side of the gorge with much *Cochlearia alpina* (large and small forms), *Epilobium alsinifolium* and *Saxifraga stellaris*, also *Trollius* and *Rubus*

saxatilis. Still higher was another fall of about 30 ft., near which was another patch of *Saussurea alpina* with *Cochlearia alpina* and much *Thalictrum alpinum.* On the opposite—N.E.—bank were a few small plants of *Cryptogramma crispa.* From here to the top of the gorge nothing new was found, but on the way up to this point the bog and heath plants seen included *Carex pallescens* and *Scirpus pauciflorus*; *Saxifraga oppositifolia* may have been overlooked owing to poor light. Above the gorge at the foot of Coire nam Fuaran the ground was wet and marshy with springs and water runnels, and bore *Caltha radicans, Polygonum viviparum,* etc., and nearby were *Salix herbacea, Luzula spicata, Carex Bigelowii,* and some plants of *Sedum anglicum, Alchemilla alpina,* etc. The grassy slopes continued upwards for a few hundred yards to the screes which had to be crossed before reaching the ridge to the summit. On and among the screes was a scanty vegetation of mosses and lichens, with sporadic plants or small patches of *Alchemilla alpina, Armeria maritima, Silene maritima, Silene acaulis, Cochlearia alpina, Oxyria digyna, Arabis petraea* (fine), *Saxifraga stellaris, Vaccinium Myrtillus, Galium saxatile, Festuca vivipara, Sedum Rosea, Plantago maritima* and *Cryptogramma crispa.*" Above the screes, on the long gentle ridge to the summit, several of these species were seen, and also *Salix herbacea, Luzula spicata* and *Carex Bigelowii.* Close to the summit cairn *Arabis petraea* and *Alchemilla alpina* grew. The weather being still wet and misty, descent was made by the same route to the top of the Dhiseig gorge, then over An Gearna, and across the Abhainn na-h Uamha near the waterfall to the shores of Loch na Keal, the only additions to the day's list being *Drosera anglica, Melampyrum pratense* var. *montanum, Schoenus nigricans,* and *Rhynchospora alba.* While waiting for the bus to Tobermory at Knock *Centunculus minimus* was found close to the Benmore Lodge entrance gate.

August 4th. The ferry was taken from Iona to Fionphort on Ross of Mull and a route taken by Fidden and across the estuary to Erraid Sound, *Centunculus minimus, Scirpus setaceus,* etc., being found. Thence Mr Templeman proceeded inland by Knockvologan to Linne nan Ribheid, and *Nymphaea alba, Carex limosa, Hypericum elodes, Utricularia intermedia* ? (" *ochroleuca* ") and other bog plants were observed. On the way from this loch to Loch Poil and Fionphort, much *Osmunda regalis* was seen by the streamside near Toba Bhreaca. Mr Templeman notes that he failed to find *Eriocaulon* on Iona or Mull.

August 8th. " A traverse was made over Ben More, as much for the views from the summit and the interesting geological structure as for the flora. The Iona Ferry bus was taken to Dercraeth on Loch Scridain. Thence the south slope of Ben More was ascended by the Alt nan Fiadh on the west side of Am Binnein, then by the west side of Coire nan Each to the Maol nan Damh and the S.W. shoulder of Ben More. On the slopes and rocks of Coire nan Each were *Sagina subulata, Teesdalia nudicaulis* (with 6 stamens), *Veronica officinalis, Thymus ovatus,* and other montane species already

noted. The screes and southern ridge to the summit bore many of the species on the N.W. ridge, and *Vaccinium Vitis-idaea*, also *Carex pauciflora* on the S.W. shoulder. There were marks of red-deer hooves at the summit. Descent was made by the N.W. ridge to the N.E.-facing rocks with screes below. These rocks were rather dry but yielded most of the species already noted at this elevation and also *Saxifraga hypnoides*, *Empetrum nigrum* and *Deschampsia alpina*. Thence the saddle north of A' Chioch was crossed to the head of Glen Clachaig (with a herd of about 60 red deer). In this glen only common bog and marsh plants were found. Loch Ba contained *Lobelia* and *Littorella*, and *Drosera anglica* alongside. Return from Knock by bus to Tobermory."

August 9th. " The Iona Ferry bus was taken to Kilfinichen Bay on Loch Scridain, and a walk made round the Gribun Peninsula to Balmeanach. After passing Tiroran, *Carlina vulgaris* was seen near Scobull, and *Sagina nodosa* with *Centunculus minimus* on road margins from Scobull to Culliemore and Burg. Near Tavool House were *Sanicula europaea*, *Hypericum Androsaemum*, †*Chrysanthemum Parthenium*, and *Verbascum Thapsus*. West of Burg and round to the S.W. cliffs were *Hypericum quadrangulum*, more *Carlina*, *Eupatorium cannabinum*, *Asplenium marinum* and *A. Adiantum-nigrum*. There was more *Eupatorium* on the columnar basalt near MacCulloch's Fossil Tree. From this point—the Rudha na-h'Uamha—before rain started, fine views were obtained of the Ross of Mull, Iona, Staffa, and the Treshnish Isles. The Wilderness, an area of landslips and boulders, produced *Cochlearia officinalis* and plentiful *Parnassia*, and several patches of *Vicia sylvatica* were noted on steep grassy banks above the sea, probably near Na Goirteanan. The steep banks and rocks near a waterfall below and north of the cliffs of Ton Dubh-sqairt produced a few patches of *Dryas octopetala* (500-600 ft. O.D.), also *Epilobium alsinifolium*, *Circaea alpina*, *Saxifraga aizoides*, *S. oppositifolia*, etc. This locality deserved more time than could be spared on the hurried walk to Balmeanach to catch the bus, during which *Asplenium Adiantum-nigrum*, *A. Ruta-muraria*, and *A. Trichomanes* were all noted."

August 10th. The day was devoted to the long motor tour from Tobermory through Glen More from Loch Beg to Lochs Spelve and Buie, and back by Lochdonhead and Craigmure. No new plants were seen.

August 11th. " The Iona Ferry bus was taken to Port nam Beach on the south shore of Loch Scridain, whence Beinn Creagach was crossed via Beach and Eas Mor, descent being made to Traigh Cadh'an Easa. On the top of the cliffs above Carsaig Arches *Sagina subulata* and *Daucus Carota* were among the plants noted, and *Lobelia* and *Littorella* occurred in tarns near the cliff tops. *Isoetes lacustris* was collected in the lochan near A. of Aoineadh Mor on the 1 in. map, and *Heleocharis palustris* occurred in another loch near by. Pennyghael was reached by descending the Nun's Pass and along Sron nam Boc to Carsaig Bay, and thence by Glen Leidle. *Lythrum Salicaria* and *Lycopus europaeus* were observed on the shore of Loch Scridain, while

waiting for the bus to Tobermory. The fine coast scenery and a close (10 yard) view of a buzzard relieved a rather uninteresting day botanically."

It is unfortunate that the original lists made each evening in Mull, and the voucher specimens collected together by Mr Chapple, have not yet been traced. The greater part of this list is compiled from the detailed account received from Mr Templeman, which is frequently confirmed by accounts from others. There seems no reason to doubt most of the records which would be new to v.-c. 103, and as most of them, if not all, will be represented in the collection and can be confirmed later, they are accepted here unless for any special reason they are left for confirmation, for many of the original records in *Top. Bot.* rested on similar lists prepared by travellers, the results of which were sometimes accepted and sometimes queried by Watson.

The checking of the N.C.R.s revealed an unbelievable amount of carelessness in the preparation of *Top. Bot.*, ed. 2, P. Ewing's *Glasgow Catalogue*, ed. 2 (1899), and the *Comital Flora*. Mr George Ross's paper "On the Flora of Mull" (1878: in *Bot. Soc. Edinb., Trans.* xiii, 234-242) is often cited in *Top. Bot.*, ed. 2, as "Ross cat."—at least, I presume this citation to refer to that work—but an incredible number of species listed by Ross were either overlooked or deliberately ignored by Watson, even when there is no reason to doubt them and the species are said by Ross to be "Common." Species mentioned in the following list which suffered thus are:—*Sisymbrium Thalianum*, *Cerastium semidecandrum*, *Arenaria trinervia* ("common"), *Spergularia rubra* ("common"), *Oenanthe crocata* ("common"), *Crepis paludosa* ("common"), *Lysimachia nemorum* ("common"), *Anagallis tenella*, *Veronica serpyllifolia* ("common"), *Salicornia herbacea*, *Juncus Gerardi* ("frequent"), *Triglochin palustre* ("common"), *Scirpus setaceus*, *Milium effusum*, and *Equisetum sylvaticum* ("common"). When this has occurred, Ross's records have been permanently lost till now, as nobody seems to have checked over his list again. *Milium effusum* is an example of this, the plant remaining unrecorded by anyone else. Ewing's *Glasgow Catalogue*, ed. 2, appears to be a work on independent lines, based on material actually seen by the author; "Ewing" is there cited largely under vice-counties for which the species had been previously recorded, and the citations must therefore not be taken as indicating the first records. Many Mull records are due to Ewing, however, but unfortunately they are not given with proper indication of locality, and are mostly mere citations of "Mull, Ewing," in his Contributions to the Topographical Botany of the West of Scotland (*Nat. Hist. Soc. Glasg., Trans.*, New Series, 1888—ii, 309-321; 1890—iii, 161-165; 1895—iv, 199-214). Some of these records are due to Kidston. I have, however, not been able to trace any papers on the Flora of Mull since that by Ross. The *Comital Flora* carries on many of the errors of *Top. Bot.*, but a number of species are recorded for v.-c. 103 which are not in *Top. Bot.* or *Supps.* or in Ewing's *Catalogue*. What the authority for these records may be is not obvious, and indicates the unsatisfactory nature of

such abbreviated compilations, statements in which are capable of neither verification nor denial. I do not find—from turning over the pages of our Reports—that Dr Druce ever visited Mull (or v.-c. 103), but it seems unlikely that he left any vice-county completely unvisited, and the records in the *C.F.* may prove to be vouched for by specimens in his herbarium, and this matter needs investigation. One thing is quite certain: all records for v.-c. 103 should be revised as soon as conditions permit.

Since the above was written, Miss Vachell has sent me some specimens from her herbarium collected in 1905 during a visit to Mull by her and her father. Ben More was ascended, and the specimens include *Thalictrum alpinum* L., *Arabis petraea* Lam., and *Luzula spicata* (L.) DC. from Ben More, *Subularia aquatica* L. and *Pyrola media* Sw. from Loch Frisa and surrounding heath, and *Scirpus fluitans* L. from Glen Forsa. The specimen of *Luzula spicata* was so determined by Dr Druce, but no notice was taken of it in *C.F.* The records for 103 added in *C.F.* are therefore not due to this source, but they may have arisen from other material sent to Dr Druce for examination. The compiler would be glad to receive information concerning collections made in Mull or papers published on its flora.

In this list, the number in brackets refers to the date, thus enabling the list to be easily related to the account of the excursion. Except for some special reason, all species stated by Ross (1878) to be common in Mull have been omitted. Records made by Mr Templeman after the excursion proper was over are placed in brackets. The notes in square brackets have been made by me as a result of work done while putting this list together. All mention of "*Top. Bot.*" refers to the second edition (1883).

A. J. WILMOTT.

2/2(2). *Thalictrum arenarium* Butcher. Calgary Bay (25). [Recorded by Ross, 1878, as *R. minus* var. *maritimum*.]

2/5. *T. alpinum* L. (Ben More, Abhuinn Dhiseig and Coire nam Fuaran (1), Coire nan Each (8).) [Not listed by Ross, 1878, although sent by him to the Botanical Locality Record Club from Ben Buy, 1877, and noted as "Ross. rec." in *Top. Bot.*!]

6/11. *Ranunculus sceleratus* L. Kellan (27); on shore at foot of Gribun rocks (29, Temperley). [Listed by Ross, 1878, but omitted by Ewing, 1899!]

7/2. *Caltha radicans* T. F. Forst. (Ben More, Coire nam Fuaran (1).)

8/1. *Trollius europaeus* L. Creag Brimishgan (29); (Ben More, Abhuinn Dhiseig (1); Gribun Peninsula (9)). [Ross says it is very common all over the north end of the island and apparently so in the south.]

20/1c. *Nymphaea occidentalis* (Ostenf.) Moss. (Glac Uamharr and Caol Lochan (31).) [Needs confirmation by specimens before accepting as N.C.R.]

22/1. *†*Meconopsis cambrica* (L.) Vig. Loch Buie (28). [Will no doubt be confirmed by the specimen.]

31/1. **Corydalis claviculata* (L.) DC. Loch Buie (28). [Will no doubt be confirmed by specimen.]

37/5. *Arabis petraea* Lam. (Ben More, screes of Coire nam Fuaran and near the Summit Cairn (1), south screes and summit ridge, also north-east (dryish) rocks (8).) [Recorded for v.-c. 103 without exact locality by Ewing, 1899, presumably from Mull.]

45/3. "*Cochlearia alpina* (Sweet) Wats." (Ben More, gorge of Abhuinn Dhiseig and screes of Coire nam Fuaran (1), Coire nan Each and north-east (dryish) rocks (8).) [If correctly named, these would be N.C.R., but they are possibly all the following.]

45/4. *C. micacea* E. S. Marshall. (Ben More, Coire nam Fuaran (1, as *C. alpina*). A specimen in Herb. Mus. Brit. is certainly *C. micacea* E. S. Marshall; A. J. Wilmott.)

45/5. *C. anglica* L. Salt marsh near Aros Castle (27). [N.C.R. if confirmed by specimen.]

49/7. *Sisymbrium Thalianum* (L.) Gay. Aros Castle rocks (27). [The record by Ross, 1878, for "Rocks by the sea, Tobermory"—as *Arabis thaliana* L.—has been completely ignored in *Top. Bot.* and *Supps.*, Ewing, 1899, and *C.F.*: add to *C.F.*]

53/1. *Subularia aquatica* L. Tobermory Reservoir (25).

61/7. *Lepidium Smithii* Hook. Carsaig (26).

66/1. **Teesdalia nudicaulis* (L.) R. Br. (Ben More, Coire nan Each (8). Specimen in Herb. Mus. Brit.)

96/1. *Silene maritima* With. Frequent on shore, as Ross says (1878), but also seen in the corries and on the summit ridges of Ben More (1 and 8).

96/8. *S. acaulis* L. Near sea-level on the north side of Ben More (29); (also high in Coire nam Fuaran (1)).

100/8. *Cerastium semidecandrum* L., believed to have been collected: would not be N.C.R. although not in *Top. Bot.* or *C.F.*, as Ross (1878: 237) gives it for "Runa Leapa."

102/1. *Arenaria trinervia* L. Mentioned in Mrs Evetts' list, is not in *Top. Bot.* nor *C.F.*, but is given by Ross (1878: 237) as "Common."

103/1. *Sagina nodosa* (L.) Fenzl. (Gribun Peninsula, road margins between Scobull and Burg (9).) (Also in Mrs Evetts' list.)

103/2. *S. subulata* (Sw.) Presl. Near Aros Cottage (27); (Coire nan Each (8); cliffs above Carsaig Arches (11)).

103/8. [*S. apetala* Ard. requires confirmation by specimen. North side of Calgary Bay (27). N.B.—*S. maritima* Don is given in *Top. Bot.*, ed. 2 (also Ross, 1878), and Ewing, 1899, but omitted from *C.F.*: *S. apetala* would be N.C.R.]

105/5. *Spergularia rubra* (L.) J. & C. Presl. In Mrs Evetts' list. ["Common," Ross, 1878, but omitted from *Top. Bot.*, ed. 2. Recorded for 103 by Ewing (1899: 22), but requires to be added to *C.F.*]

112/1. *Hypericum Androsaemum* L. North side of Calgary Bay (25). ["Frequent"; Ross, 1878.]

112/11. *H. quadrangulum* L. (*H. tetrapterum* Fr.). (Gribun Peninsula, west of Bury (9).)

112/17. *H. elodes* L. Lochan t-Suidhe, near Bunessan (26); (Ross of Mull, Linne nan Ribheid (4)).

124/1. *Radiola Linoides* Roth. Fionphort (26), near Kellan (27).

127/1. *Geranium sanguineum* L. Calgary Bay (25), where it was recorded by Ross.

127/4. *G. pratense* L. Loch Buie, plentiful near old castle (28).

128/3. *Erodium cicutarium* (L.) L'Herit. (Gribun Peninsula, west of Bury (9).)

176/1. **Vicia sylvatica* L. (Gribun Peninsula, "several patches" below Ton Dubh Sgairt, S.W. of Balmeanach (9): sp. in Herb. Mus. Brit.)

183/2. *Prunus Padus* L. Aros House woods (30). ["Frequent"; Ross.]

186/1. **Dryas octopetala* L. (Gribun Peninsula, a few patches near waterfall c. 500 ft. O.D. north of Ton Dubh Sgairt, S.W. of Balmeanach (9): spec. in Herb. Mus. Brit.)

189/11. †*Potentilla norvegica* L Old stone pier near entrance to Aros House grounds (25).

190/19. *Alchemilla alpina* L. To the summit of Ben More and also seen at low elevations.

197/2. †*Cotoneaster microphylla* Wallich. Near Aros Cottage (27). [This, and possibly also *C. Simonsii* Baker, await confirmation from the collection.]

199/1. *Saxifraga aizoides* L. Rocks by roadside near sea-level opposite Eorsa Island (26); Creag Brimishgan (Gribun Rocks) (29).

199/2. *S. oppositifolia* L. Creag Brimishgan (Gribun Rocks) below 1000 ft. (29); (Gribun Peninsula, north of cliffs of Ton Dubh Sgairt (9): [not in *Top. Bot.* or *Supps.*, nor in Ewing, 1899, for 103, but in *C.F.*, record untraced].

199/7. **S. platypetala* Sm., det. A. J. Wilmott. Below Creag Brimishgan, south side of Loch na Keal (29: spec. in Herb. Mus. Brit. coll. A. Templeman, as *S. hypnoides*).

199/10. [*S. hypnoides* L., see preceding. Also listed for N.E. rocks of Ben More (8) and Gribun Peninsula, N. of cliffs of Ton Dubh Sgairt (9), but needs confirmation of specimens in view of the preceding record.]

199/23. *S. stellaris* L. Creag Brimishgan (Gribun rocks) below 1000 ft. (29); (Ben More, gorges, screes and summit ridges (1, 8); also Gribun Peninsula, north of cliffs of Ton Dubh Sgairt (9)).

205/1. *Parnassia palustris* L. In many places. [" Common "; Ross.]

211/11. *Sedum anglicum* Huds. [" Common "; Ross.] (High on Ben More, Coire nam Fuaran (1) and Coire nan Each (8).)

211/22. *S. Rosea* (L.) Scop. General on cliffs of sea and mountains (to the summit ridge of Ben More (8)).

213/1. *Drosera anglica* Huds. In many localities; near Fionphort (26), Glac Uamharr (31), etc.

219/1. *Lythrum Salicaria* L. Loch Buie (28); (shore of Loch Scridain near Pennyghael (11)). [" Frequent ": Ross.]

220/12. **Epilobium alsinifolium* Vill. (Ben More, spring above middle falls, Abhuinn Dhiseig gorge, on north-west side (1); Gribun Peninsula, north of cliffs of Ton Dubh Sgairt (9); specimens of both in Herb. Mus. Brit.)

225/1. *Circaea lutetiana* L. [This is listed by Ross in 1878, but Mr Templeman suggests that the plant in Aros (Drumfin) Woods is *C. canadensis* Hill (" *C. intermedia* "), which would be N.C.R. Must await examination of the collection.]

225/3. *C. alpina* L. (Gribun Peninsula, north of cliffs of Ton Dubh Sgairt (9), whence a specimen in Herb. Mus. Brit.) [Not N.C.R., as thought by Mr Templeman, for it is recorded by Ewing (1899: 55) as " Ewing." This record does not, however, appear to be mentioned in any of Ewing's previous papers (1888, 1890 and 1895), and must therefore, presumably, be supported by a specimen in his herbarium. This specimen should be examined again, in view of the frequent confusion of *C. alpina* with *C. canadensis*, and if Ewing's specimen is really *C. alpina*, the proper details of the record should be published. Records published thus without adequate details are most unsatisfactory.]

265/6. *Oenanthe Lachenalii* G. Gmel. Near Balnahard (29).

271/1. *Ligusticum scoticum* L. North side of Calgary Bay (25); Fionphort (26).

284/1. *Hedera Helix* L. A narrow-leaved variety occurred in plenty on stream-side rocks by the waterfall on the way down from Dunan nan Nighean to Derryquaig (29).

296/1. *Galium boreale* L. Glen Linein (28); Creag Brimishgan (29); (etc.).

310/1. **Eupatorium cannabinum* L. North side of Calgary Bay (25); (Gribun Peninsula, west of Burg and on columnar basalt near MacCulloch's fossil tree (9)). [Will presumably be confirmed by specimen in collection.]

370/13. †*Chrysanthemum Parthenium* (L.) Bernh. (Gribun Peninsula, near Tavool House (9).)

391/1. **Carlina vulgaris* L. North side of Calgary Bay (27); (Gribun Peninsula, near Scobull and west of Bury (9)). [There will, presumably, be a specimen in the collection, but in any case there seems no reason to question this N.C.R.]

396/3. *Cirsium heterophyllum* (L.) Hill. Seen in several localities. [" Frequent "; Ross.]

401/1. *Saussurea alpina* (L.) DC. Creag Brimishgan (Gribun rocks) below 1000 ft. (29); (Ben More, Abhuinn Dhiseig, by middle and upper falls and at the top of the gorge (1)).

431/1. *Lobelia Dortmanna* L. Tobermory Reservoir (25), etc. [" Common in all the lochs "; Ross.]

435/2. **Campanula latifolia* L. Carsaig (26); Torloisk (27). [There will, presumably, be a specimen of this in the collection: there seems no reason to question this N.C.R.]

435/3. †*C. Trachelium* L. Near Aros Cottage (27), (no doubt only garden escape: not previously recorded).

438/2. *Vaccinium Myrtillus* L. (Ben More, high screes and summit ridge (1, 8).)

438/3. *V. Vitis-Idaea* L. (Ben More, Abhuinn Dhiseig, middle fall (1), also south screes, summit ridge and dryish north-east rocks (8).) [? really N.C.R. Recorded in *Top. Bot.*, ed. 2, as " Ross *cat.*", but in error: it is not mentioned by Ross, 1878! Referred by Ewing (1899: 85) to " Ross," presumably copied from *Top. Bot.*—although it must be admitted that he more often ignores the " Ross *cat.*" of *Top. Bot.* and cites " Ewing " instead. In *C.F.*, but perhaps also from the *Top. Bot.* error.]

441/1. *Arctostaphylos Uva-ursi* (L.) Spr. Fionphort (26) " in plenty."

453/3. *Pyrola minor* L. Aros (Drumfin) Woods (30).

458/4. *Armeria maritima* Willd. Common on cliffs (and summit ridges and screes of Ben More).

468/1. *Centunculus minimus* L. Near Kellan (27); (Knock, close to Benmore Lodge entrance gate (1); Ross of Mull, Erraid Sound (4); Gribun Peninsula, road margin between Scobull and Burg (9)).

480/9. *Gentiana campestris* L. In several localities. [" Common "; Ross.] The var *baltica* (Murb.) Druce was collected by E. Vachell on the shore near Balnabard (29).

497/1. *Symphytum officinale* L. (Gribun Peninsula, near Tavool House (9).)

505/1. *Mertensia maritima* (L.) S. F. Gray. In small quantity on the sands of Calgary Bay (25). [This confirms the record by Ross, 1878, as " Quinish (Miss H. A. Bird) "—*Top. Bot.*, ed. 2, gives " 103 " without authority, and Ewing (1899: 91) puts " 103. ? "; in *C.F.*]

527/3. **Verbascum Thapsus* L. (Gribun Peninsula, near Tavool House (9).) [No specimen, but there seems no reason to question this N.C.R.]

537/1. **Mimulus guttatus* DC. Dervaig (25); Kellan (27). [Ross (1878) has " *M. luteus* L. Salen burn, Drumfin, &C.", which might be this or the following, otherwise N.C.R.]

537/2. *M. moschatus* Dougl. Kellan (27). [Must await confirmation from the collection.]

548. *Rhinanthus*. [What is most likely to have been *R. borealis* (Stern.) E. S. Marshall was noted by Mr Templeman in Coire nam Fuaran, on the N.W. side of Ben More, but unfortunately no specimen was collected.]

550/3. *Orobanche rubra* Sm. Calgary Bay, on Thyme above rocks (27).

553/4. *Pinguicula lusitanica* L. Seen in several places, confirming Ross's " frequent."

559/1. **Lycopus europaeus* L. Kellan (27); (by Loch Scridain near Pennyghael (11)). [It is hoped that there is a specimen of this N.C.R. in the collection.]

572/1. *Scutellaria galericulata* L. Loch Buie (28); (by Loch Scridain near Pennyghael (11)).

572/2. *Scutellaria minor* Huds. Near Fionphort (26).

578/1. *Galeopsis speciosa* Mill. Kellan (fine in fields) (27).

604/4. **Beta maritima* L. Calgary Bay, in small quantity (25). [It is hoped that there is a specimen of this N.C.R. in the collection.]

611/4. *Salicornia herbacea* L. Salt marshes near Dervaig (25) and Aros Castle (27). [Not N.C.R. although not in *C.F.* *S. herbacea* sensu lato was recorded by Ross in 1878; *S. herbacea* sensu stricto and of *C.F.* is not likely to be the form found during the excursion, which would in any case be too young for critical determination.]

612/2. *Suaeda maritima* (L.) Dum. Salt marsh near Aros Castle (27).

613/1. *Salsola Kali* L. Calgary Bay (25) [the only locality cited by Ross, 1878]; also Loch Buie (28).

615/4. **Polygonum viviparum* L. (Ben More, Coire nam Fuaran (1); specimen in Herb. Mus. Brit.)

615/13. *P. Raii* Bab. Calgary Bay (25).

617/1. *Oxyria digyna* (L.) Hill. (Ben More, in several places on high rocks (1, 8).)

646/2. *Quercus petraea* Lieblein, (*Q. sessiliflora* Salisb.). Torloisk (27). [Will be N.C.R. if there is a confirmatory specimen. Ross (1878 : 240) has " *Q. Robur*, L. Common."]

650/18. *Salix herbacea* L. (Ben More, high corries, screes and summit ridges (1, 8).)

662/1. **Neottia Nidus-avis* (L.) Rich. Aros House (Drumfin) Woods (30). [There will, presumably, be a confirmatory specimen in the collection.]

663/2. *Listera cordata* (L.) R. Br. (Aros Woods, sparse over about 100 yards square, among *Vaccinium Myrtillus* and a few seedlings of *Gaultheria Shallon*, under beech and rowan " (2).) [Not in *Top. Bot.* or *Supps.*, nor in Ewing, 1899; in *C.F.*, evidence not stated or yet traced : otherwise N.C.R.]

667/3. [*Cephalanthera longifolia* (Huds.) Fritsch, (*C. ensifolia* (Murr.) Rich.). Mr Templeman remarks that he was unable to find this in the Aros woods, though it is cited by Ross (1878 : 240—" Drumfin Wood, east side of Loch-na-Gourapin."). *Top. Bot.*, ed. 2, cites " Isle of Mull," but Ewing, 1899, puts " ? "; perhaps he, like Mr Templeman, had been unable to find it. Although accepted in *C.F.*, the record needs confirmation and search at the right time of the year.]

674/4. *Coeloglossum viride* (L.) Hartm. Near Fionphort, several plants by the roadside (26).

718/4c. *Juncus effusus* f. *spiralis* McNab. (Glen Clachaig, on N.E. side of Ben More (8).)

718/15. *J. Gerardi* Lois. Near Dervaig (25); Loch Buie (28); (shore of Loch Scridain near Pennyghael (11)). [Omitted from *Top. Bot.*, ed. 2, although Ross (1878 : 241) says " Frequent . . . on the shore " and cites localities.]

718/16. **J. macer* S. F. Gray, (*J. tenuis* Willd.). Aros House grounds, on a pathway (30), and by Tobermory Golf Course (30). [There will be, presumably, a specimen in the collection.]

719/8. **Luzula spicata* (L.) DC. (Ben More, Coire nam Fuaran (1); specimen in Herb. Mus. Brit.; previously collected by Miss Vachell in 1905.)

722/5. " *Sparganium minimum* " Fries. Tobermory Reservoir (25). [It is to be hoped that identifiable material was collected. Ross (1878 : 240) records " *S. natans*, L." from a single locality, which is presumably what is cited in *Top. Bot.*, ed. 2, under *S. minimum* as " Ross *cat.*" Ewing (1899) and *C.F.* both put 103 for *S. minimum* and have no record for *S. affine* Schnitzl., but from my own experience I should have expected the latter rather than the former.]

737/5. *Potamogeton alpinus* Balb. Tobermory Reservoir (25).

745/2. *Heleocharis uniglumis* (Link) J. A. Schultes. Head of Loch Cuan, near Dervaig (25; Mr Temperley).

745/3. *H. multicaulis* (Sm.) Sm. Salt marsh near Dervaig (25; Mr Templeman). [? both species there, or two determinations of one plant, presumably in the collection. Neither would be N.C.R.]

746/2. *Scirpus maritimus* L. Head of Loch Cuan near Dervaig (25); Loch Buie (28).

746/4. *S. Tabernaemontani* Gmel. Head of Loch Cuan near Dervaig (25).

746/8. *S. pauciflorus* Lightf. (Abhuinn Dhiseig, Ben More (1).)

746/11. *S. setaceus* L. Kellan (27); (Ross of Mull, Erraid Sound (4)).

746/15. *S. rufus* (Huds.) Schrad. Head of Loch Cuan near Dervaig, in salt marsh (25). [" Frequent "; Ross, 1878.]

748/2. *Rhynchospora alba* (L.) Vahl. Loch an t-Suidhe, near Bunessan (26), and in several other places. [" Frequent "; Ross.]

749/1. *Schoenus nigricans* L. North side of Calgary Bay (25); near Fionphort (26); etc. [" Frequent "; Ross.]

750/1. *Cladium Mariscus* (L.) R. Br. Loch an t-Suidhe, near Bunessan (26).

753/8. *Carex lasiocarpa* Ehrh. Loch an t-Suidhe, near Bunessan (26).

753/10. **C. pendula* Huds. North side of Calgary Bay (25). [There is presumably a confirmatory specimen of this N.C.R. in the collection.]

753/11.' *C. sylvatica* Huds. Aros (Drumfin) Woods (30). [Recorded from this locality by Ross in 1878 and in *Top. Bot.* as " Ross *cat.*" Add to *C.F.* from which it had been omitted.]

753/13. *C. helodes* Link. North side of Calgary Bay. [Recorded from " Calgary " and other localities by Ross.]

753/17. *C. distans* L. Calgary Bay (25; Temperley); Kellan (27).

753/19. *C. Hostiana* DC. (*C. fulva* auct.). Bogs near Fionphort (26; " and abundance of hybrid ×*C. xanthocarpa* Dégl.," Temperley [which needs confirmation from the collection]); Kellan (27; " and hybrid ×*C. xanthocarpa* Dégl." [again, requiring confirmation from the collection], Templeman).

753/23. *C. extensa* Good. Head of Loch Cuan near Dervaig, in salt marsh (25).

753/38. *C. limosa* L. Loch an t-Suidhe, near Bunessan (26); (Linne nan Ribheid (4)).

753/51. *C. Bigelowii* Torr., (*C. rigida* Good. non Schrank). Creag Brimishgan, below 1000 ft. (29); (Ben More, Coire nam Fuaran and summit ridge (1), and dryish north-east rocks (8)).

753/57. *C. remota* L. Calgary Bay (25); Aros (Drumfin) Woods (30).

753/72. *C. pauciflora* Lightf. (Near Caol Lochan (31); high on south-west shoulder of Ben More (8).)

775/1. *Milium effusum* L. (Aros (Drumfin) Woods (30). [Not in *Top. Bot.* or *Supps.*, Ewing 1899, or *C.F.*, but not N.C.R. as it was recorded from this locality by Ross (1878 : 241).

783/1. *Calamagrostis epigeios* (L.) Roth. Aros (Drumfin) Woods (30), (" one or two good patches seen " (2)). [" Frequent "—Ross (1878 : 241), who mentions this with other localities : but not given for 103, by Ewing, 1899.]

791/2. *Deschampsia alpina* (L.) R. & S. (Ben More, north-east rocks (8).) [Recorded for Mull—without locality—by Ewing (1888 : 321), and in *C.F.*]

794/6. *Avena strigosa* Schreb. Near Aros Castle (E. Vachell). [" Among corn, in all the crofts and farms "—Ross (1878 : 241).]

824/7. *Poa nemoralis* L. Aros (Drumfin) Woods (30). [N.C.R. if confirmed by specimen in collection.]

826/10b. *Festuca vivipara* (L.) Sm. (Noted in many places on Ben More and Gribun Peninsula (1, 8, 9, 11).)

839/2. *Juniperus sibirica* Burgsd. (*J. nana* Willd.). Sea cliffs near Bloody Bay (30); (gorge of Abhuinn Dhiseig, south-west base of Ben More (1); Gribun Peninsula, west of Burg (9); cliffs above Carsaig Arches (11)). [" Frequent "; Ross.]

845/1. *Cryptogramma crispa* (L.) R. Br. (Ben More, Abhuinn Dhiseig, near upper falls, and on screes of Coire nam Fuaran (1), also north-east rocks (8).)

851/1. *Asplenium marinum* L. Loch Buie (28); near sea, north base of Ben More (29); (Gribun Peninsula, sea cliffs west of Burg and in " the Wilderness " (9)).

851/7. *A. Ruta-muraria* L. (Gribun Peninsula, south-west of Balmeanach (9); cliffs above Carsaig Arches (11).)

864/1. *Osmunda regalis* L. Glen Lirein (28); (streamside near Toba Bhreaca (4)). [" Plentiful "; Ross.]

865/1. *Botrychium Lunaria* (L.) Sw. Near Loch Peallach (25).

869/1. *Isoetes lacustris* L., det. A. H. G. Alston, " spores examined." (Peaty tarn above Carsaig Arches (11), specimen in Herb. Mus. Brit.)

The following species mentioned in one or other of the lists contributed, must await confirmation from the collection, as being either more doubtful or given without precise locality :—

88/33. *Viola lutea* Huds. Would be N.C.R., but the "f. *Curtisii* (Forst.) Drabble" may have been intended.

96/2. *Silene Cucubalus* Wibel, (*S. inflata* Sm.). No locality; would be N.C.R.

117/2. *Malva sylvestris* L. No locality; would be N.C.R.

155/15. *Trifolium hybridum* L. No locality; would be N.C.R.

176/4. *Vicia Orobus* DC. No locality. Queried by Ewing, 1899; given for 103 in *C.F.*

191/2. *Agrimonia odorata* (Gouan) Mill. ? near Calgary (25). [Awaits confirmation from collection; would be N.C.R. but Ross (1878) gives *A. Eupatoria* which is not accepted in *Top. Bot.* or *Supp.*, is queried by Ewing (1899) and given in *C.F.*]

194/15. *Rosa rubiginosa* L. No locality; would be N.C.R.

195/1. *Pyrus Malus* L. No locality; would be N.C.R.

217/5. *Callitriche intermedia* G. F. Hoffm. No locality. [Given for 103, by Ewing (1899) and by Bennett in *Top. Bot. Supp.* as "103 !," but omitted from *C.F.* !]

247/1. *Apium graveolens* L. No locality; would be N.C.R.

308/5. *Scabiosa arvensis* L. No locality; would be N.C.R., though Ewing (1899 : 64) has "?" against 103.

371/3. *Matricaria "suaveolens* (Pursh) Buch." No locality; would be N.C.R.

393/2. *Arctium vulgare* (Hill) Evans, ("*A. nemorosum*"). No locality; would be N.C.R.

669/11. *Orchis Fuchsii* Druce. No locality; would be N.C.R.

722/3. *Sparganium simplex* Huds. No locality. [Given by Ross (1878), *Top. Bot.*, Ewing, and *C.F.*]

746/12. *Scirpus cernuus* Vahl. Queried for Kellan (27). [Bracketed in *Top. Bot.*, ed. 2; added in *Supp.* ("Somerville sp."); queried by Ewing (1899); given in *C.F.*]

795/2. *Arrhenatherum tuberosum* (Gilib.) Druce. No locality; would be N.C.R.

825(2)/1. *Puccinellia maritima* (L.) Parl. (*Glyceria maritima* (L.) M. & K.) No locality. [Not in *C.F.* though in *Top. Bot. Supp.* as "Macvicar sp." and in Ewing (1899) as "Ewing."]

833(2)/1. *Pholiurus filiformis* (Roth) Sch. & Thell. (*Lepturus filiformis* (Roth) Trin.) Queried for salt marsh near Dervaig (25). [Given in Ewing (1899 : "Ewing") and *C.F.*; in *Top. Bot.*, ed. 2, as "103 Ebudes south. Grieve," which presumably, like other of Grieve's records, refers to v.-c. 102.]

IONA AND LUNGA

Mr Templeman gives the following account of his visit to Iona. "August 3rd to 7th. Four most delightful days and nights were spent on Iona in perfect weather. After lunch on August 4th I crossed by Ferry to Fionphort on the Ross of Mull . . . August 5th. A long day was spent on the Columba Hotel's motor-boat *Islander* from Iona, passing the Dutchman's Cap to Lunga Isle. Here a few interesting plants were observed. . . . . *Mertensia maritima* grows in some plenty among shingle near the middle of Lunga. On the cliffs and cliff-tops were *Sedum Rosea, Ligusticum scoticum, Asplenium marinum* and *A. Adiantum-nigrum, Geranium sanguineum, Rosa spinosissima. Sedum anglicum, Erythraea Centaurium, Sagina subulata*, etc., with *Salix repens* and *S. argentea* and many common plants. In the marshes were *Schoenus nigricans, Narthecium ossifragum*, etc. From Lunga

we sailed by Fladdam, where over a dozen grey seals were seen, to Burg More Island to see the ruins of the fort, with *Sedum Rosea* and other cliff plants. On Staffa were *Ligusticum scoticum*, *Asplenium marinum*, etc.

Among the plants found on Iona, but not observed in Mull, were *Thalictrum minus*, *Cochlearia danica*, *Drosera longifolia* (*intermedia*) (Loch Staoineig), *Peplis Portula*, †*Inula Helenium* (near village), *Scirpus fluitans*, and *Scilla verna*. The last, with *Sedum Rosea*, *Ligusticum scoticum*, *Asplenium marinum*, *Juniperus nana* and *Sedum anglicum*, are among the characteristic plants of Iona, especially the sea-cliff species. Other plants seen on Iona were:—*Nymphaea alba*, *Sagina subulata*, *S. nodosa*, *Radiola Linoides*, *Hypericum elodes*, *Rosa spinosissima*, *Cotyledon Umbilicus*, *Utricularia minor* ?, *Anagallis tenella*, *Centunculus minimus*, *Samolus Valerandi*, *Littorella uniflora*, *Polygonum Hydropiper*, *Empetrum nigrum*, *Orchis ericetorum*, *Schoenus nigricans*, *Scirpus maritimus* and *S. pauciflorus*, and *Osmunda regalis* (on dripping rocks E. of Port Goirtean Iar, at the S. end of the island). *Eryngium maritimum* and a few other recorded species were not found."

September 16. S. Essex, v.-c. 18. An Alien Hunt in the Neighbourhood of London. Leader: Mr J. P. M. Brenan.

This excursion could not be held owing to the outbreak of war and consequent dislocation of transport due to the evacuation of London. It was intended to examine several areas of waste ground close to Dagenham, where refuse from the Ford factory had been deposited. These areas had given promise earlier in the year of being very productive, and a private excursion there made in October amply fulfilled expectation. J. P. M. BRENAN.

PLANT NOTES.

[In the case of direct contributions the name of the author of the Note is printed in small capitals. Where the name of the author is not in small capitals, and is coupled with a date (the name and date, or date alone, being bracketed), the Note is an Abstract, its origin being ascertainable by reference to the Bibliography.—ED.]

†11/2. **Aquilegia pyrenaica** DC., *Fl. Fr.*, ed. 3, v, 640 (1815). The above name must, according to Skalinska (1940), be used for the plant hitherto known from Caenlochan Glen, Angus, as *A. alpina* L. As recently as 1935 this plant was yet growing in the glen, associated with *Primula Auricula* and *Myosotis alpestris*. A table of differences between the two species is included in a full discussion.

35/4. RORIPPA ISLANDICA (Oeder) Borbás (=*Nasturtium islandicum* (Oeder)). Sprague (1939 B) shows that *Sisymbrium islandicum* Oeder, *Fl. Dan.*, iii, fasc. 7, t. 409 (1768), was validly published.

†80/4c. RAPHANUS SATIVUS L. var. **dasycarpus** (O. E. Schulz ex Thell. in Hegi) O. E. Schulz in *Das Pflanzenr.*, iv, 105, p. 206 (1919); Asch. & Graebn., *Syn. der Mitteleur. Fl.*, iv, 4, p. 133 (1936). *R. Raphanistrum* L. ssp. *sativus* (L.) Domin var. *dasycarpus* O. E. Schulz ex Thellung in Hegi *Ill. Fl. Mitteleur.*, iv, i, 280 in nota (1918). "*R. Monnetii* Léveillé . . . (1916) . . . probabiliter," sec. O. E. Schulz, *l.c.* (1919).

16, W. Kent; Tonbridge, on waste ground, J. P. M. BRENAN.

O. E. Schulz (1919) describes this variety as follows:—"Siliquae pilis conicis brevibus erecto-patentibus ± obsitae, scabrae." The plants found at Tonbridge agree well with this description. At first the siliquas are uniformly covered with the small stiff hyaline conical hairs, each one borne on a small tubercle. The hairs are erect-ascending so that the siliqua feels scabrous when rubbed downwards. Later, as the basal part of the siliqua becomes much swollen, the hairs in this region become spaced out and consequently appear sparser; the beak, however, is still more or less densely covered. One of the Tonbridge plants had the petals white, while another had the claws of the petals white (except for the veins) and the laminae reddish-lilac. No other differences from typical *R. sativus* were noted.

Normally *R. sativus* has the siliquas quite smooth, and the flowers—at any rate of the plants occurring on the rubbish tips—are usually reddish-lilac in colour.

The geographical distribution of the variety is peculiar. Schulz (1919) cites single gatherings from Egypt, N. Persia, E. Indies, Java, and the West Indies (St Thomas), and records it as occurring in the Botanic Gardens at Berlin-Dahlem (cultivated) and Leipzig. It has, perhaps, been passed over as the normal cultivated radish.

Owing to present circumstances, no authentic specimens have been seen. An examination of the material of *R. sativus* in the Kew Herbarium, to the authorities of which I am indebted for their kindness, failed to reveal any sheets under the name var. *dasycarpus*. There are, however, two sheets of a single gathering ("Cult. in Hort. Bot. Reg. Kew, A.D. Aug. 1929") labelled *Raphanus sativus* L. var. (fruits very hispid), which agree well with the Tonbridge plants. The Kew gathering was sent in as *R. caudatus* L., which is an entirely different plant, having very elongated beaks to the siliquas. No material from any of the countries cited by Schulz was seen there. It is evidently a variety of rare occurrence. So far no material from any other British locality has been seen.

This variety appears to be analogous to the hispid fruited varieties that occur in other Cruciferae which also have glabrous fruits (e.g. *Rapistrum*, *Sinapis arvensis*, etc.).—J. P. M. BRENAN.

There is, however, a similar specimen among the material still available in the British Museum Herbarium at South Kensington, from 21, Middlesex, Natural History Museum garden, 1919, H. F. Wernham.—A. J. WILMOTT.

†93/1. **Kohlrauschia prolifera** (L.) Kunth forma **laevis** (Clav.) Sandwith, comb. nov. *Dianthus prolifer* L. var. *laevis* Clav. *Fl. Gironde*, i, 156 (1882); F. N. Williams in *Journ. Linn. Soc. Bot.*, xxix, 465 (1893). *Tunica prolifera* (L.) Scop. var. *laevis* (Clav.) Rouy et Foucaud, *Fl. France*, iii, 159 (1896); Gürke in Richter, *Pl. Europ.*, ii, iii, 338 (1903). *T. prolifera* var. *typica* Fiori et Paoletti f. *laevis* (Clav.) Fiori et Paoletti, *Fl. Analit. Ital.*, i, 374 (1896-8). *T. prolifera* subsp. *eu-prolifera* Briq. var. *genuina* Briq. subvar. *laevis* (Clav.) Briq. *Prodr. Fl. Corse*, i, 569 (1910). *T. prolifera* subsp. *eu-prolifera* f. *laevis* (Clav.) Graebn. in Asch. et Graebn. *Syn. Mitteleurop. Fl.*, v, 2, 264 (1921).

15, East Kent; on a disused railway track at Richborough, July 1939, J. P. M. BRENAN and N. Y. SANDWITH; presumably an introduction in this locality.

Occurs here and there in Europe with the commoner typical form, which has been named *Dianthus prolifer* var. *scabrifolius* Clav., *D. prolifer* var. *typicus* F. N. Williams, and *Tunica prolifera* subsp. *eu-prolifera* Briq. var. *genuina* Briq. subvar. *scabrifolia* (Clav.) Briq. The var. *laevis* was described by Clavaud as having the leaves smooth on the margins and dorsal nerve, and the floral bracts less conspicuously punctate than in what is generally treated as representing the typical form, var. *scabrifolius* Clav., in which the leaves are scabrous-ciliate on the margins and dorsal nerve. All British specimens of *K. prolifera* in the National and Druce Herbaria, whether native or introduced, have the leaves scabrous-ciliate on the margins with forward-directed setulae, while the dorsal nerve may be either glabrous or setulose. There is an interesting variability in the clothing of the stems. In specimens from certain localities the stems are conspicuously puberulous with more or less downward-directed hairs, while in others they are glabrous or nearly

so. Thus the specimens from Hayling Island and Ryde (Isle of Wight), and most of those from Jersey, have conspicuously puberulous stems; while the very numerous ones from Pagham have them glabrous or nearly so. The introduced Richborough plant represents an extreme form with completely glabrous leaves and stems which does not appear to have been recorded previously from Britain, although it may well occur in other British populations of the species. It should be identified with Clavaud's var *laevis*, although the floral bracts are conspicuously punctate. There is probably no correlation between the latter character and the degree of indumentum on the leaves and stems.

Following the practice of several recent or contemporary authors, the present writer prefers to separate the section *Kohlrauschia* generically from *Tunica*, on the grounds both of facies and technical characters.—N. Y. SANDWITH.

†96/2(2)b. **Silene angustifolia** (Ten.) Gussone var. **carneiflora** (Legrand) Pugsl. *S. inflata* var. *carneiflora* Legr. in *Bull. Soc. Bot. Fr.*, xvi, 386 (1869). Recorded by Pugsley (1940 C) from Devon.

103/3. **Sagina intermedia** Fenzl. This name is adopted in place of *S. nivalis* Fr. and *S. caespitosa* of recent British authors, not of (Vahl) Lange, by Polunin (1939 B: 271).—E. C. WALLACE.

Sagina caespitosa Vahl is a very distinct species; the use of the name for the British species was an unfortunate error.—A. J. WILMOTT.

150/1b. CYTISUS SCOPARIUS (L.) Link var. PROSTRATUS (Bailey) Hanb. Seeds collected from the variety in Alderney were sown in the Herbarium Experimental Ground at Kew. The plants retained the flat, spreading habit of their parent or parents and showed no tendency to produce the erect form of the type.—Jackson (1939).

The variety supplied by nurseries is probably not always the same as the wild plant from Cornwall and the Channel Islands.—Woolley (1939).

190/4. **Alchemilla pseudominor** is the name proposed by Wilmott (1939 D) for the plant previously known in Britain as *A. minor*. *A. minor* Huds. is identified with *A. hybrida* (L.) Mill. (=*A. pubescens* Lam.), a plant found in Yorkshire, Westmorland, Scotland and Ireland, and in which sense the former name must be used.

211/22. **Sedum Rosea** (L.) Scop. This was named *Rhodiola Rosea* by Linnaeus, the epithet *Rosea* being the former generic name *Rosea* Riv. which Linnaeus rejected in favour of *Rhodiola*. Hence the correct name under Sedum is *S. Rosea*, not *S. roseum* as hitherto written.—Sprague (1939 A).

353/2. BIDENS TRIPARTITA L. f. RADIANS Beck in Glamorgan. Miss Vachell has sent to the British Museum specimens of *Bidens tripartita* in which the capitula bear about five or six ray florets, the ligules being

about (2-)3 mm. long and between one and two mm. broad. This radiate form is not mentioned in most floras, and I am not aware that it has previously been noticed in the British Isles. It is mentioned in Hegi's *Ill. Fl. Mitteleur.*, vi, i, 518 (1918) under the above name, as being " var. *radiatus* DC. nec *B. radiatus* Thuill." Hegi also mentions a f. *mixtus* Kitt., which has ligulate florets on the lower capitula but none on the upper. The specimens were collected by Miss Vachell on the margin of a pond at Taff's Well, Sept. 1934.—A. J. WILMOTT.

422/3. **Leontodon Leysseri** (Wallr.) Beck. This is the correct name in *Leontodon* for the plant hitherto known as *L. nudicaulis* (L.) Banks (Druce, *B.P.L.*) and *Thrincia hirta* Roth, see Wilmott (1939 A), but the combination dates from Beck (1893: *Fl. Nieder. Österr.*, p. 1312).

506/10. MYOSOTIS VERSICOLOR (Pers.) Sm. var. BREVICALYX Druce, in *B.E.C. 1930 Rep.*, 276 (1931). I have examined the specimens in Herb. Druce and find that of the five gatherings cited with the description, those from Wicklow Sandhills; Watlington, Oxon; and Bembridge, Isle of Wight, are *Myosotis collina*, whilst the specimens from Teesdale, Durham, are typical *M. versicolor*; and those from Abbey Wood, Kent, possess campanulate calyces and somewhat short inflorescences and are evidently *M. versicolor* var. **fallacina** (Jord.) Crép. The description was clearly drawn up from all of this material and as it included discordant elements the var. *brevicalyx* Druce must be rejected.—A. E. WADE.

539/1×1(2). **Limosella aquatica** L. × **subulata** Ives. Plants intermediate between *L. aquatica* and *L. subulata* have been determined as above after experimentation by Blackburn (1939). See Vachell (1939) for historical account.

545/12(1). **Euphrasia Campbellae** Pugsl. Described as a new species by Pugsley (1940 A) from material collected in the Outer Hebrides at Mealista, Uig, Lewis, by Miss M. S. Campbell. It is allied to *E. rotundifolia* and *E. Marshallii* and its chief distinguishing feature is the presence of thick whitish hairs on the underside of the leaves, along the nerves and around the margins.

548. RHINANTHUS L. Wilmott (1940) describes, with the necessary Latin diagnoses, the new species and varieties of *Rhinanthus* which resulted from his revision of the British material in the herbarium of the British Museum, while preparing his delayed paper (published in this Report), which includes many suggestions on problems awaiting solution. See below.

548/5(2). **Rhinanthus calcareus** Wilmott, which has been included hitherto in *R. stenophyllus* (Schur.) Druce.

548/6. RHINANTHUS MONTICOLA. The British plant passing under this name is not the plant which Lamotte intended by *R. minor* var.

monticola and is therefore redescribed as **R. spadiceus** Wilmott. An Orkney form is named subsp. **orcadensis** Wilmott.

548/7. RHINANTHUS BOREALIS (Stern.) E. S. Marshall. A plant from Ben Nevis is named var. **calvescens** Wilmott.

548/8. RHINANTHUS DRUMMOND-HAYI. Material given this invalid name is not uniform, and two new species are described from Scotland, **R. Lintoni** Wilmott and **R. lochabrensis** Wilmott. See paper in this Report for full account of the British species of *Rhinanthus*.

549/3. MELAMPYRUM PRATENSE L. In the account (Britton (1939)) of determinations by Beauverd of recent gatherings of British material the following names are new to the *British Plant List*:—

Subvar. nov. **elongatum** Beauv. (of var. ALPESTRE Beauv.).
Subvar. nov. **decipiens** Beauv. (of var. ERICETORUM D. Oliv.).
Var. nov. **anglicum** Beauv. with two subvarieties, **pseudo-lanceolatum** Beauv. and **pseudo-laciniatum** Beauv.
Subvar. nov. **devonianum** Beauv. (of var. VULGATUM (Pers.) Beauv.).
Subvar. nov. **pallescens** Beauv. (of var. HIANS Druce).

549/4j. MELAMPYRUM PRATENSE L. var. HIANS Druce in Sussex? In the *Flora of Sussex* the editor stated that this " seems to be as frequent as the type in many districts " and localities are cited. Confirmation of the occurrence of var. *hians* in Sussex is desirable, and fresh examples would be welcome. Four to six complete plants are necessary, and notes on the colour of the flowers would be helpful. The var. has been recognised by Beauverd, who so determined plants gathered near Rowfant by Mr A. Beadell. These plants were received by me in a fresh condition. The pale-flowered corolla did not suggest the variety.—C. E. BRITTON.

550. OROBANCHE. Pugsley (1940 D) gives some notes on the British species. The arrangement followed is that adopted by Dr Günther Beck-Mannagetta in his second Monograph (*Pflanzenreich*, iv, 261 (1930)). The British List as amended stands as follows:—

O. ramosa L.
O. purpurea Jacq.
O. alba Steph.
f. *rubra* (Sm.) Beck (*O. rubra* Sm.).
O. reticulata Wallr. var. *procera* (Koch) Beck.
O. Picridis Hol.
O. maritima Pugsl. sp. nov. = (*O. amethystea* auct. angl. non. Thuillier).
O. minor Sm. (*O. major* L.?).
f. *procerior* (Rchb.) Beck.

var. *flava* E. Regel (*O. major* f. *hypochaeridis* Beck. *O. minor* var. *concolor* (Duby) Beck pro parte).
var. **compositarum** Pugsl.
O. Hederae Duby.
f. *monochroa* Beck.
f. *stenantha* (Loj.) Beck.
f. *megaphyllon* Beck.
O. caryophyllacea Sm.
O. elatior Sutton.
f. *citrina* (Dr.) Pugsl.
O. Rapum-genistae Thuill.

The records for *O. reticulata* var. *pallidiflora* W. & G. and *O. Rapum-genistae* var. *bracteosa* Reut. for Breconshire are shown to be errors. The former was clearly named *O. reticulata* var. *procera* by Beck.

558. MENTHA. Still (1939) describes the occurrence of a sport among cultivated specimens of *M. crispa* L. with the characters of *M. lacerata* Opiz. (=*M. spicata* Huds. var. *lacerata* (Opiz.) Fraser). He suggests that in view of these "sports," *M. crispa* L. is a hybrid between *M. aquatica* and *M. spicata*; a view held by Fraser.

578/1. GALEOPSIS SPECIOSA Mill., forma. 56, Notts.; cornfield, Everton Carr, Aug. 1939, C. I. and N. Y. SANDWITH. No. 940. Growing with the typical form were a number of plants with the corolla wholly white and yellow, lacking the characteristic violet carpet on the middle lobe of the lower lip, and without a trace of violet dots or lines. The tube was yellowish, the rest of the corolla whitish-cream except for rich yellow areas at the base of the middle lobe of the lower lip and adjacent edges of the lateral lobes. The corolla thus resembled that of *G. dubia*, which occurred in 1918-19 in this neighbourhood. The plants otherwise appeared to agree in all respects with *G. speciosa* and there was no evidence of hybridity with *G. Tetrahit* or other species. *G. speciosa* varies considerably on the Continent, but the above form—perhaps due to a single gene character—does not fit either subsp. *sulfurea* (Jord.) Briq. or subsp. *pallens* (Fries) Briq. It may be similar to the "Formen mit gelber, ungefleckter Unterlippe" which are recorded from the neighbourhood of Innsbruck and Vorarlberg by Gams in Hegi, *Ill. Fl. Mitteleuropa*, v, 4, p. 2468 (1927); or to the unicoloured forms mentioned by Koch and Fiek and cited by Otto Porsch in his paper on "Die Österreichischen Galeopsisarten der Untergattung Tetrahit Reichb." See *Abh. der K.K. Zool.-Bot. Ges. Wien*, ii, 2, 46 (1903). Porsch laments that accurate detailed description of the flower colour of such forms has not been given, the distribution of yellow in relation to white being of importance. No British material agreeing with it has been found in the National or Druce Herbaria. It is hoped that the form will be tested in cultivation, and studied in the light of the elaborate investigations of this genus by Porsch and Müntzing. Seeds have been sent to the last-named botanist.—N. Y. SANDWITH.

618/2(2). **Rumex aquaticus** L. as a British plant is dealt with by Lousley (1939 A). It is shown that *R. aquaticus* L. is distinct from *R. domesticus* Hartm. and *R. Hydrolapathum* Huds.

R. aquaticus L. is a tall (up to 200 cm.) stout perennial, lower leaves (c. 35 × 20 cm.) cordate-ovate or triangular, broadest near the base. Peduncles of fruit with a scarcely thickened, almost imperceptible articulation near the base. Fruiting valves (5-8.5 × 4.5-7 mm.) ovate-triangular, truncate at the base, the apex usually rather drawn out, membranous, entire, always without tubercles. Nut (3.2-3.7 mm. long), brown, broadly trigonous. Distinguished from *R. Hydrolapathum* by the absence of tubercles on the fruits and by the leaves being usually conspicuously broader at the base and thus of a triangular outline. From *R. domesticus* it is easily known by the leaf shape, less congested panicle, and the less evident articulation of the peduncle, which in *R. domesticus* is thickened into a prominent ring. Since he wrote his paper Mr Lousley has seen the plant *in situ* (1939) in more than one place (through the kindness of Mr R. Mackechnie) and feels confident that it is not an introduction.

633/4. ULMUS PLOTII Druce. Melville (1940) discusses its history and shows that Druce was wrong in his identification of Plot's tree, but had recognised as a species one of our most distinctive native elms. Druce was confused in his conception of *U. Plotii*, both by reference to Dr Robert Plot's elm and by the inclusion of a variety of forms under the name in his herbarium. One must regard the tree as being named in honour of Plot, but since it is not Plot's elm, it should be called Plot Elm. Records from 19 Vice-Counties are given.

633/4(2). **Ulmus diversifolia** Melville in *Journ. Bot.*, *77*, 138-145. "The East Anglian Elm." This elm has in the past been given various names, all invalid, so it has been renamed and described. It is an upright tree up to about 20 m. in height with spreading branches and rather slender wiry branchlets. First year branchlets of the short shoots are hairy at first, becoming glabrous in the autumn. The short shoots are of three kinds, the majority having distal and subdistal leaves with asymmetrical bases, about 10 per cent. having all the leaves with bases equal or nearly so and a few with both types of leaf together. Asymmetrical distal and subdistal leaves elliptical to obovate-acute, base tapering on the short side, usually semi-cordate on the long side. Symmetrical distal and subdistal leaves elliptical-acute, base cuneate to blunt and symmetrical or nearly so. Subdistal leaves are slightly shorter than distal and both are slightly scabrid above, and shortly softly pubescent below. Leaves of proleptic shoots varying in shape from that of the distal leaves of the short shoots to suborbicular with cordate base. Sucker shoots hairy, leaves elliptic-acute, base cordate or subcordate, roughly scabrid above. Fruit 14-20 mm. long and 8-13 mm. broad, elliptic to obovate, apex rounded, base broadly cuneate, centre of seed about 1/3 of the fruit length from its apex.

A very full and detailed description is given of this distinctive elm, with notes on its known distribution.—N. Essex, Hertford, Suffolk, and Norfolk.

633/5. ULMUS SATIVA Mill. Melville (1939 B) proposes that this name be rejected as a *nomen ambiguum*.

633/6. ULMUS MINOR Mill. Melville (1939 B) proposes that this name be rejected as a *nomen ambiguum*.

641/1. MYRICA GALE L. Two variants having as their most distinctive characteristic, light yellow-green leaves instead of the usual grey-green type, are recorded. One, from Inchnacardoch Forest, Scotland, had slightly smaller leaves than the grey-green type growing in the same district; the other from the shore of Muckross Lake, Killarney, had narrowly oblanceolate leaves congested towards the ends of the branchlets, and suberect, contrasting with the accompanying grey-green type in which the leaves were broadly-oblanceolate, scattered, and spreading at an angle of 45°. Neither variant can, however, be separated from specimens from other parts of Britain on leaf-measurement alone.—Burtt (1939).

650. SALIX L. The following extract—from "Chassagne (Dr M.) & Görz (R.), *Salix* nouveaux de France, (Bull. Soc. Dendrologique, No. 81 (no date on the separate) shortly after 1930)"—was sent to P. M. Hall by M. P. Senay as being of interest to British salicologists:—

"×**S. Chouardi** Nobis × (*S. atrocinerea* × *viminalis*, n. hybr.).

Differt a *cinerea* × *viminali* foliis subtus multo parcius pilosis, canoviridibus v. rarius (imprimis junioribus) pilis rubiginosis ± dense tectis, ramulis tenuioribus anniculis omnino glabratis.

Aveyron: Bords de l'Aveyron entre Gagnac et Aybillac, 600 m. (leg. Soulié sub. nom. *S. cinerea* × *purpurea*).

Cantal: Bords de la Cère, vers Yolet (Dr Chassagne).

Loire-Inférieure: Environs de Nantes (leg. Maupon. Exsic. Société Rochelaise, n° 2.714, sub. nom. *S. Smithiana* Willd. var. *β obscura* G. G.; *S. cinerea* × *viminalis* Wimm.).

Puy-de-Dôme: Bulhon près Lezoux (Dr Chassagne).

Angleterre: Entre Thirsk et Kilwington, North Yorkshire (leg. J. G. Baker, sub. nom. *S. ferruginea* Anders.—Fl. Exsic. Billot, n° 3.678).

F. *sericea*, n.f.

Foliis subtus subsericeis, junioribus rubiginosis.

Bords de la Loire (leg. Boreau, sub. nom. *S. rugosa* Smith).

La prèsence d'un indument plus épais à la face inférieure des feuilles fait supposer que *S. cinerea* serait aussi un des parents de cette forme, mais cet indument peut aussi être dû à *S. viminalis* lorsque celui-ci est dominant. La rareté de *S. cinerea* dans l'Ouest, ou il est remplacé par *S. atrocinerea* permet plutôt d'admettre ici une combinaison *superviminalis*."

650/3d. SALIX ALBA L. var. **elyensis** Burtt Davy. This new variety was described by Burtt Davy (1938) while engaged on field studies of the cricket-bat willow. He describes it as a tree up to about 50 feet in height with slightly drooping branchlets. Allied to *S. alba* L. var. *caerulea* Smith, differing in the relatively longer catkins; the longer, relatively narrower, acute, rather persistent bracteoles which exceed the stamens and ovary at the flowering stage; and the shortly stipitate ovary with a distinct style. The coppice shoots of the year are greenish in winter and early spring, instead of mahogany-coloured as in *S. alba* var. *caerulea*, and the circumstomatal dots are slightly less densely distributed on the surfaces of the mature leaves. All of these characters suggest some affinity with *S. fragilis*, but the tree is more closely allied to *S. alba*. Recorded from West Norfolk and North Hampshire.

669/11c. ORCHIS MACULATA L. var. **cornubiensis** Pugsl. The plant described by Pugsley (1940 F) under the above name is the Cornish form of *O. Fuchsii* Druce. Of the two spotted orchids *O. ericetorum* is the common Cornish species, *O. Fuchsii* being quite rare. This Cornish plant differs from the usual English *O. Fuchsii* in being relatively dwarf and compact, leaves with dark purple spots recalling *O. mascula*. The spike is short, flowers larger, less lilac in colour with a stout spur as in *praetermissa*. It is described under *O. maculata* L. in the sense of *O. Fuchsii* Dr., as the strict application of the Linnean name has yet to be satisfactorily fixed.

669/11(2). **Orchis hebridensis** Wilmott. A spotted orchid occurring in quantity on Barra and also in Lewis, closely allied to *O. maculata* L. (*O. Fuchsii* Druce) but distinct from both, has been described under the above name pending further investigation, Wilmott (1939 B: 192). It is distinguished from *O. maculata* by being generally shorter, stouter, leaves heavily blotched and sometimes spotted on the underside near the base. The young inflorescence is pyramidal as in *O. ericetorum*, but later it may elongate and look more like *O. purpurella*, although less dense; it is denser than that of *O. maculata*. The labellum is as broad as in *O. ericetorum* and often similar in form, but of the deep colour found in *O. purpurella*.

A hybrid with *O. purpurella* is described and named ×**O. hebridella** Wilmott.

684/9. NARCISSUS ODORUS L. Pugsley (1939 B) shows that the Cornish plant from near St Austell is incorrectly named; the correct name being **N. infundibulum** Poiret.

707/1. ORNITHOGALUM PYRENAICUM L. "Wild Asparagus" (*Journ. Bot.*, 77, 220). The following note from our member, P. Senay, was found among Mr P. M. Hall's papers and may be of general interest:— "Under the name 'wild asparagus' = asperge sauvage, or oftener 'asperge des bois,' the inflorescence of *Ornithogalum pyrenaicum* (before flowers open) is eaten by French peasants in some parts of the

country. My own experience bears on Lorraine, where it grows profusely and takes the place of *Scilla non-scripta* in woods—the latter's area reaches to about Bar-le-Duc (Meuse). I very often ate it, cooked either alone with cream, or as a vegetable with meat, or in omelet. I agree that it tastes very much like the garden asparagus. Have you ever tried the tender top part (whitish leaves and young inflorescence) of *Chenopodium album*? I find it more delicate than spinach. I was told that the Germans often gave it as a food to French prisoners during the Great War."

718/9. JUNCUS ACUTIFLORUS Ehrh., a form with the heads densely congested in a small capitate inflorescence. 9, Dorset; in some quantity on the sandy edge of a bog on Scotland Heath, Purbeck, Aug. 1940, N. Y. SANDWITH and N. D. SIMPSON. This agrees with Lange's material from La Teste de Buch, W. France, which he referred (as "forma similis") to his own *J. silvaticus* Reich. and forma γ *congestus* Lge., published in *Kjoeb. Vidensk. Meddel.* for 1860, p. 67 (1861). This form, discovered at Santiago de Compostela in N.W. Spain, was characterised by "ramis ramulisque cymae abbreviatis, glomerulis multi- (12-16) floris, dense confertis." The French and Dorset plants differ in their fewer-flowered clusters. In the same year but probably later (the preface by Willkomm is dated Oct. 12th, 1861), in his account of *Juncaceae* in Willk. et Lge. *Prodr. Fl. Hisp.*, i, 185 (1861), Lange again published the same form from the same locality as *J. silvaticus* forma γ *confertus* Lge., "glomeruli multiflori, ramis brevissimis dense congesti." The latter name has been taken up or cited by subsequent authors such as Buchenau, in Engler, *Pflanzenreich*, iv, 36 (*Juncaceae*), p. 210 (1906), as *J. silvaticus* Reich. var. *confertus* Lge.; Hegi, *Fl. Mitteleurop.*, ii, 170 (1909), as *J. acutiflorus* Ehrh. var. *confertus* (Lge.) Hegi; Rouy, *Fl. France*, xiii, 242 (1912), as *J. silvaticus* Reich. var. β *confertus* Lge.; and Coutinho, *Fl. Portugal*, 118 (1913), as *J. acutiflorus* Ehrh. var. β *confertus* Lge. Both Buchenau and Rouy inaccurately give the reference from the Videnskabelige Meddelelser, where the name given was *congestus*; and they all assign varietal rank, whereas Lange in both descriptions clearly designated the plant as "forma," which is doubtless the rank it deserves. It should therefore be known as *Juncus acutiflorus* Ehrh. forma **congestus** (Lge.) *mihi*, comb. nov. No form approaching Lange's plant appears to have been recorded hitherto from this country.—N. Y. SANDWITH.

737/2. ×POTAMOGETON MACVICARII A. Benn. Dandy & Taylor (1939) show that it is the same as ×*P. Griffithii* A. Benn (=*P. alpinus* × *praelongus*).

737/3. **Potamogeton nodosus** Poir. According to Dandy & Taylor (1939) this is the correct name of the plant hitherto known in Britain as *P. Drucei* Fryer. Vice-county distribution is given as 6, 9, 22, 34. Delete 8 in *C.F.* (error for 6).

737/6. ×POTAMOGETON GRIFFITHII Ar. Benn. This is shown by Dandy & Taylor (1939) to be a hybrid between *P. alpinus* and *P. praelongus*.

737/12. POTAMOGETON BABINGTONII A. Benn. (=×*P. Zizii* Koch ex Roth). Dandy and Taylor (1939) discuss the identity of *P. Babingtonii* Ar. Benn. and show that it is referable to ×*P. Zizii* Koch ex Roth (=*P. gramineus* × *lucens*). The name *P. angustifolius* Bercht. & Presl, often used for it, probably refers to a form of *P. gramineus*.

737/13. ×POTAMOGETON FLUITANS Roth. Recorded from South Hants.; Moors R. by footbridge at Palmer's Ford, St Leonards and St Ives, P. M. HALL, 1939.—Dandy & Taylor (1939, 255) and from a tributory of the River Stour near Hurst Station, F. TOWNSEND, 1879.—Dandy & Taylor (1939, 342).

737/14. ×POTAMOGETON DECIPIENS Nolte. Recorded from Kennet and Avon Canal, Steep Green, Burbage, South Wilts., G. Taylor.—Dandy & Taylor (1939).

737/14c. POTAMOGETON SALIGNUS Fryer ap. Hiern (=×*P. decipiens* var. *salicifolius* Ar. Benn., the *Brit. Pl. List*, ed. 2). Dandy & Taylor (1939) discuss the identity of *P. salignus*. This was first published by Hiern in the *Victoria County History* (1906), p. 129. The account embraced two elements: (1) a plant from N. Devon which is ×*P. nitens* Weber, and which does not agree with the diagnosis of *P. salignus*; (2) a plant from the Hereford Wye, which is × *P. decipiens* Nolte & Koch (=*P .lucens* × *perfoliatus*). This latter agrees with the diagnosis. Fryer believed that the Wye plant was allied to ×*P. decipiens* but sufficiently worthy of segregation, a view which is not held by Dandy & Taylor.

737/17. ×POTAMOGETON BENNETTII Fryer. This is a hybrid between *P. crispus* and *P. trichoides*.—Dandy & Taylor (1939).

751/1. **Kobresia simpliciuscula** (Wahlenb.) Mackenzie. This name is adopted by Polunin (1939 B: 272) in place of *K. caricina* Willd. and *K. bipartita* auct. non (All.) Dalla Torre.

753/22. CAREX OEDERI Retz. Nelmes (1939) shows that this name is a synonym of *C. pilulifera* L. and therefore cannot be used in the current sense of Kükenthal and others. *C. serotina* Mérat is tentatively suggested as the name which will replace *C. Oederi*, unless the American *C. viridula* Michaux proves to be identical.

[Dr Polunin and I have compared the American *C. viridula* with British "*C. Oederi*" and find them to be identical.—A. J. WILMOTT.]

753/33. CAREX DIVERSICOLOR Crantz. **C. flacca** Schreb. is the correct name for the species concerned. Druce wrongly assumed *C. diversi-*

color Crantz to be identical with *C. flacca* Schreb. The former is synonymous with *C. acuta*, for which it is a superfluous name and therefore illegitimate.—Nelmes and Sprague (1939: 179).

753/49(2). **Carex eboracensis** Nelmes. A puzzling sedge collected by the Rev. James Dalton at Copgrove, Knaresborough, Yorkshire, in 1802. C. B. Clarke confessed on one of the Kew specimens of Dalton's gathering that he was "afraid to guess the species," and the better specimen (type) at the British Museum was found in the *C. flacca* Schreb. cover.

The plant is really a near relative of that very polymorphic species, *C. Goodenowii* Gay, and stands even closer to *C. juncella* (Fries) Fries. *C. juncella*, which Kükenthal considers to be a variety of *C. Goodenowii*, differs from this species chiefly in its tufted habit and aphyllopodic (surrounded at the base by bladeless leaves) flowering stems. *C. eboracensis* is similarly, and by other, less important, characters, also distinct from *C. Goodenowii*. Its distinctness from *C. juncella* rests on smaller but numerous differences of considerable total value. Those differentiating characters of *C. eboracensis* are mentioned by Nelmes (1939: 112) just above the Latin description, a translation of which is given here:—*Rootstock* caespitose. *Stems* 20-30 cm. tall, erect, slender, smooth below but scabridulous above, surrounded at the base by a few chestnut-coloured leafless sheaths. *Leaves* shorter than the stems, 1.5-2 mm. broad, flattish but often with revolute margins, fairly smooth and rather stiff. *Spikes* 3-4, usually 4, rather distantly spaced from one another, upper 1-2 (rarely 3) male, lanceolate-cylindrical, dense-flowered, 2-3 cm. long; remainder (2-3) wholly female or uppermost sometimes androgynaeceous, 1.5-3.5 cm. long, upper 1-2 sessile or subsessile, lower 1-2 peduncled (peduncles up to 2.3 cm. long), erect or patulous, slender, cylindrical, somewhat dense-flowered but lower laxer at the base. *Bracts* (lower) foliaceous, falling short of the apex of the inflorescence, upper very short and squamiform at the base. *Scales* not hyaline on the margins, midrib pale, keeled, and not reaching the apex of the scale; male very obtuse, obovate, yellow-brown; female oblong-elliptical, obtuse, golden-brown. *Utricles* about equalling or slightly longer and broader than the scales, elliptical, suberect, densely puncticulate, 2.5-3 mm. long, about 1.5 mm. broad, very finely 1-4-nerved on the dorsal face and obsoletely nerved on the ventral face, pale green, obconic-stipitate at the base, abruptly contracted at the apex into a short beak which is entire or bidentulate at the mouth. *Nut* not filling the utricle, obovate-elliptical, long-beaked. *Stigmas* 2. E. Nelmes.

753/51. **Carex Bigelowii** Torr. ex Schwein. This name is adopted by Polunin (1939 B: 272) in place of *C. rigida* Good. non Schrank and *C. concolor* auct. non R. Br.

753/54. **Carex bipartita** All. This name is adopted, in place of *C. Lachenalii* Schkuhr and *C. lagopina* Wahlenb., by Mackenzie in his account of the N. American Carices (*N. Amer. Fl.*, xviii, 88: 1931), hav-

ing been earlier investigated by Holm in *Amer. Journ. Sci.*, iv, xv, 145-152: 1903, and Mackenzie (*Bull. Torr. Club*, i, 348: 1923); it is also taken up by Polunin (1939 B: 272).

753/59. CAREX VULPINA L. in England. The plant which has been known to western (and southern) European botanists as *Carex vulpina* L. ever since the time of Linnaeus is a different species from that known under the same name for a similar period in eastern (and northern) Europe. According to Nelmes (1939: 259) the eastern species is the true *Carex vulpina* L. for various reasons, chief of which appear to be the following:—(1) It is the plant of the Linnaean Herbarium, (2) although Linnaeus appears to include both species in his conception of *C. vulpina*, there is evidence that he was more familiar with the eastern (which is also a Swedish) plant, and (3) the "spike" of the eastern species is strikingly similar in colour to the fox's coat. Reason (4) is explained in the concluding paragraph in *Journ. Bot.*:—"The deciding argument, however, for applying the name *C. vulpina* L. to the eastern plant appears to be Art. 52 of the International Rules of Botanical Nomenclature, ed. 3, 1935."

The Rules do not allow the name *C. nemorosa* Rebent. (1804) to be applied to our common western species, because Schrank in 1789 used this epithet for another *Carex* (*C. alba* Scop.). An examination of the claims of other epithets which have been applied to our western plant show that **Otrubae** appears to be the correct one. It was given by Podpera, a Czech botanist, in 1922, to a supposed hybrid between the western plant and *C. spicata* Huds., which has since been identified by Nelmes and others as a form of the western plant itself.

While *C. Otrubae* Podp. extends eastwards right across Europe, *C. vulpina* L. was not known with certainty to occur in this country until 1939, when it was realised that plants collected during the previous summer by Mr E. C. Wallace in W. Sussex were of this species. It is true that Samuelsson says that H. E. Garnsey collected it near Oxford in 1881, and that this gathering is at Vienna, but the significance of the discovery was apparently lost on British botanists because of the long-standing misinterpretation of *C. vulpina*.

Following the identification of Wallace's discovery a search was made in the "*Carex vulpina*" covers in some of the more important herbaria. Specimens of the true *C. vulpina* L. were noted in Herb. Mus. Brit., collected at Amberley Wild Brooks (which is also in W. Sussex) in 1912 by C. C. Lacaita, and one in Herb. Marshall, from the Eden, below Chiddingstone, W. Kent, where it was collected in 1894 by E. S. Marshall himself, and named by Kükenthal *C. paniculata* × *C. vulpina*. The plant was seen growing at these localities in the 1939 season, and it was found in E. Sussex in 1940. (In the summer of 1941 the known range of *C. vulpina* in Britain was considerably extended by the discovery of the plant at Coombe Hill Canal, west of Cheltenham (33, E. Glos.).)

It may be useful to give here, side by side, the chief contrasting characters of the two species:—

C. vulpina L.

Stem robust, 3-winged, faces somewhat concave.

Leaves dark bright green, even when dry, usually broad, ligule more or less truncate.

Inflorescence bright warm brown, usually dense but sometimes lax below, subpyramidal, rarely oblong, usually appearing ebracteate, with conspicuous dark brown auricles at the base.

Utricles brownish, ovate, suberect to patulous, few-nerved on the dorsal face, and usually nerveless on the ventral face, with a deep broad groove on the back of the beak; seen to be densely papillose under a pocket lens (× 10).

C. Otrubae Podp.

Stem less robust, 3-angled, faces flattish.

Leaves grey-green when dry, broad but usually narrower than in the eastern plant, ligule more or less triangular with a rounded apex, sometimes elongate.

Inflorescence yellowish-green or light brown, sometimes dense but often lax-flowered and sometimes considerably interrupted below, oblong, rarely subpyramidal, usually conspicuously bracteate, auricles pale and inconspicuous.

Utricles greenish, ovate-lanceolate, becoming strongly divaricate, usually distinctly several-nerved on both faces, no deep broad groove on the back of the beak; smooth under a lens.

E. NELMES.

753/75. CAREX DIOICA L. This name as used by Linnaeus covered two species, subsequently described as *C. laevis* Hoppe (*C. Linnaeana* Host.) and *C. Davalliana* Sm. (*C. scabra* Hoppe). The name *dioica* has been generally applied to the Swedish (and British) species, *C. laevis* Hoppe, and should be retained for it.—Nelmes and Sprague (1939: 152).

753/75b. CAREX DIOICA L. Plants collected on the lower slopes of Ben Douran, Argyll, seem to be referable to f. **isogyna** (Fr.) Kük. (*Journ. Bot.*, *65*, 351, *67*, 82.). They were very conspicuous at a distance over a small area. Specimens will be distributed at a later date.—E. C. WALLACE.

826/1c. **Scleropoa rigida** (L.) Griseb. var. **major** (J. B. Presl) Lousley (1939 C: 202). *Sclerochloa patens* J. B. Presl; *S. rigida* (L.) Beauv. var. *major* J. B. Presl; *Festuca rigida* (L.) Kunth subvar. *patens* Cosson & Dur.; *F. rigida* (L.) Kunth subvar. *umbrosa* Cosson & Germ.; *Scleropoa rigida* (L.) Griseb. var. *patens* Willk; *Festuca rigida* (L.) Kunth var. *patens* Lousley in *Watson B.E.C. 1933 Rep.*, 240 (1934).

PLANT RECORDS.

*=New vice-county record. †=Not native in this locality.

Note.—In the case of direct contributions, the name of the contributor is printed in small capitals. In the case of records which are Abstracts, the author's name and date, or the date alone, are enclosed in brackets. When no date is mentioned, the record is for 1939, except for the Staffordshire records of G. J. V. Bemrose and E. S. Edees, extracted from *N. Staffs. F.C.*, Trans., lxxv, 16-, where no definite year was mentioned.

*1/1. CLEMATIS VITALBA L. 48, Merioneth; near Llwyngwern Station, 1940; between Penybont and Fridd Gate, Harlech, 1940, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. WALES.

2/5. THALICTRUM ALPINUM L. H.27, West Mayo; Mweelrea, at 2000 ft., W. A. SLEDGE.

3/2c. ANEMONE NEMOROSA L. var. CAERULEA DC. 45, Pembroke; open glades, Slebech, J. G. WILLIAMS, comm. DEPT. BOT., NAT. MUS. WALES.

5/1. MYOSURUS MINIMUS L. 21, Middlesex; field between Hampton and Sunbury, 1896, WHITE, comm. A. E. ELLIS.

*6/4. RANUNCULUS AURICOMUS L. 94, Banff; Colleonard, near Banff, Miss M. McC. WEBSTER.

*6/22(2). RANUNCULUS RADIANS Revel. 7, N. Wiltshire; near Frith Copse, Lydiard, and between Flaxlands and Hook, J. D. GROSE (*Wilts. Arch. and N.H. Mag.*, xliii, 408).

6/24. RANUNCULUS HETEROPHYLLUS Weber. 3, S. Devon; Woodbury, S. EDWARDS and B. GODFREY, comm. G. T. FRASER.

6/26. RANUNCULUS PSEUDO-FLUITANS (Syme) Newbould ex Baker et Foggitt. 3, S. Devon; river Otter, Ottery St Mary, Rev. W. K. MARTIN and G. T. FRASER; river Teign, Branscombe, G. T. FRASER.

6/28. RANUNCULUS BAUDOTII Godr. 3, S. Devon; West Down, Littleham, B. GODFREY, comm. G. F. FRASER.

6/33b. RANUNCULUS FICARIA L. var. DIVERGENS F. Schultz. 39, Staffs.; Burston, G. J. V. BEMROSE.

6/33e. RANUNCULUS FICARIA L. var. BULBIFERA Marsden-Jones. 20, Herts.; Rickmansworth, F. M. DAY. 49, Caernarvon; Pwllheli, 1940, J. REES.

*7/2. CALTHA RADICANS T. F. Forst. 103, Mid Ebudes; Coire nam Fuaran, Ben More, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

9/1b. HELLEBORUS VIRIDIS L. var. OCCIDENTALIS (Reut.) Druce. 3, S. Devon; near Burrator Lake, Walkhampton, E. M. PHILLIPS and F. C. MARKS, comm. G. T. FRASER. *43, Radnor; near Llandeilo-graban, 1937, J. G. WILLIAMS, comm. DEPT. BOT., NAT. MUS. WALES. 65, N.W. Yorks.; Kirby Fleetham, near Northallerton, 1906, H. K. WALLACE, comm. A. E. ELLIS.

9/2. HELLEBORUS FOETIDUS L. 22, Berks.; bushy chalkpit in wood, Yattendon, N. E. G. CRUTTWELL. 47, Montgomery; near Berriew, Miss S. HAINES. 62, N.E. Yorks.; calcareous hill, Old Stead, G. FOGGITT. [Dr W. A. Sledge tells me that this plant is wild in v.-cc. 62, 63, and 64, and therefore brackets should be removed in *C.F.*—ED.]

†10/1. ERANTHIS HYEMALIS (L.) Salisb. 26, W. Suffolk; for W. Sussex of the record in *B.E.C. 1938 Rep.*, 33 (1939), read W. Suffolk.

14/1. ACONITUM ANGLICUM Stapf. 7, N. Wilts.; banks of By Brook, Ford, 1920, A. E. ELLIS. [Add to *C.F.* but has been recorded previously by Grose (*Wilts. Arch. & N.H. Mag.*, xlix, 332, 1941). Not in *Top. Bot.* or *Supps.*—ED.]

21/2c. PAPAVER RHOEAS L. var. PRYORII Druce. 17, Surrey; Pyrford: Epsom College, cultivated fields, 1938, A. E. ELLIS.

22/1. MECONOPSIS CAMBRICA (L.) Vig. 4, N. Devon; Marystow, F. C. MARKS and E. M. PHILLIPS. 64, Mid West Yorks.; Craven, August 1820, A. W. FRANKS, comm. A. E. ELLIS. [Apparently earliest notice in Yorkshire.—ED.]

†27/1. ARGEMONE MEXICANA L. 18, S. Essex; waste ground, Dagenham, J. P. M. BRENAN and N. Y. SANDWITH.

†30/1. DICENTRA FORMOSA Walp. 16, W. Kent; near High Rocks, first noted 1937, now in slightly greater quantity, J. R. WALLIS.

*†31/2. CORYDALIS CAVA (L.) Schweigg. et Körte. 34, W. Gloucester; Stinchcombe, CHARLES THOMAS (1941: *Proc. Cotteswold Nat. F.C.*, 1940, xxvii, 111).

32/5d. FUMARIA BORAEI Jord. var. BRITANNICA Pugsl. 15, E. Kent; cornfield near Snargate, E. C. WALLACE.

32/12. FUMARIA VAILLANTII Lois. 17, Surrey; Epsom College grounds, A. E. ELLIS.

32/13. FUMARIA PARVIFLORA Lam. 17, Surrey; cabbage field, Clandon Downs, 1938, G. WATTS and A. L. STILL.

†32/14. FUMARIA AGRARIA Lag. 18, S. Essex; waste ground, Dagenham, J. P. M. BRENAN and N. Y. SANDWITH. Confirmed by H. W. Pugsley.

*35/2. RORIPPA SYLVESTRIS (L.) Smith. 100, Clyde Isles; Ardencraig, Bute, 1928, A. E. ELLIS.

†35/5. RORIPPA AUSTRIACA (Crantz) Bess. 41, Glam.; near King's Dock, Danygraig, Swansea, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. Wales.

36/2. BARBAREA VERNA (L.) Asch. 13, W. Sussex; Worthing, 1935, L. A. W. BURDER.

37/5c. ARABIS PETRAEA Lam. var. GRANDIFOLIA Druce. 88, Mid Perth.; north side of Ben Chaluim, 1940, R. MACKECHNIE and E. C. WALLACE.

†38/1. **Microsisymbrium lasiophyllum** (Hook. & Arn.) O. E. Schulz in *Das Pflanzenreich* (*Cruciferae-Sisymbriae*), iv, *105*, p. 162 (1923). *Turritis ? lasiophylla* Hook. & Arn. in *Bot. Capt. Beechey's Voyage*, 321 (1841). *Thelypodium lasiophyllum* (Hook. & Arn.) Greene in *Bull. Torr. Bot. Club*, *13*, 142 (1886). 39, Staffs.; waste ground, Worthington's maltings, Burton-on-Trent: a striking plant, erect, with pinnatifid leaves and small cream-coloured flowers and slender siliquae soon becoming deflexed after flowering time, J. P. M. BRENAN.

*39/3. CARDAMINE IMPATIENS L. 12, N. Hants.; on upper greensand, Catham copse, Bentley: reported to me in 1938 by W. E. WARREN and seen in fruit in 1939, E. C. WALLACE.

†42/10. ALYSSUM MARITIMUM (L.) Lam. 61, S.E. Yorks.; rubbish heaps, Hessle, A. K. WILSON.

43/2. DRABA RUPESTRIS R. Br. 98, Argyll; seen in small quantity on high rock face on Ben Dothaidh, 1940, E. C. WALLACE.

43/3. DRABA INCANA L. 108, W. Sutherland; rocks by Smoo Inlet, D. MCCLINTOCK. 108, W. Sutherland; sandhills at Melvich, near sea level, P. M. HALL and E. C. WALLACE. *110, Outer Hebrides; Fuday, Heslop Harrison (1939: 2).

*43/4. DRABA MURALIS L. 45, Pembroke; bank of lane, near Narberth, J. W. GOUGH.

†49/3. SISYMBRIUM ALTISSIMUM L. 20, Herts.; near the Canal, Rickmansworth, F. M. DAY.

†49/4. SISYMBRIUM ORIENTALE L. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES. 13, W. Sussex; Southwick, 1939, confirming Hilton's record of 1891, L. A. W. BURDER.

49/6b. SISYMBRIUM OFFICINALE (L.) Scop. var. LEIOCARPUM DC. 29, Cambs.; edge of cornfield, Fulbourn, F. M. DAY.

50/1. ERYSIMUM CHEIRANTHOIDES L. 25, E. Suffolk; Stratford St Andrews, Miss L. ABELL.

†54/16. BRASSICA JUNCEA (L.) Coss. 15, E. Kent; by grain mill on right bank of R. Stour, near Wye Station, J. P. M. BRENAN.

†55/2. DIPLOTAXIS MURALIS (L.) DC. 39, Staffs.; Weston on Trent and Newcastle under Lyme, G. J. V. BEMROSE.

*†60/1. CORONOPUS DIDYMUS (L.) Sm. 40, Salop; Llanymynech Station, J. A. WEBB; comm. DEPT. BOT., NAT. MUS. WALES.

*61/5. LEPIDIUM CAMPESTRE (L.) R. Br. 110, Barra; Wilmott (1939 A: 189).

†61/8. LEPIDIUM PERFOLIATUM L. 54, N. Lincoln; Gainsborough, H. B. WILLOUGHBY SMITH.

*†64/1. THLASPI ARVENSE L. 43, Radnor; Llandrindod Wells, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. WALES.

*66/1. TEESDALIA NUDICAULIS (L.) R. Br. 103, Mid Ebudes; near Coire nan Each, c. 1500 ft. south side of Ben More, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

†74/2. BUNIAS ORIENTALIS L. 15, E. Kent; waste ground by R. Medway, Forstal, near Aylesford, J. P. M. BRENAN.

75/1. CRAMBE MARITIMA L. 25, E. Suffolk; sea shore between Dunwich and Walberswick, 1939—see Hind, *Flora of Suffolk*, wherein this plant is reported as probably extinct—F. DRUCE.

77/1. CAKILE MARITIMA Scop. 108, W. Sutherland; Balnakeil Bay, Durness, P. M. HALL and E. C. WALLACE.

†79/1. ERUCARIA HISPANICA (L.) Druce. 16, W. Kent; waste ground, Tonbridge, J. P. M. BRENAN.

*88/3. VIOLA REICHENBACHIANA Jord. 67, S. Northumberland; Dinsdale Woods and sparingly along the Devil's Water, J. W. HESLOP HARRISON in *Vasc.*, *25*, No. 3, 101 (*V. canina* L. is claimed (in error) as a *N.C.R.*). *103, Mid Ebudes; Coll, J. W. HESLOP HARRISON. *110, Outer Hebrides; cliffs, Tarbert, Harris, 1938, W. A. CLARK.

88/3c. VIOLA REICHENBACHIANA Jord. forma LEUCANTHA (Čelak.). 33, E. Gloster; Dowdeswell Lane, near Andoversford, 1938, Miss L. ABELL. 36, Hereford; Purlieu Lane, Colwall, 1938, F. M. DAY.

88/4. VIOLA RIVINIANA Rchb. 103, Mid Ebudes; Coll, J. W. HESLOP HARRISON.

88/4. VIOLA RIVINIANA Rchb. forma ALBIFLORA Becker. 3, S. Devon; Scabbacombe Head, Brixham, F. M. DAY. [In contrast to most other British species of violet white-flowered forms of *V. Riviniana* are in my experience extremely rare in the wild state. A cultivated form has been distributed from Wisley by the Royal Horticultural Society under the incorrect name "*V. canina alba*" and is well known to gardeners.—P. M. HALL.]

88/4b. VIOLA RIVINIANA Rchb. var. DIVERSA Greg. 5, S. Somerset; Leigh Hill, Lowton, near Taunton, Miss M. E. EDMONDS. [This gathering was notable for the large size of the flowers and for the variation in colour of the flowers and spurs.—P.M.H.] 14, E. Sussex; downs west of Jevington, J. R. WALLIS. 36, Hereford; Tarrington Common, 1938: 37, Worcester; Kempsey Common, 1938, F. M. DAY.

*88/6. VIOLA CANINA L. 103, Mid Ebudes; coll. J. W. HESLOP HARRISON.

88/6×4. VIOLA CANINA L. × RIVINIANA Rchb. 36, Hereford; Tarrington Common, 1938, F. M. DAY. 103, Mid Ebudes; coll. J. W. HESLOP HARRISON.

88/8h. VIOLA ODORATA L. var. SUBCARNEA (Jord.) Rouy & Fouc. 36, Hereford; Chance's Pitch, Colwall, F. M. DAY.

88/9f. VIOLA HIRTA L. var. LACTIFLORA Rchb. 33, E. Gloster; Foxcote, near Andoversford, 1938, Miss L. ABELL.

88/9i. VIOLA HIRTA L. var. PROPERA (Jord.) Gillot. 14, E. Sussex; downs between Alfriston and Firle plantation, J. R. WALLIS.

88/9×8. VIOLA HIRTA L. × ODORATA L. 36, Hereford; Chance's Pitch, Colwall, F. M. DAY.

88/10. VIOLA HIRTA L. var. CALCAREA Bab. 14, E. Sussex; downs west of Jevington, J. R. WALLIS. 63, S.W. Yorks.; Stapleton Park Woods, Wentbridge, W. A. SLEDGE.

88/11. VIOLA PALUSTRIS L. forma ALBIFLORA Neum. 5, S. Somerset; Leigh Hill, Lowton, near Taunton, with the typical form, Miss M. E. EDMONDS.

88/24. VIOLA SEGETALIS Jord. forma OBTUSIFOLIA (Jord.) Drabble. 3, S. Devon; on the Bovey, near N. Bovey: in a cornfield, Beetor; 1938, T. STEPHENSON. 62, N.E. Yorks.; church-yard, Old Malton, 1938, Miss C. M. ROB.

88/26. VIOLA RURALIS Bor. 62, N.E. Yorks.; clover field, Catton, near Thirsk, 1938, Miss C. M. ROB.

88/34. VIOLA CURTISII Forst. 103, Mid Ebudes; Coll, J. W. HESLOP HARRISON.

†10(2). PITTOSPORACEAE Benth. & Hook. f., i, 131.

†88(2). **Pittosporum** Banks ex Gaertn., *Fruct.*, i, 286, t. 59 (1788).

†88(2)/1. **Pittosporum crassifolium** Soland. ex Putterlick, *Syn. Pittosp.*, 12 (1839). Illustrated in *Bot. Mag.*, t. 5978, from Tresco material. Native of New Zealand. 1a, Scillies; near Old Town, St Mary's (Lousley, 1939 C).

89/4. POLYGALA OXYPTERA Rchb., det. A. J. WILMOTT. 16, W. Kent; near Lamberhurst, J. R. WALLIS.

†92/8. DIANTHUS CARYOPHYLLUS L. 41, Glam.; on shingle, Crymlyn Bay, J. A. Webb, comm. DEPT. BOT., NAT. MUS. WALES.

†94/6. **Gypsophila scorzonerifolia** Ser. in DC. *Prodr.*, i, 352 (1824). Orient and Hortal. 34, W. Gloucester; tip, Fishponds, Bristol, 1936, C. I. SANDWITH. *G. acutifolia* Fisch. var. *latifolia* Fenzl in Ledeb. *Fl. Ross.*, i, 296 (1842), appears to represent the same plant, which has sometimes been known in gardens or books on garden plants as *G. perfoliata* L. or *G. acutifolia* Fisch.—N. Y. SANDWITH.

96/8. SILENE ACAULIS L. 92, S. Aberdeen; on the plateau above Cairn Lochan at 4000 ft., a form with pure white flowers, C. LEIGHTON HARE and J. G. ROGER. [There are old references to this white form from the Cairngorms but, as far as I can trace, it has not been recorded previously from this locality.—C.L.H.] 108, W. Sutherland; on the cliffs, Faraid Head, 1938, D. MCCLINTOCK.

†96/14. SILENE SUBCONICA Friv. (*S. juvenalis* Del.). 6, N. Somerset; waste ground, Bristol, C. I. SANDWITH. New to the Bristol list. For the identity of *S. juvenalis*, which was described from adventive material collected at Port Juvenal, France, see a paper by W. B. Turrill in *Kew Bull.*, 1933, pp. 40-44.—N. Y. SANDWITH.

*100/9. CERASTIUM TETRANDRUM Curt. 23, Oxon.; among stones by the railway line between Wolvercote Bridge and the Junction, J. P. M. BRENAN.

*101/4. STELLARIA NEGLECTA Weihe. 25, E. Suffolk; hedgebank, Huntingfield, near Halesworth, 1940, Miss M. M. WHITING and N. Y. SANDWITH.

*101/7. STELLARIA GRAMINEA L. 110, Outer Hebrides; N. Harris, A. J. WILMOTT (M. S. Campbell: *Journ. Bot.*, *78*, 101: 1940).

*102/3. ARENARIA NORVEGICA Gunn. 104, Rhum; W. A. Clark (1939: 5).

103/1. SAGINA NODOSA (L.) Fenzl. 32, Northants.; Southorpe, 1938, a vegetative non-flowering form, evidently the same as that described by Davey, *Fl. Cornw.*, 80 (1909), Mrs C. L. WILDE.

103/1b. SAGINA NODOSA (L.) Fenzl var. GLANDULOSA (Bess.). 39, Staffs.; Penkhull, G. J. V. BEMROSE.

103/7. SAGINA CILIATA Fr. 61, S.E. Yorks.; Houghton Woods (det. H. W. Pugsley), A. K. WILSON.

†107/1. PORTULACA OLERACEA L. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

†108/1. CLAYTONIA ALSINOIDES Sims. 69, Westmorland; near Colwith, H. B. WILLOUGHBY SMITH.

†108/2. CLAYTONIA PERFOLIATA Donn. *39, Staffs.; Burston, G. J. V. BEMROSE. 61, S.E. Yorks.; Brough, A. K. WILSON. *67, S. Northumberland; Stocksfield, 1906, H. K. WALLACE, comm. A. E. ELLIS. *94, Banff; Colleonard, near Banff, Miss M. McC. WEBSTER.

†112/3. HYPERICUM HIRCINUM L. 3, S. Devon; near Coombe Cellars, Haccombe, G. T. FRASER; near Treby, Yealmpton, E. M. PHILLIPS.

†112/5. HYPERICUM CALYCINUM L. 48, Merioneth; Penhelig, J. A. WEBB, 1940, comm. DEPT. BOT., NAT. MUS. WALES.

112/17. HYPERICUM ELODES L. 73, Kirkcudbright; Palnure, near Newton Stewart, 1940, R. MACKECHNIE.

†113/2. MALOPE TRIFIDA Cav. 23, Oxon.; waste ground, Port Meadow, Oxford, DE ROUSSET HALL and J. P. M. BRENAN.

†116/8. LAVATERA TRIMESTRIS L. 23, Oxon.; rubbish tip, Port Meadow, Oxford, 1940, J. P. M. BRENAN and N. E. G. CRUTTWELL.

†116/11. **Lavatera plebeia** Sims, *Bot. Mag.*, t. 2269 (1821). Native of Australia: closely resembling *L. cretica* L., but distinguished by the short scurfy indumentum of the stems and calyx. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. B. L. BURTT, N. Y. SANDWITH and V. S. SUMMERHAYES.

†117/6. MALVA AMBIGUA Guss. 16, W. Kent; waste ground, Tonbridge, J. P. M. BRENAN.

†117/7. MALVA NICAEENSIS All. 39, Staffs.; Worthington's Maltings, Burton-on-Trent, J. P. M. BRENAN.

†118(2). **Anoda** Cav. *Diss.*, i, 38 (1785).

†118(2)/1. **Anoda cristata** (L.) Schlecht. in *Linnaea*, xi, 210 (1837) var. **brachyantha** (Rchb.) Hochr. in *Ann. Conserv. Jard. Bot. Genève*, xx, 47 (1916). *Sida cristata* L., *Sp. Pl.*, ed. i, 685 (1753). *Anoda hastata* Cav., *l.c.*, 38, t. 11, f. 2. *A. brachyantha* Rchb., *Icon. Bot. Exot.*, 24, t. 34 (1827). Alien, native of America (perhaps of Temperate S. America), widely cultivated in the tropics. 6, N. Somerset; waste ground, Bristol, Oct. 1939, C. I. SANDWITH, det. N. Y. SANDWITH. Flowers small, pale lilac-mauve.

†122/1. HIBISCUS TRIONUM L. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

125/1. LINUM BIENNE Mill. 16, W. Kent; near Lamberhurst, J. R. WALLIS. [This is almost certainly the station described as "between Hook Green and Lamberhurst" by E. Jenner in a *Flora of Tunbridge Wells* (1845): the record was not taken up in Hanbury & Marshall's *Flora of Kent*, probably because the locality was thought to be in Sussex: indeed, when preparation of that work began, Hook Green and half of Lamberhurst were in Sussex, but before publication a boundary change placed both villages in Kent. Jenner's record was incorrectly included in the recent *Sussex Flora* but with a note doubting whether the plant still belonged to the county. Actually, if my locality and Jenner's are the same, it has always been on the Kentish side of the boundary.—J.R.W.—In any case, changes in county political boundaries do not affect the boundaries of the vice-counties.—A. J. WILMOTT.]

†125/4. LINUM USITATISSIMUM L. 39, Staffs.; Tileries at Spring Fields, Stoke-on-Trent, E. S. EDEES.

127/4. GERANIUM PRATENSE L. 14, E. Sussex; foot of the downs, near Blackcap, Plumpton, E. C. WALLACE.

†127/6. GERANIUM ENDRESSI Gay. 16, W. Kent; streamside near Bayham, J. R. WALLIS.

†127/24. GERANIUM IBERICUM Cav. 41, Glam.; near the Golf Course club-house, Jersey Marine, J. A. WEBB. There is an old record for *G. sylvaticum* from this region. *G. ibericum* was probably mistaken for it, comm. DEPT. BOT., NAT. MUS. WALES.

†128/2. ERODIUM MOSCHATUM (L.) L'Hérit. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†128/5. ERODIUM BOTRYS (Cav.) Bertol. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. N. Y. SANDWITH.

†128/14. ERODIUM CYGNORUM Nees. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. N. Y. SANDWITH.

*†133/2. IMPATIENS BIFLORA Walt. 34, West Gloucester; Berkeley Canal, Slimbridge, CHARLES THOMAS (1941: *Proc. Cotteswold Nat. F.C.*, 1940, *27*, 111).

†133/3. IMPATIENS PARVIFLORA DC. 9, Dorset; Dorchester, Miss MEGGESON, comm. P. M. HALL. 20, Herts.; Jewson's Timber-yard, Hertford, D. MCCLINTOCK. 29, Cambs.; in a yard off Portugal Street, Cambridge. 37, Worcs.; lane near Powick Church, F. M. DAY. [Add v.-c. 37 to *Com. Fl.*, but see *B.E.C. 1923 Rep.*, 179 (1924), for earlier record.—ED.] 54, N. Lincoln; Gainsborough, H. B. WILLOUGHBY SMITH.

†133/4. IMPATIENS ROYLEI Walp. 6, N. Somerset; bank of R. Avon between Newton St Loe and Weston near Bath, 1935, A. E. ELLIS. [Add to *C.F.*, but see C. I. Sandwith (1939) for previous record.—ED.]

138/1. RHAMNUS FRANGULA L. 39, Staffs.; Betley Mere, G. J. V. BEMROSE.

†142/1. ACER PSEUDO-PLATANUS L. 44, Carmarthen; Llannon, J. A. Webb, comm. DEPT. BOT., NAT. MUS. WALES. (First published record for county, not in *Welsh Flowering Plants*.)

150/1b. CYTISUS SCOPARIUS (L.) Link var. PROSTRATUS (Bailey) Hanbury. 49, Caernarvon; Pen Parwyd, Aberdaron, J. REES.

151/2. ONONIS REPENS L. 108, W. Sutherland; Farr Bay, P. M. HALL and E. C. WALLACE. (Add to *C.F.*)

151/3. ONONIS SPINOSA L. 34, W. Glos.; a form with small blue flowers, approaching the continental var. *violacea* (Peterm.) Wohlf., which differs in having tiny flowers with a very short standard, Inglestone Common, B. WELCH (cf. C. I. Sandwith, Bristol Botany in 1940).

†151/8. ONONIS MITISSIMA L. 16, W. Kent; waste ground, Tonbridge, J. P. M. BRENAN.

†152/2. TRIGONELLA FOENUM-GRAECUM L. 39, Staffs.; Tileries at Spring Fields, Stoke-on-Trent, E. S. EDEES, det. F. RILSTONE.

†153/1. MEDICAGO FALCATA L. 3, S. Devon; Exmouth, S. EDWARDS, comm. G. T. FRASER. 39, Staffs.; waste land, North Street, Stoke-on-Trent, E. S. EDEES: Audley, G. J. V. BEMROSE.

†153/4b. MEDICAGO HISPIDA Gaertn. var. DENTICULATA (Willd.) G. & G. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†153/6. MEDICAGO MINIMA (L.) Bartal. 16, W. Kent; waste ground, Tonbridge: approaching var. *longiseta* DC., spines of legume longer than usual, but by no means extreme, J. P. M. BRENAN.

*†153/6d. MEDICAGO MINIMA (L.) Bartal. var. RECTA (Desf.) Burnat. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†154/3. MELILOTUS ARVENSIS Wallr. 39, Staffs.; waste land, North Street, Stoke-on-Trent, E. S. EDEES.

†154/4. MELILOTUS INDICA (L.) All. 13, W. Sussex; Kingston by Sea, L. A. W. BURDER. 17, Surrey; Epsom College Farm, 1937. 27, E. Norfolk; Hellesdon, near Norwich, 1934, A. E. ELLIS. 39, Staffs.; Leek, G. J. V. BEMROSE.

*†155/6. TRIFOLIUM STELLATUM L. 14, E. Sussex; The Crumbles, Eastbourne, 1938, Mrs MORTEN, comm. A. H. WOLLEY-DOD.

†155/17. TRIFOLIUM GLOMERATUM L. 11, S. Hants.; among wool-aliens in an arable field, Portchester, P. M. HALL and R. C. L. BURGES.

*155/20. TRIFOLIUM PROCUMBENS L. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 2).

*155/22. TRIFOLIUM FILIFORME L. 74, Wigtown; Galloway, above Morroch Bay, 1937, A. J. WILMOTT.

160/4b. LOTUS ULIGINOSUS Schkuhr var. GLABER Bréb. 1, W. Cornwall; moor between Sennen and Brew, 1926, A. E. ELLIS. 17, Surrey; Epsom, 1931, I. B. BARTON, comm. A. E. ELLIS. 32, Northants; Welford, 1922: 55, Leics.; Market Harborough, 1920, A. E. ELLIS.

166/1. ASTRAGALUS GLYCYPHYLLOS L. 12, N. Hampshire; Micheldever Wood, 1940, P. M. HALL, E. C. WALLACE, and A. J. WILMOTT.

*166/3. ASTRAGALUS DANICUS Retz. 12, N. Hampshire; near Danbury, 1940, W. A. PAYN, comm. P. M. HALL, see Hall in *Proceedings of the Hampshire Field Club and Archaeological Society*, XV, 65.

†170/1. CORONILLA VARIA L. 14, E. Sussex; Newhaven, 1933, omitted from *Flora of Sussex*, 1937, L. A. W. BURDER.

*176/1. VICIA SYLVATICA L. 103, Mid Ebudes; below Ton Dubh-sgairt, s.w. of Balmeanach, Gribun, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

176/4. VICIA OROBUS DC. 108, W. Sutherland; in plenty and great variety of colour by road between Lochinver and Stoer, P. M.

HALL and E. C. WALLACE. *110, Outer Hebrides; Eriskay, Heslop Harrison (1939: 2).

*†176/9. VICIA LUTEA L. 45, Pembroke; barley field, Tenby, 1940, Mrs F. L. REES, comm. DEPT. BOT., NAT. MUS. WALES.

†176/26b. VICIA PANNONICA Crantz var. STRIATA (MB.). 45, Pembroke; barley field, Tenby, 1940, Mrs F. L. REES, comm. DEPT. BOT., NAT. MUS. WALES.

†176/27b. VICIA MELANOPS Sibth. et Sm. var. **Davidovi** Vel. in *Oest. Bot. Zeitschr.*, lii, 50 (1902), ex descr. det. B. L. BURTT at Kew. Alien, Bulgaria. 6, N. Somerset; waste ground, Bristol, July 1939, C. I. SANDWITH. Standard yellowish, curved back; wings pure white. Differs from the typical plant in the smaller flowers which are differently coloured, lacking the curious blackish tint of the wings and keel. The white-tipped wings of the Bristol plant indicate that it is a form without anthocyanin.

178/2. LATHYRUS SYLVESTRIS L. 66, Durham; Hartlepool, 1906, H. K. WALLACE, comm. A. E. ELLIS. [Knowledge of its status in this locality would be useful; bracketed for 66 in *C.F.*—ED.]

†178/3. LATHYRUS TUBEROSUS L. 9, Dorset; Middle Farm, Dorchester, Miss MEGGESON, comm. P. M. HALL.

†178/20. LATHYRUS HIEROSOLYMITANUS Boiss. 39, Staffs.; Worthington's Maltings, Burton-on-Trent, J. P. M. BRENAN.

178/25b. LATHYRUS MONTANUS Bernh. var. TENUIFOLIUS (Roth) Garcke. 67, S. Northumberland; Stocksfield, 1906, H. K. WALLACE, comm. A. E. ELLIS.

†180/1. PISUM ARVENSE L. 45, Pembroke; barley field, Tenby, 1940, Mrs F. L. REES, comm. DEPT. BOT., NAT. MUS. WALES.

†180/2. PISUM ELATUS MB. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

185/43. RUBUS RAMOSUS Briggs. 3, S. Devon; Wistman's Wood, Rev. T. STEPHENSON and G. T. FRASER.

*185/97. RUBUS FUSCICORTEX Sudre. 3, S. Devon; Fingle Gorge, Drewsteignton, Rev. T. STEPHENSON.

*185/104(2). RUBUS RADULICAULIS Sudre. 3, S. Devon; Fingle Gorge, Drewsteignton, Rev. T. STEPHENSON.

*185/153×47. RUBUS CAESIUS L. × ULMIFOLIUS Schott. 3, S. Devon, West Buckfastleigh, Rev. T. STEPHENSON.

*186/1. DRYAS OCTOPETALA L. 103, Mid Ebudes; near waterfall c. 500 ft. N. of Ton Dubh-sgairt, S.W. of Balmeanach, Gribun, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

187/2. GEUM RIVALE L. 4, N. Devon; Angler's path near Sydenham House, Marystow, F. C. MARKS, comm. E. M. PHILLIPS. *110, Outer Hebrides; N. Harris, A. J. WILMOTT (M. S. Campbell, *Journ. Bot.*, *78*, 101).

187/2×1. GEUM RIVALE L. × URBANUM L. 4, N. Devon; as above, F. C. MARKS, comm. E. M. PHILLIPS. 28, W. Norfolk; Wayland Wood, near Watton, 1931, A. E. ELLIS.

*†189/11. POTENTILLA NORVEGICA L. 37, Worcs.; abundant at Hoobrook, near Kidderminster, W. H. HARDAKER.

†189/13. POTENTILLA RECTA L. 3, S. Devon; Yealmpton, E. W. CLARKE, comm. E. M. PHILLIPS, det. KEW.

190/2. ALCHEMILLA PRATENSIS Schmidt. 3, S. Devon; roadside south of Burrator Lake, Sheepstor, F. C. MARKS and E. M. PHILLIPS.

190/4. ALCHEMILLA PSEUDOMINOR Wilmott. 4, N. Devon; Clovelly, A. L. STILL, det. A. J. WILMOTT.

191/2. AGRIMONIA ODORATA (Gouan) Mill. *110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 2). H. 35, N. Donegal; Marble Hill, Sheep Haven, W. A. SLEDGE.

†192/1. ACAENA ANSERINIFOLIA (J. R. & G. Forst.) Druce. 37, Worcs.; fields near Kidderminster, W. H. HARDAKER, det. N. Y. SANDWITH.

193/4. POTERIUM OFFICINALE (L.) A. Gray. 34, W. Gloucester; in fields near Earthcott Green, between Iron Acton and Alveston, B. WELCH. A first record for the Bristol district. See White, *Fl. Bristol*, p. 36, where it appears in a list of plants " not improbably natives of the district " and to be looked for. Its discovery in a perfectly natural habitat so close to the city is remarkable.

†193/5. POTERIUM CANADENSE (L.) A. Gray. 14, E. Sussex; garden escape, by stream, Bayham, J. R. WALLIS.

194/7h. ROSA CANINA L. var. DUMALIS (Bechst.) Dum. forma VIRIDICATA (Pug.) Rouy. 16, W. Kent; Mount Pleasant, near Lamberhurst, J. R. WALLIS, det. A. H. WOLLEY-DOD.

*194/9b. ROSA CANINA L. var. BLONDAEANA (Rip.) Rouy forma VINACEA (Baker) Rouy. Mount Pleasant, near Lamberhurst, J. R. WALLIS, det. A. H. WOLLEY-DOD.

194/18c. ROSA OBTUSIFOLIA Desv. var. TOMENTELLA (Lém.) Baker. Mount Pleasant, near Lamberhurst, J. R. WALLIS, det. A. H. WOLLEY-DOD.

194/23c. ROSA SPINOSISSIMA L. var. TYPICA W.-Dod forma ROSEA Koch. 41, Glamorgan; several plants with flowers of a brilliant rose colour in a restricted area amongst the typical form on a sandhill near Newton, Mrs CAMPBELL, comm. Miss E. VACHELL.

†194/27. ROSA CINNAMONEA L. 16, W. Kent; Hook Green Common, J. R. WALLIS.

*195/11. SORBUS RUPICOLA (Syme). 107, E. Sutherland; calcareous rocks, Cambusmore, near Golspie, E. C. WALLACE and P. M. HALL.

196/2. CRATAEGUS OXYACANTHOIDES Thuill. 20, Herts.; Moor Park: 21, Middlesex; Oxhey Woods: *36, Hereford; Hanway's Coppice, Colwall: 37, Worcs.; edge of Castlemorton Common: F. M. DAY.

*†197/2. COTONEASTER MICROPHYLLUS Wallich. 98, Argyll; Benderloch, 1940, WINIFRED M. LETTS, *vide* A. J. WILMOTT in *Journ. Bot.*, *78*, 199.

*†197/3. COTONEASTER SIMONSII Baker. 98, Argyll; Benderloch, 1940, WINIFRED M. LETTS, *vide* A. J. WILMOTT in *Journ. Bot.*, *78*, 199.

*199/7. SAXIFRAGA PLATYPETALA Sm., det. A. J. WILMOTT. 103, Mid Ebudes; with *Dryas*, north of Ton Dubh-sgairt, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

199/17. SAXIFRAGA GRANULATA L. 21, Middlesex; grassy banks close to Hampton Court Palace, 1940, E. C. WALLACE.

203/1. CHRYSOSPLENIUM ALTERNIFOLIUM L. 47, Montgomery; near Berriew, Miss S. HAINES.

†204/2. ESCALLONIA MACRANTHA Hooker & Arnott in *Bot. Misc.*, iii, 341 (*cf. Bot. Mag.*, t. 4473). 1a, Scillies; Middle Town, St Agnes (Lousley 1939: C).

205/1. PARNASSIA PALUSTRIS L. 39, Staffs.; Ipstones Edge, E. S. EDEES.

213/1×3. ×DROSERA OBOVATA Mert. & Koch. 108, W. Sutherland; swamps at Rhiconich and Scourie, P. M. HALL and E. C. WALLACE.

213/2. DROSERA LONGIFOLIA L. 73, Kirkcudbright; Palnure near Newton Stewart, 1940, R. MACKECHNIE.

214/1. HIPPURIS VULGARIS L. 109, Caithness; shore of Loch Winless, among *Potentilla palustris* and *Carex* spp., E. C. WALLACE.

†215/3. **Gunnera manicata** Linden in *Illustr. Hortic.*, xx (1873), 156. Alien, S. America: Colombia. 35, Monmouth; banks of R. Usk near Llangibby, 1938, comm. A. Rowland per Dept. Bot., Nat. Mus. Wales.

216/2b. Myriophyllum alterniflorum DC. var. americanum Pugsl. 72, Dumfries; Castle Loch, Lochmaben, July 1901, J. B. Duncan, comm. E. C. Wallace.

217/5d. Callitriche intermedia Hoffm. var. homoiophylla G. & G. 3, S. Devon; in R. Bovey, Lustleigh, F. M. Day.

217/5e. Callitriche intermedia Hoffm. var. pedunculata (DC.) Druce. *45, Pembroke; Llambed near Mathry, A. E. Wade, B.E.C. Excursion. 65, N.W. Yorks.; Semmerwater, W. A. Sledge.

*217/6. Callitriche autumnalis L. H. 16, W. Galway; Renvyle, W. A. Sledge.

*†219/2. Lythrum Hyssopifolia L. 38, Warwickshire; California dump, near Harborne, W. H. Hardaker.

220. Epilobium L. Determined (or determinations confirmed) by G. M. Ash.

220/3×4. Epilobium hirsutum L. × parviflorum Schreb. 28, W. Norfolk; Hargham Heath near Attleborough, 1930, A. E. Ellis. 65, N.W. Yorks.; Sutton Howgrave, C. M. Rob, comm. W. A. Sledge.

220/3×10. Epilobium hirsutum L. × montanum L. 31, Hunts.; Monks Wood, S. A. Taylor.

220/4×5. Epilobium parviflorum Schreb. × tetragonum L. em. Curt. (×E. Weisenburgense F. Schultz). 16, W. Kent; waste ground, High Brooms, J. P. M. Brenan.

220/6. Epilobium Lamyi F. Schultz. 16, W. Kent; waste ground, Tonbridge: waste ground, Sevenoaks: waste ground, High Brooms: field at foot of the chalk downs near Upper Halling; J. P. M. Brenan. *31, Hunts.; Monks Wood, S. A. Taylor.

†220/7(2). Epilobium adenocaulon Hausskn. *15, E. Kent; by a pool, Denge Beach, 1936, J. E. Lousley and E. C. Wallace; wood between Sandling Junction and Westenhanger, J. P. M. Brenan. 16, W. Kent; waste ground, Green Street Green; waste ground, Sevenoaks: waste ground, High Brooms: Trench Wood, Tonbridge: in abundance by the R. Medway near Hartlake Bridge (N.E. of Tudeley Hale); J. P. M. Brenan. This is recorded for Tonbridge in *B.E.C. 1938 Rep.*, 41 (1939), but the statement that this record restores the plant for v.-c. 16 is inaccurate, as the cancelled record was *not* a new comital record. The first published record of this species in West Kent is that in Ash and

Sandwith (1935: *Journ. Bot.*, *73*, 179). A subsequent one is J. E. Lousley's (*Journ. Bot.*, *73*, 257). *31, Hunts.; Monks Wood, S. A. TAYLOR.

220/7(2)×3. EPILOBIUM ADENOCAULON Hausskn. × HIRSUTUM L. 17, Surrey; marshy roadside, Chiddingfold, 1939, J. P. M. BRENAN.

220/7(2)×10. EPILOBIUM ADENOCAULON Hausskn. × MONTANUM L. 16, W. Kent; by path in Trench Woods, Tonbridge, J. P. M. BRENAN. 31, Hunts.; Monks Wood, S. A. TAYLOR.

220/7(2)×7. EPILOBIUM ADENOCAULON Hausskn. × OBSCURUM Schreb. 15, W. Kent; wood between Sandling Junction and Westenhanger, J. P. M. BRENAN. 17, Surrey; roadside marsh near Chiddingfold, 1938, J. P. M. BRENAN. 31, Hunts.; Monks Wood, S. A. TAYLOR.

220/7(2)×4. EPILOBIUM ADENOCAULON Hausskn. × PARVIFLORUM Schreb. 16, W. Kent; by path in Trench Woods, Tonbridge, J. P. M. BRENAN.

*220/8. EPILOBIUM ROSEUM Schreb. 45, Pembroke; garden weed, Haverfordwest, 1930, A. E. ELLIS.

220/9. EPILOBIUM LANCEOLATUM Seb. & Maur. 16, W. Kent; old masonry by roadside, Lyons' Crescent, Tonbridge, J. P. M. BRENAN.

220/10×7. EPILOBIUM MONTANUM L. × OBSCURUM Schreb. (×E. AGGREGATUM Čelak.). 16, W. Kent; roadside bank, Starve Crow Hill, near Tonbridge; waste ground, High Brooms; J. P. M. BRENAN. 31, Hunts.; Monks Wood, S. A. TAYLOR.

220/10×4. EPILOBIUM MONTANUM L. × PARVIFLORUM Schreb. 32, Northants; Pipewell Woods, S. A. TAYLOR.

220/10×8. EPILOBIUM MONTANUM L. × ROSEUM Schreb. 62, N.E. Yorks.; Catton, near Thirsk, C. M. ROB, comm. W. A. SLEDGE.

220/12. EPILOBIUM ALSINIFOLIUM Vill. *103, Mid Ebudes; near Ton Dubh-sgairt, and Abhaime Dhiseig, N.W. of Ben More, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT. *110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 2).

†223/3. OENOTHERA STRICTA Ledeb. (*O. odorata* auct. non Jacq.). 2, E. Cornwall; Bude sandhills, A. L. STILL.

225/3. CIRCAEA ALPINA L. 103, Mid Ebudes; north of Ton Dubh-sgairt (S.W. of Balmeanach, Gribun), Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

†236/1. TETRAGONIA EXPANSA Murr. 17, Surrey; several plants on waste ground near West Byfleet, F. DRUCE.

*†240/1. ASTRANTIA MAJOR L. 8, S. Wilts.; abundant as a weed of cultivated land, Morgan's Vale, Downton, H. J. GODDARD.

245/3. BUPLEURUM ROTUNDIFOLIUM L. 23, Oxon; farmland, Chadlington, Lady ROCHE. 66, Durham; Hartlepool, 1906, H. K. WALLACE, comm. A. E. ELLIS.

247/5. APIUM INUNDATUM (L.) Rchb. fil. 16, W. Kent; quite rare about Lamberhurst, J. R. WALLIS.

†249/1. AMMI MAJUS L. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†249/2. AMMI VISNAGA (L.) Lam. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. N. Y. SANDWITH.

*250/2. CARUM VERTICILLATUM (L.) Koch. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 2).

*253/2. SIUM ERECTUM Huds. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 2).

*†261/3. ANTHRISCUS CEREFOLIUM (L.) Hoffm. 3, S. Devon; Ipplepen, Bulleigh Barton, roadside hedge in some quantity, G. T. FRASER and T. STEPHENSON, det. A. J. WILMOTT.

264/1. CRITHMUM MARITIMUM L. 25, E. Suffolk; sea shore between Dunwich and Walberswick, F. DRUCE.

265/2. OENANTHE FLUVIATILIS Coleman. 6, N. Somerset; in the Kennet and Avon canal between Bath and Bathampton, 1940, C. I. and N. Y. SANDWITH.

*271/1. LIGUSTICUM SCOTICUM L. H. 16, West Galway; Slyne Head, W. A. SLEDGE.

†276/5. PEUCEDANUM OSTRUTHIUM (L.) Koch. 81, Berwick; Longformachus, (" known many years ") Miss BROWN, comm. A. H. WOLLEY-DOD.

277/2b. HERACLEUM SPHONDYLIUM L. var. ANGUSTIFOLIUM Huds. 33, E. Gloster.; near Cranham, F. DRUCE. 42, Brecon; damp wood near Wye, Llangoed, 1936, A. E. ELLIS.

†279/1. CORIANDRUM SATIVUM L. 39, Staffs.; Tileries at Spring Fields, Stoke-on-Trent, E. S. EDEES.

†283/2. CAUCALIS DAUCOIDES L. 14, E. Sussex; Newhaven, 1929, L. A. W. BURDER.

†283/8. CAUCALIS LATIFOLIA L. 9, Dorset; cornfield on chalk, Dorchester, 1883, J. SIMS, comm. A. E. ELLIS.

†287/2b. SAMBUCUS NIGRA L. var. LACINIATA L. 17, Surrey; small tree, Merstham, F. DRUCE. 48, Merioneth; near Pennal, 1940, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. WALES.

288/2. VIBURNUM LANTANA L. 4, N. Devon; Marystow, F. C. MARKS and E. M. PHILLIPS; Castle Hill, Filleigh, Lady ELEANOR FORTESCUE (fl. ca. 1835)—marginal note in her copy of *Fl. Devoniensis*, 1829, comm. G. T. FRASER.

301/1b. VALERIANA OFFICINALIS L. forma LATIFOLIA (Vahl.) Drabble. 16, W. Kent; near Paddock Wood: near Tudeley, J. R. WALLIS, det. B. L. BURTT.

304/1b. VALERIANELLA LOCUSTA (L.) Betcke var. LASIOCARPA (Rchb.). 16, W. Kent; bank of R. Medway below Branbridges, J. R. WALLIS, det. B. L. BURTT.

†304/2. VALERIANELLA ERIOCARPA Desv. 4, N. Devon; Saunton, Braunton, in cultivated ground among houses, 1931, C. and N. Y. SANDWITH.

306/2. DIPSACUS PILOSUS L. 41, Glamorgan; banks of R. Ddaw, near Llandough-juxta-Cowbridge, Mrs FRANCIS, comm. Miss E. VACHELL. [This plant was recorded in the *Flora of Glamorgan* (1908) as abundant and thoroughly naturalised in a thicket of rhododendrons on the outskirts of Llandough Castle, probably introduced with them. It has recently been discovered in great abundance on the opposite side of the valley. I have examined the locality carefully and consider that as it occurs on a rough hillslope near a natural copse associated with *Dipsacus sylvestris*, *Campanula Trachelium*, and other native species over a considerable area in very similar surroundings to those in which it is considered native in Herefordshire, Surrey, etc., it may be accepted as native in Glamorgan. There seems little reason to suppose that the fruits of any composite plant would have been carried down-stream and then have been dispersed by wind to the opposite side of the valley. Movements of farm cattle are the only possible solution of its increase if it is not accepted as native.—E.V.]

308/1. SCABIOSA COLUMBARIA L. 4, N. Devon; Castle Hill, Filleigh, Lady ELEANOR FORTESCUE (fl. ca. 1835)—marginal note in her copy of *Fl. Devoniensis*, 1829, comm. G. T. FRASER.

†315/2. CALOTIS HISPIDULA F. von Muell. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†320/3. ERIGERON CANADENSIS L. 39, Staffs.; London Road Institution, Stoke-on-Trent, G. J. V. BEMROSE.

†320/4. ERIGERON CRISPUS Pourr. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. N. Y. SANDWITH.

328/4. GNAPHALIUM NORVEGICUM Gunn. 90, Angus; remove brackets in *C.F.*: recorded in *Top. Bot.*, collected by E. F. Linton in 1883 and 1884, and seen by me in 1934, E. C. WALLACE.

*†333/1. INULA HELENIUM L. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 3).

334/2. PULICARIA VULGARIS Gaertn. 8, S. Wilts.; clayey commons near Devizes, Poulshot, 1925, C. D. HEGINBOTHOM, abundant in 1939, J. D. GROSE, Marston, scarce, J. D. GROSE.

†339/4. AMBROSIA TRIFIDA L. 15, E. Kent; by a grain mill on the right bank of the R. Stour near Wye railway station, J. P. M. BRENAN.

†339/4(2). **Ambrosia aptera** DC., *Prod.*, v, 527 (1836). 18, S. Essex; dump, Dagenham Dock, Rev. P. H. COOKE, No. 1619, det. R. A. BLAKELOCK at Kew, comm. N. Y. SANDWITH.

†341(2)/2. **Siegesbeckia cordifolia** H. B. K., *Nov. Gen. et Sp.*, 4, 283 (1820). Native of Mexico, Chile and Colombia. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

353/1b. BIDENS CERNUA L. var. RADIATA DC. 27, E. Norfolk, Thorpe St Andrew, Norwich, 1932; Elsing, 1935; A. E. ELLIS.

†353/6b. BIDENS FRONDOSA L. var. **anomala** Porter ex Fernald in *Rhodora*, 5, 91 (1903); Sherff, *Mon. Bidens*, 243, pl. lxii, f. i (1937). Alien, North America. 34, W. Gloucester; waste ground, Gloucester, J. W. HAINES, det. N. Y. SANDWITH. Differs from the typical form in the awns of the achenes being antrorsely, not retrorsely, hispid. British botanists should search for it in their material of *B. frondosa*.

†354/2b. GALINSOGA QUADRIRADIATA Ruiz. & Pav. var. HISPIDA (DC.) Thell. 20, Herts.; Hertford, D. MCCLINTOCK, det. J. P. M. BRENAN.

†380/3. PETASITES FRAGRANS Presl. 14, E. Sussex; abundantly at Ticehurst House, Ticehurst: 15, E. Kent; Milsted: 16, W. Kent; between Matfield and Kippings Cross: a garden escape in each case and only plants with sub-male heads seen, J. R. WALLIS.

†380/4. **Petasites japonicus** (Sieb. et Zucc.) F. Schmidt, *Reisen im Amurlande*, 145 (1868). *Nardosmia japonica* Sieb. et Zucc. in *Abh. Akad. Muench.*, iv, iii, 181 (1846). Native of Sakhalin. Frequently cultivated. 58, Cheshire; beside lake at Thornton Hough (Hardy 1940: A). It has been found previously, in 24, Bucks., on the gravels of an island in the Misbourne near Denham golf course (E. A. BARTON, 1924), also as

an escape outside a garden in 69, Westmorland, at Langdale (Sir SIDNEY HARMER and Rear-Adm. R. CLINTON-BAKER, 1931), comm. A. J. WILMOTT.

*†381/1. DORONICUM PARDALIANCHES L. 39, Staffs.; roadside near Ashley, E. S. EDEES.

†383/7. SENECIO SQUALIDUS L. 13, W. Sussex; Shoreham, 1938, E. D. MORGAN, comm. A. H. WOLLEY-DOD. *17, Surrey (Salmon, *Flora*: 1931, 395). Add to *C.F.* 39, Staffs.; Madeley, G. J. J. BEMROSE. *48, Merioneth; Barmouth Junction, 1940, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. WALES.

†383/8. SENECIO VISCOSUS L. *18, S. Essex; Wanstead, 1920, A. E. ELLIS. 107, E. Sutherland; railway track, Loth, near Helmsdale, E. C. WALLACE.

383/9. SENECIO SYLVATICUS L. 17, Surrey; Barnes Common, 1823, 13 years before the first record in Salmon's *Flora of Surrey*, A. W. FRANKS, comm. A. E. ELLIS.

383/9b. SENECIO SYLVATICUS L. var. AURICULATUS Meyer. 39, Staffs.; Massey Square, Burslam, G. J. V. BEMROSE.

†386/1. CRYPTOSTEMMA CALENDULACEUM (L.) R. Br. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

393/2. ARCTIUM VULGARE (Hill) Evans. 41, Glamorgan; Aberdulais, Miss E. VACHELL. *110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 3): Barra, A. J. Wilmott (1939 B: 190).

393/3. ARCTIUM MINUS (Hill) Bernh. 14, E. Sussex; Lewes 1933, Winchelsea 1939, L. A. W. BURDER.

395/1. CARDUUS NUTANS L. 39, Staffs.; Consall Forge, G. J. V. BEMROSE.

†395/3b. CARDUUS TENUIFLORUS Curtis. 11, S. Hants.; among wool-aliens in a market-garden field, Portchester, P. M. HALL and R. C. L. BURGES.

396/8e. CIRSIUM ARVENSE (L.) Scop. var. SETOSUM C. A. Mey. 35, Monmouth; Pontypool, Sister M. ALBERTINE, comm. DEPT. BOT., NAT. MUS. WALES.

401/1. SAUSSUREA ALPINA (L.) DC. 108, W. Sutherland; Meall Meadhonach, c. 1200 ft., 1938, D. McCLINTOCK.

*405/11. CENTAUREA NEMORALIS Jord. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 3).

405/13d. CENTAUREA SCABIOSA L. var. SUCCISIFOLIA E. S. Marshall. 41, Glamorgan; cliffs at Lavernoch Point, E. VACHELL, det. C. E. BRITTON, who writes "plant undoubtedly var. *succisifolia*. Not the dwarf form from Nash Point but more like Marshall's Sutherland form—very interesting."

†405/31. CENTAUREA SOLSTITIALIS L. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†407/3. CARTHAMUS TINCTORIUS L. 61, S.E. Yorks.; rubbish heap, Brough, A. K. WILSON.

413/1. HEDYPNOIS CRETICA (L.) Willd. em., Boiss. 6, N. Somerset; waste ground, Bristol, C. I. SANDWITH. New to the Bristol list.

415/2. PICRIS HIERACIOIDES L. 39, Staffs.; Harpfields, Stoke-on-Trent, G. J. V. BEMROSE.

416/3. CREPIS BIENNIS L. 23, Oxon.; roadside near Menmarsh, Mrs J. P. EVETTS.

†416/9. CREPIS FOETIDA L. 6, N. Somerset; waste ground, Bristol, C. I. SANDWITH. New to the Bristol adventive list, although there are records from other parts of the area in White's *Bristol Flora*.

*†419/8. HIERACIUM BRUNNEO-CROCEUM Pugsl. 48, Merioneth; near Hengwrt and Corris, 1940, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. WALES.

†419/62. HIERACIUM PRAECOX Sch.-Bip. 3, S. Devon; Churston Ferrers (Greenway), T.S., det. as a forma, H. W. PUGSLEY. This is the plant cited from this locality as *H. maculatum* Sm. in *Flora of Devon*: that entry is erroneous.—G. T. FRASER.

419/89. HIERACIUM LEPISTOIDES K. Joh. var. SUBLEPISTOIDES Zahn. 3, S. Devon; Ottery St. Mary, Rev. T. STEPHENSON, det. H. W. PUGSLEY.

419/95. HIERACIUM GRANDIDENS Dahlst. 13, W. Sussex; lane near Chanctonbury, 1931, A. E. ELLIS, det. H. W. PUGSLEY.

*422/3. LEONTODON LEYSSERI (Wallr.) Beck. 110, Outer Hebrides; Heslop Harrison (1939: 3).

†425/8. LACTUCA MACROPHYLLA A. Gray. 61, S.E. Yorks.; North Cave, 1938, A. K. WILSON.

430/2. **Scorzonera hispanica** L., *Sp. Pl.*, 791, 1753. Native of Southern Europe. 34, W. Glos.; on waste ground by Portway, Bristol, I. EVANS, comm. C. I. and N. Y. SANDWITH.

†435/4. CAMPANULA RAPUNCULOIDES L. 41, Glamorgan; on railway bank near Kenfig, Miss THOMAS.

435/8. CAMPANULA PATULA L. 36, Hereford; White House Farm, Cradley, F. M. DAY.

*439/1. OXYCOCCUS QUADRIPETALUS Gilib. 45, Pembroke; near Llanerch, Gwain Valley, A. E. WADE, B.E.C. Excursion.

†443/1. GAULTHERIA SHALLON Pursh. 17, Surrey; pinewood near Farnham, 1940, E. C. WALLACE.

†452/2. **Rhododendron luteum** Sweet, *Hort. Brit.*, ed. ii, 343 (1830). *R. flavum* Don. A shrub about 2-3 m. high with young shoots viscid-puberulent; flowers yellow, appearing in May; stamens exserted: native of the Caucasus. 24, Bucks.; in quantity over a considerable area among beeches and oaks on heathland, Burnham Beeches, J. P. M. BRENAN.

*453/1b. PYROLA ROTUNDIFOLIA L. var. ARENARIA Koch. 41, Glamorgan; Kenfig, J. LORD, comm. DEPT. BOT., NAT. MUS. WALES.

*456/1. MONOTROPA HYPOPITYS L. 51, Flint.; near Cilcain, 1940, J. A. WHELLAN, comm. DEPT. BOT., NAT. MUS. WALES.

459/1. HOTTONIA PALUSTRIS L. 39, Staffs.; Stafford, V. GOODIER, comm. G. J. V. BEMROSE. 61, S.E. Yorks.; Figham Common, Beverley, A. K. WILSON.

469/1. SAMOLUS VALERANDI L. 37, Worcs.; wet coppice at edge of Castlemorton Common, F. M. DAY.

473/2. VINCA MINOR L. 39, Staffs.; roadside, Audley, Alsager, G. J. V. BEMROSE.

477/1. BLACKSTONIA PERFOLIATA (L.) Huds. 13, W. Sussex; woodland glade on weald clay near Loxwood, 1940, E. C. WALLACE.

478/1. CENTAURIUM UMBELLATUM Gilib. 39, Staffs.; Stafford Avenue, Clayton, E. S. EDEES.

480/4. GENTIANA AMARELLA L. 39, Staffs.; Ipstones Edge, E. S. EDEES.

480/6. GENTIANA ANGLICA Pugsl. 7, N. Wiltshire; Chiseldon, D. MCCLINTOCK.

†497/3. SYMPHYTUM ORIENTALE L. 6, N. Somerset; Batheaston, A. E. WHITE, comm. DEPT. BOT., NAT. MUS. WALES.

†503/1. PULMONARIA OFFICINALIS L. 7, N. Wilts.; Hazeland, J. D. GROSE. [Add to *C.F.*; for previous records see Preston, *Fl. Wilts.*, 206, 1888.—J.D.G.] *47, Montgomery; near Berriew, Miss S. HAINES.

506/2. MYOSOTIS BREVIFOLIA C. E. Salmon. *62, N.E. Yorks.; Castleton, C. M. ROB, comm. W. A. SLEDGE. 64, M.W. Yorks.; Great Wham, Mengher, Nidderdale, W. A. SLEDGE, both plants confirmed by A. E. WADE.

506/7. MYOSOTIS SYLVATICA (Ehrh.) Hoffm. 14, E. Sussex; copse on the Downs near Clayton Holt, E. C. WALLACE. 17, Surrey; woodland, Headley, 1924, A. P. SNELL, comm. A. E. ELLIS.

507/2. LITHOSPERMUM PURPUREO-CAERULEUM L. 3, S. Devon; Warleigh, Tamerton Foliot, E. M. PHILLIPS.

†507/3. LITHOSPERMUM ARVENSE L. 3, S. Devon; Kingsteignton, G. T. FRASER. 4, N. Devon; Castle Hill, Filleigh, Lady ELEANOR FORTESCUE (fl. ca. 1835)—marginal note in her copy of *Fl. Devoniensis*, 1829, comm. G. T. FRASER. 14, E. Sussex; cornfield S. of Jevington, J. R. WALLIS.

†507/3b. LITHOSPERMUM ARVENSE L. var. **caeruleum** Coss. et Germ., *Fl. Env. Paris*, ed. 2, 329 (1861); *L. arvense* subvar. *caeruleum* (Coss. et Germ.) Rouy, *Fl. France*, x, 316 (1908). 61, S.E. Yorks.; King George Dock, Hull, A. K. WILSON, det. KEW. (Not an addition to the *B.P.L.*, as "var. *medium* (Chev.)" Druce is the same thing, Druce not following the International Rules.—N.Y.S.).

*511/1. CALYSTEGIA SEPIUM (L.) R. Br. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 3).

†513/1(2). **Convolvulus hirsutus** MB., *Fl. Taur.-Cauc.*, i, 422 (1808). Alien, eastern Medit. Reg. 36, Hereford; left bank of R. Wye, near Hereford, R. D. WEBB, det. N. Y. SANDWITH.

†518/7. PHYSALIS PERUVIANA L. 20, Herts.; waste garden ground, Radlett, N. E. G. CRUTTWELL.

†519/1. NICANDRA PHYSALOIDES Gaertn. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. N. Y. SANDWITH.

†522/2. DATURA INERMIS Jacq. (*D. laevis* L. fil.). 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

†524/1b. HYOSCYAMUS NIGER L. var. PALLIDUS Waldst. & Kit. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

527/3. VERBASCUM THAPSUS L. 39, Staffs.; between Northwood and Hanford, E. S. EDEES.

†527/4. VERBASCUM VIRGATUM Stokes in With. 16, W. Kent; waste ground, High Brooms, J. P. M. BRENAN.

527/7b. VERBASCUM LYCHNITIS L. var. ALBUM (Mill.) Koch. 16, W. Kent; sandpit and neighbouring railway embankment between Sevenoaks Tub's Hill Station and Riverhead, J. P. M. BRENAN.

532/1. LINARIA VULGARIS Mill. 41, Glamorgan; Aberthaw, a semi-peloric form, many plants having flowers with two spurs, Miss E. VACHELL. 45, Pembroke; a tall broad-leaved form near Strumble Head, A. E. WADE, B.E.C. Excursion.

†532/2. LINARIA PURPUREA Mill. 36, Hereford; bank of R. Wye above Hereford, F. M. DAY.

532/3×1. LINARIA REPENS (L.) Mill. × VULGARIS Mill. 22, Berks.; South Hinksey, 1924, A. E. ELLIS.

532/7. LINARIA MINOR (L.) Desf. 23, Oxon.; growing profusely as a weed of cultivation, University Museum, Oxford, J. N. MILLS.

532/24. LINARIA SPURIA (L.) Mill. 2, E. Cornwall; garden weed, Efford Down, Bude, A. L. STILL.

*†532/26. LINARIA CYMBALARIA (L.) Mill. 94, Banff; Colleonard, near Banff, Miss M. McC. WEBSTER.

534/2. ANTIRRHINUM ORONTIUM L. 9, Dorset; East Creech, Miss L. ABELL.

†535/1. SCROPHULARIA VERNALIS L. 17, Surrey; garden weed, Epsom College, 1934 (" increasing," 1937), A. E. ELLIS.

535/3. SCROPHULARIA UMBROSA Dum. 28, W. Norfolk; by R. Wissey between Didlington and Hillborough, 1937, A. E. ELLIS. 69, Westmorland; banks of the Eden at Appleby, 1938, A. H. G. ALSTON and N. Y. SANDWITH. There is a previous record, " by the Eden at Temple Sowerby," Rev. H. H. HARVEY in *B.E.C. 1924 Rep.*, 586 (1925), which has been overlooked, N.Y.S.

†535/7. SCROPHULARIA SCOPOLII Hoppe ex Pers. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

†537/2. MIMULUS MOSCHATUS Dougl. 14, E. Sussex; Heathfield, D. McCLINTOCK.

*539/1. LIMOSELLA AQUATICA L. 33, E. Gloster; bank of R. Severn above Lower Lode Hotel, Forthampton, F. M. DAY.

543/18c. VERONICA PERSICA Poir. var. KOCHIANA Godr. 16, W. Kent; cultivated ground, Lower Halling, J. P. M. BRENAN.

†543/22. VERONICA LONGIFOLIA L. 61, S.E. Yorks.; rubbish heap, Hessle, A. K. WILSON.

†543/39(2). **Veronica Lewisii** Armstrong in *Trans. N. Z. Inst.*, xiii, 357 (1881). Native of New Zealand. 1a, Scillies; near Old Town, St Mary's. (Lousley, 1939 C).

545. EUPHRASIA L. Determined by H. W. PUGSLEY. Further new vice-comital records are given by Pugsley (1940 A).

545/5d. EUPHRASIA NEMOROSA (Pers.) Löhr. var. COLLINA Pugsl. 61, S.E. Yorks.; Newbald Springs, A. K. WILSON. 109, Caithness; Dunnet Links, E. C. WALLACE.

545/9b. EUPHRASIA CURTA (Fr.) Wettstein var. GLABRESCENS Wettst. 3, S. Devon; Brixham, T. STEPHENSON.

545/15. EUPHRASIA MICRANTHA Reichb. 45, Pembroke; Carn Ingli, Newport, 1927; 96, Easterness; Newtonmore, 1933, A. E. ELLIS.

†546/4. BARTSIA VISCOSA L. *23, Oxon.; by canal near Tackley, K. E. EVETTS. *33, East Gloucester; Cheltenham, on a recently seeded playing ground, Miss MIDDLETON (1941: *Proc. Cotteswold Nat. F.C.*, 1940, *27*, 112).

549/4. MELAMPYRUM PRATENSE L. subsp. VULGATUM (Pers.) Beauverd, var. VULGATUM (Pers.) Beauverd subvar. DEVONIENSE Beauverd. 3, S. Devon; Hennoch, Chudleigh Knighton, T. STEPHENSON, det. C. E. BRITTON.

550/3. OROBANCHE RUBRA Sm. H. 35, N. Donegal; Ards Head, Sheep Haven, W. A. SLEDGE.

550/10. OROBANCHE MINOR Sm. 14, E. Sussex; Hassocks 1931, Newhaven 1930-36; see *Flora of Sussex* for remarks on this species in the county, L. A. W. BURDER.

552/2. UTRICULARIA NEGLECTA Lehm. 108, W. Sutherland; near Little Assynt, non-flowering, but probably this, P. M. HALL.

552/3. UTRICULARIA INTERMEDIA Hayne. H. 16, West Galway; near Clifden, W. A. SLEDGE.

552/5. UTRICULARIA MINOR L. 108, W. Sutherland; flowering in a lochan near Scourie, P. M. HALL and E. C. WALLACE. H. 16, West Galway; Kylemore, W. A. SLEDGE.

553/2. PINGUICULA VULGARIS L. 4, N. Devon; Clawton, 1940, H. H. HARVEY.

558. MENTHA L. determined by A. L. STILL.

558/1×4. ×MENTHA CORDIFOLIA Opiz. 3, S. Devon; Abbotskerswell, Lustleigh, T. STEPHENSON.

558/2. MENTHA LONGIFOLIA (L.) Huds. 2, E. Cornwall; Crackington Haven, A. L. STILL. 45, Pembroke; Tenby, F. L. REES, comm. DEPT. BOT., NAT. MUS. WALES.

558/6. MENTHA PIPERITA L. 39, Staffs.; Weston on Trent, G. J. V. BEMROSE (not seen by A. L. Still).

558/6d. ×MENTHA PIPERITA L. var. SUBCORDATA Fraser. 36, Hereford; Evendine Corner, Colwall: 37, Worcs.; Castlemorton Common, F. M. DAY.

558/7e. MENTHA AQUATICA L. var. MAJOR Sole. 36, Hereford; Southend, Mathon: 37, Worcs.; Hanley Swan, F. M. DAY.

558/9. ×MENTHA VERTICILLATA L. 29, Cambs.; Wicken Fen, F. M. DAY.

558/9e. ×MENTHA VERTICILLATA L. var. OVALIFOLIA H. Braun. 3, S. Devon; Batworthy, North Bovey, T. STEPHENSON.

558/10. MENTHA GENTILIS L. var. RESINOSA (Opiz.) Briq. 3, S. Devon; near Hisley, Lustleigh, F. M. DAY, G. T. FRASER and T. STEPHENSON.

558/13d. MENTHA ARVENSIS L. var. AGRESTIS (Sole) Smith. 29, Cambs.; Balsham, F. M. DAY. "This may be dwarfed by poor conditions. The larger piece suggests that if growing strongly it might get to *agrestis* Sole."—A. L. STILL.

558/13f. MENTHA ARVENSIS L. var. PRAECOX (Sole) Smith. 29, Cambs.; Waterbeach: 36, Hereford; White House Farm, Cradley, F. M. DAY. 29—"This would come under var. *praecox* Sole but is too hairy for Fraser's conception of the variety."—A. L. STILL.

558/13g. MENTHA ARVENSIS L. var. ALLIONII (Bor.) Briq. 3, S. Devon; Lustleigh, F. M. Day.

558/13m. MENTHA ARVENSIS L. var. BREVIDENS Fraser. 29, Cambs.; Cottenham, F. M. DAY. "The nearest I can think of—var. *brevidens*, not too typical."—A. L. STILL.

561/4b. THYMUS SERPYLLUM L. (sensu stricto) var. ERICOIDES W. & G. S. Jersey; St Peter's golf links, 1938, P. SENAY, jun., comm. P. SENAY.

561/4f. THYMUS SERPYLLUM L. (sensu stricto) var. **Linneanus** G. & G. S. Jersey; St Peter's golf links (1938?), P. SENAY, jun., comm. P. SENAY.

561/10. THYMUS NEGLECTUS Ronn. 37, Worcs.; north of Martley, 1853, ex Herb. J. Fraser, comm. DEPT. BOT., NAT. MUS. WALES.

†566/5. SALVIA GLUTINOSA L. 6, N. Somerset; wood, Claverton, 1938, A. E. WHITE, comm. DEPT. BOT., NAT. MUS. WALES.

569/1. NEPETA CATARIA L. 11, S. Hants.; still flourishing between Breamore Wood and Mizaze as recorded by Townsend in 1879, Mrs ASHBY. †11, S. Hants.; Portchester, in a market-garden field with wool-aliens: probably alien in this locality though a native of the district, P. M. HALL and R. C. L. BURGES.

*†573/2. PRUNELLA LACINIATA L. 32 Northants; near Collyweston Great Wood, with *P. vulgaris* and hybrids, S. A. TAYLOR.

574/1. MELITTIS MELISSOPHYLLUM L. 11, S. Hants.; several patches in lane near Breamore Wood, Mrs ASHBY.

577/3. STACHYS SYLVATICA L. 23, Oxon.; teratological form with long pedicels, viridescent malformed corolla, ovary abortive or proliferating into a further flower above the first, foliage normal; marshy field on clay, Horsepath, N. E. G. CRUTTWELL.

578/1. GALEOPSIS SPECIOSA Mill. 39, Staffs.; cornfield between Norton Green and Knipersley Pool, E. S. EDEES; New School, Newcastle-under-Lyme, G. J. V. BEMROSE. *44, Carmarthen; near Trimsavan, 1940, J. F. JONES, comm. DEPT. BOT., NAT. MUS. WALES. 50, Denbigh; roadside on Chirk mountains, between Llangollen and Chirk, A. GAUNT, comm. DEPT. BOT., NAT. MUS. WALES.

581/10. LAMIUM GALEOBDOLON (L.) Crantz. 47, Montgomery; near Berriew, Miss S. HAINES.

†588/1. PLANTAGO INDICA L. 15, E. Kent; waste ground by roadside N. of Copt Point, Folkestone, J. P. M. BRENAN. 25, E. Suffolk; sandy ground, Thorpeness, F. DRUCE.

†596/4. AMARANTHUS CHLOROSTACHYS (Willd.) Thell. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†596/6b. AMARANTHUS RETROFLEXUS L. var. DELILEI (Richt. & Lor.) Thell. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

†596/10b. AMARANTHUS DINTERI Schinz var. UNCINATUS Thell. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. N. Y. SANDWITH and J. P. M. BRENAN.

†596/11. AMARANTHUS ANGUSTIFOLIUS Lam. (sensu stricto) = A. SYLVESTRIS Desf. (A. ANGUSTIFOLIUS ssp. SILVESTER (Desf.) Thell. 21, Middlesex; waste ground, Whetstone, 1940, N. E. G. CRUTTWELL, det. J. P. M. BRENAN.

†596(2). **Digera** Forsk., *Fl. Aegypt. arab.*, 65 (1775).

†596(2)/1. **Digera alternifolia** (L.) Aschers. in *Schweinf. Beitr. Fl. Aethiop.*, 180 (1867). *Achyranthes alternifolia* L., *Mant.*, i, 50 (1767). *Digera arvensis* Forsk., *l.c.* Alien, Orient, Tropical Asia, North, West, and East Africa. 18, S. Essex; waste ground, Dagenham, October 1939, N. Y. SANDWITH and J. P. M. BRENAN. (It has occurred at Mannheim.)

†600/1(2). **Chenopodium macrospermum** Hook. f., *Fl. Antarct.*, ii, 341 (1847), subsp. **halophilum** (Phil.) Aellen, f. **subviride** Thellung et Aellen in Fedde, *Rep. Sp. Nov.*, xxvi, 43 (1929). *C. halophilum* Phil. in *Anal. Univ. Santiago*, xviii, 67 (1861). Alien, Temperate S. America. 34, W. Gloucester; Avonmouth Docks, November 1938, C. I. SANDWITH, det. PAUL AELLEN. The species and subspecies were first recorded as new for Britain by Aellen in 1930, and the record (from Tweedside) is repeated in *B.E.C. 1931 Rep.*, p. 578 (1932). The form is now recorded as British. A wool-alien, collected on several occasions in Europe.

600/4. CHENOPODIUM HYBRIDUM L. 30, Beds.; Ampthill, 1924, A. E. ELLIS. 53, S. Lincs.; near Ancaster, S. A. TAYLOR.

600/6. CHENOPODIUM MURALE L. 3, S. Devon; High Week, on waste ground near Bradley Lane, Newton Abbot, Rev. A. CRAWSHAW, G. T. FRASER and T. STEPHENSON.

†600/8(2). CHENOPODIUM RETICULATUM Aell. 16, W. Kent; Green Street Green, J. P. M. BRENAN.

†600/11. **Chenopodium pratericola** Rydb., in Bull. Torr. Bot. Club, xxxix, 310 (1912), var. **Thellungianum** Aell., in Ostenia, 100 (1933) (=*C. leptophyllum* auct. *non* Nutt.). 16, W. Kent; waste ground, Green Street Green, J. P. M. BRENAN.

†600/11. " CHENOPODIUM LEPTOPHYLLUM " auct. 61, S.E. Yorks.; rubbish heaps, Springhead, A. K. WILSON.

600/13. CHENOPODIUM GLAUCUM L. *†23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN. *56, Notts.; side of lane, Misson, August 1918, C. I. and N. Y. SANDWITH.

†600/21. CHENOPODIUM HIRCINUM Schrad. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†603/1. MONOLEPIS NUTTALLIANA (R. & S.) Greene. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES.

†606/3e. ATRIPLEX PATULA L. var. BRACTEATA Westerlund. 16, W. Kent; waste ground, High Brooms, J. P. M. BRENAN.

†606/10. ATRIPLEX HORTENSIS L. 61, S.E. Yorks.; Springhead, A. K. WILSON, det. at KEW.

†612/3. SUAEDA ALTISSIMA (L.) Pall. 23, Oxon.; waste ground, Port Meadow, Oxford, J. P. M. BRENAN.

†613/4. **Salsola collina** Pall., *Illustr.*, 34, t. 26 (1803). Alien, S. Russia and North Temperate Asia. 18, S, Essex; waste ground, Dagenham, Oct. 1939, J. P. M. BRENAN and N. Y. SANDWITH. The specimens probably represent the typical form, coming under f. *glabra* (Moq.-Tand.) Iljin in Komarov, *Flora U.R.S.S.*, vi, 215 (1936). The latter epithet, although attributed to C. A. Meyer, appears to have been first validly published as *S. collina* var. *glabra* by Moquin-Tandon, *Chenopod. Mon. Enum.*, 147 (1840). *S. collina* has occurred as an adventive in Central Europe at Mannheim.—J. P. M. BRENAN and N. Y. SANDWITH.

615/2. POLYGONUM CONVOLVULUS L. var. SUBALATUM Lej. & Court. 37, Worcester; sewage farm, Malvern, 1940, F. M. DAY.

*615/4. POLYGONUM VIVIPARUM L. 103, Mid Ebudes; Coire nam Fuaran, Ben More, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

*615/10. POLYGONUM MITE Schrank. 7, N. Wilts.; bank of the Avon near Avoncliff, 1940, N. Y. SANDWITH.

615/11. POLYGONUM MINUS Huds. 5, S. Somerset; Stogumber, 1938, A. E. ELLIS.

*615/15. POLYGONUM AEQUALE Lindman. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 3).

†615/19. POLYGONUM PATULUM MB. 15, E. Kent; waste slope by the cliffs N. of Copt Point, Folkestone, J. P. M. BRENAN.

*†615/28. POLYGONUM AMPLEXICAULE D. Don. 48, Merioneth; near Pennal, garden escape, 1940, J. A. WEBB, comm. DEPT. BOT., NAT. MUS. WALES.

†615/33. POLYGONUM SACHALINENSE Schmidt. 45, Pembroke; Amroth, 1938, F. LILIAN REES, comm. DEPT. BOT., NAT. MUS. WALES.

618/6×8. RUMEX OBTUSIFOLIUS L. × NEMOROSUS Schrad. 45, Pembroke; Haroldston St Issells, 1930, A. E. ELLIS.

618/7. RUMEX SANGUINEUS L. 45, Pembroke; Haroldston St Issells and Fern Hill, Haverfordwest, 1930, A. E. ELLIS.

618/9×13. RUMEX CONGLOMERATUS Murr. × MARITIMUS L. 62, N.E. Yorks.; Dalton, C. M. ROB and W. A. SLEDGE.

618/11. RUMEX PULCHER L. ssp. EU-PULCHER Rech. fil. 11, S. Hants.; The Spain, Petersfield: 13, W. Sussex; field one mile S.W. of Chichester: E. C. WALLACE.

618/12. RUMEX PALUSTRIS Sm. 28, W. Norfolk; Weeting, 1931, A. E. ELLIS.

618/13. RUMEX MARITIMUS L. 32, Northants; Marston Trussel, 1921, A. E. ELLIS. 62, N.E. Yorks.; Dalton near Thirsk: 65, N.W. Yorks.; Sutton Howgrove, C. M. ROB, comm. W. A. SLEDGE.

†618/19. RUMEX SALICIFOLIUS Weinm. 41, Glamorgan; rubbish heap, Cardiff E., R. L. SMITH and J. E. WOODHEAD.

626/1. VISCUM ALBUM L. 14, E. Sussex; on *Tilia* at Rowfant, E. C. WALLACE. 17, Surrey; on *Sorbus Aria*, Boxhill, 1936, A. E. ELLIS.

627/1. THESIUM HUMIFUSUM DC. 23, Oxon.; near Chadlington, Lady ROCHE.

†628/16. EUPHORBIA LATHYRIS L. *49, Caernarvon; Llanfairfechan, 1933, and Abersoch, 1940, E. TALFOURD JONES, comm. DEPT. BOT., NAT. MUS. WALES. *55, Leics.; waste ground, Little Bowden, 1922, A. E. ELLIS.

633/4. ULMUS PLOTII Druce. The vice-comital distribution of this tree in Britain is given by Melville (1940) as:—7, 22-24, 29, 31-36, 38-40, 53-56, 63.

637/1b. URTICA DIOICA L. var. ANGUSTIFOLIA Wimm. & Grab. 37, Worcs.; Drake's Broughton, F. M. DAY.

642/3. BETULA NANA L. 88, Mid Perth; Glen Lyon, north side, hills above Meggernie Castle, W. A. SLEDGE. [Recorded from here in Lightfoot's *Flora Scotica*, *2*, 575, E. C. WALLACE.]

*†651/3. POPULUS NIGRA L. var. GENUINA Wesm. 7, N. Wiltshire; Wanborough, J. D. GROSE (1939: *Wilts. Arch. and N. H. Mag.*, *48*, 412).

*651/3b. POPULUS NIGRA L. var. BETULIFOLIA (Pursh) Torrey. 14, E. Sussex; Sheffield Park, C. NORMAN and A. B. JACKSON (*J.B.*, *77*, 321).

653/1. CERATOPHYLLUM SUBMERSUM L. 14, E. Sussex; fruiting freely in dyke near Rickney, Pevensey Level: 15, E. Kent; dyke near Snargate: E. C. WALLACE. 36, Hereford; R. Wye, Breinton, F. M. DAY. (Specimens from a pond at Tyberton were distributed in 1938. —ED.) *37, Worcs.; pond at Castle Morton, coll. A. J. CROSFIELD and R. F. TOWNDROW, in Herb. C. E. Salmon; for reference see C. I. Sandwith in "The Hornworts and their occurrence in Britain," in *Proc. Bristol Nat. Soc.*, 45, vol. vi, pt. iv, p. 308 (1926), where an inland gathering from Leicestershire is also mentioned (Horwood, *Fl. Leics.*, 514, gives four records), N. Y. SANDWITH: pond near The Farmer's Arms, Birt Street, Birtsnorton, F. M. DAY.

654/1. HYDROCHARIS MORSUS-RANAE L. 44, Carmarthen; disused canal, near Pinged Halt, 1940, J. F. JONES, comm. DEPT. BOT., NAT. MUS. WALES.

*†657/1. VALLISNERIA SPIRALIS L. 34, W. Gloucester; in the Berkeley Canal at Purton and Shepherd's Patch, C. I. SANDWITH and B. WELCH. The only other naturalised British specimens seen are from Reddish, Lancs.: for its occurrence in a brickpond in Worcestershire, see Amphlett and Rea, *The Botany of Worcestershire*, p. 339 (1909), N.Y.S. 63, S.W. Yorks.; canal, Salterhebble, Halifax, W. A. SLEDGE.

659/1. HAMMARBYA PALUDOSA (L.) O. Kuntze. 3, S. Devon; in a bog, Widecombe, 1939, L. A. HARVEY, det. T. STEPHENSON.

662/1. NEOTTIA NIDUS-AVIS (L.) Rich. 23, Oxon.; near Cuddesdon, 1940, N. E. G. CRUTTWELL.

663/1. LISTERA OVATA (L.) R. Br. 108, W. Sutherland; Melvich, sand dunes near sea level, P. M. HALL and E. C. WALLACE.

663/2. LISTERA CORDATA (L.) R. Br. 97, Westerness; Luinga Mhor, Arisaig, J. S. WILKINSON.

664/1. SPIRANTHES AESTIVALIS (Lam.) Rich. Observations of this plant in the New Forest show that it is being gathered each year as soon as it is in bloom. The results of this reprehensible practice are obvious by its diminishing numbers.

665/1. GOODYERA REPENS (L.) R. Br. 97, Westerness; on large mossy boulders, Loch nan Ceall, Arisaig, J. S. WILKINSON. 105, West Ross; two or three plants on heathy ground close to the shore at Reraig, 1938, indigenous *Pinus* on slopes above; the first recent record, J. A. WHELLAN, comm. P. M. HALL.

668/3. EPIPACTIS LEPTOCHILA (Godf.) Godf. 12, N. Hants.; Colemore, near Petersfield, Miss BRADFIELD and Miss NEWCOMBE, comm. P. M. HALL. [This is only the second locality for v.-c. 12, the other

being Selborne Hanger: the Colemore locality is in some clay-pits among dense underwood beneath oaks: there were about a dozen plants, mostly dwarf and spindly.—P.M.H.]

*668/3(3). EPIPACTIS VECTENSIS (T. & T. A. Steph.) Brooke & Rose. 33, East Gloucester; beechwood near Birdlip, CHARLES THOMAS (1941: *Proc. Cotteswold Nat. F.C.*, 1940, *27*, 111).

669/4. ORCHIS USTULATA L. 26, W. Suffolk; Risby Poors Heath, sparingly, J. E. LOUSLEY and E. C. WALLACE.

669/6. ORCHIS PARDALINA Pugsl. 39, Staffs.; Stanton, 1938, E. S. EDEES (*Journ. Bot.*, *78*, 269).

669/7. ORCHIS LATIFOLIA L. 17, Surrey; Chertsey Meads, H. W. KEW. 61, S.E. Yorks.; Newbald Springs, A. K. WILSON.

669/7×9. ORCHIS LATIFOLIA L. × PURPURELLA T. & T. A. Steph. 65, N.W. Yorks.; Semmerwater, W. A. SLEDGE.

*669/9(2). ORCHIS OCCIDENTALIS (Pugsl.) Wilmott. 108; W. Sutherland; Portskerra, Melvich, P. M. HALL and E. C. WALLACE.

669/11. ORCHIS FUCHSII Druce. 61, S.E. Yorks.; Newbald Springs, A. K. WILSON.

669/11×7. ORCHIS FUCHSII Druce × LATIFOLIA L. 61, S.E. Yorks.; Newbald Springs, A. K. WILSON.

*669/17. ANACAMPTIS PYRAMIDALIS (L.) Rich. 110, Outer Hebrides; Barra, 1936, C. M. Cant (E. V. Watson in *Journ. Bot.*, *77*, 7), Fuday, Heslop Harrison (1939: 4).

*669/18. HIMANTOGLOSSUM HIRCINUM (L.) Koch. 62, N.E. Yorks.; near Pickering, one plant, Mr CROSLAND, comm. W. A. SLEDGE.

671/1. ACERAS ANTHROPOPHORA (L.) R. Br. 6, N. Somerset; near Bath, 1933, A. E. WHITE (C. I. Sandwith, *Bristol Botany in 1939*). *53, S. Lincolnshire; roadside at Ancaster near Grantham, 1940, E. E. ORCHARD, comm. N. POLUNIN.

673/1. HERMINIUM MONORCHIS (L.) Br. 6, N. Somerset; Bath, 1938, A. E. WHITE, (C. I. Sandwith, *Bristol Botany in 1939*).

674/1. GYMNADENIA CONOPSEA (L.) R. Br. 110, Outer Hebrides; Fuday, Heslop Harrison (1939: 4).

674/1×669/11. GYMNADENIA CONOPSEA (L.) R. Br. × ORCHIS FUCHSII Druce. H. 35, N. Donegal; by Lough Mullardergh, W. A. SLEDGE.

674/3. LEUCORCHIS ALBIDA (L.) Meyer. 108, W. Sutherland; Meall Meadhonach, Durness, 1938, D. McCLINTOCK. *110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

†680/1. SISYRINCHIUM ANGUSTIFOLIUM Mill. 11, S. Hants.; roadside, Brockenhurst, H. SYMES, comm. W. A. PAYN. 41, Glamorgan; railway bank near Radyr, first seen about 1929, H. HUSBANDS, comm. Miss E. VACHELL.

691/2. POLYGONATUM MULTIFLORUM (L.) All. 16, W. Kent; by stream, Ashurst, 1940, The Hon. Mrs NIGHTINGALE, comm. A. H. WOLLEY-DOD.

694/1. CONVALLARIA MAJALIS L. *43, Radnor; Aberedw, J. WILLIAMS, comm. DEPT. BOT., NAT. MUS. WALES. 77, Lanark; Hamilton, 1905, H. K. WALLACE, comm. A. E. ELLIS.

702/2. ALLIUM BABINGTONII Borrer. 2, E. Cornwall; Boscastle Harbour, A. L. STILL.

702/4b. ALLIUM VINEALE L. var. BULBIFERUM Syme. 3, S. Devon; near Coombe Cellars, Haccombe, G. T. FRASER.

†702/7. ALLIUM TRIQUETRUM L. 41, Glamorgan; Newton, Porthcawl, Mrs BRUCE, comm. Miss E. VACHELL.

702/9. ALLIUM OLERACEUM L. 37, Worcs.; in great quantity at the side of a lane near The Bye Way Inn, Alfrick, F. M. DAY.

*†708/2. LILIUM PYRENAICUM Gouan. 44, Carmarthen; in abundance in a wooded dell, about 6 miles from the sea, between St Clears and Carmarthen, 1940, B. PARDON, comm. DEPT. BOT., NAT. MUS. WALES.

†710/1. TULIPA SYLVESTRIS L. 20, Herts.; several patches in a plantation near Sawbridgeworth, looking wild, rarely flowering, F. DRUCE.

711/1. GAGEA LUTEA (L.) Ker-Gawler. 38, Warwick; banks of R. Cole, Marston Green, W. H. HARDAKER.

715/1. TOFIELDIA BOREALIS (Wahl.) Wahl. 108, W. Sutherland; near Durness at 140 ft. above sea level, E. C. WALLACE and P. M. HALL. [*Comital Flora* gives as the lowest elevation for this species in Britain "700 ft. at Inchnadamph."—P.M.H.]

716/1. PARIS QUADRIFOLIA L. 61, S.E. Yorks.; A. K. WILSON.

718/4×5. ×JUNCUS DIFFUSUS Hoppe. 37, Worcester; Old Hills, Powick, 1940, F. M. DAY.

718/14. JUNCUS COMPRESSUS Jacq. 37, Worcester; bank of Severn, Upton, 1940, F. M. DAY.

*719/8. LUZULA SPICATA (L.) DC. 103, Mid Ebudes; Coire nam Fuaran, Ben More, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

721/2. TYPHA ANGUSTIFOLIA L. 6, N. Somerset; marshy slack in sand dunes, Berrow, 1940, J. P. M. BRENAN and N. E. G. CRUTTWELL.

722/1. SPARGANIUM NEGLECTUM Beeby. 36, Hereford; Coddington, 1940: 37, Worcester; Defford Common, 1940, F. M. DAY. *110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

722/2. SPARGANIUM RAMOSUM Huds. var. MICROCARPUM Neuman. 36, Hereford; bank of river Lugg, Lugwardine, 1940, F. M. DAY.

†724/1. ACORUS CALAMUS L. 39, Staffs.; Betley Mere, G. J. V. BEMROSE.

727/3. LEMNA TRISULCA L. 3, S. Devon; Ottery St Mary, Rev. W. K. MARTIN and G. T. FRASER.

728/1. WOLFFIA ARRHIZA (L.) Wimm. 15, E. Kent; ditches near Stone and at Snargate, Romney Marsh, E. C. WALLACE.

729/1b. ALISMA LANCEOLATUM With. 7, N. Wilts.; by Kennet and Avon canal at Semington: 8, S. Wilts.; by same canal at Avoncliff, 1940, N. Y. SANDWITH. It occurs along the same canal in 6, N. Somerset, between Bath and Bathampton.

735/1. TRIGLOCHIN MARITIMUM L. 109, Caithness; shore of Loch Winless, far inland, E. C. WALLACE.

737/3. POTAMOGETON NODOSUS Poir. *7 and *8, N. and S. Wilts.; traced up the Avon to Limpley Stoke, Avoncliffe, Bradford-on-Avon and Staverton, A. H. G. ALSTON, C. I. and N. Y. SANDWITH. *34, W. Glos.; river Avon, Bristol (Dandy and Taylor, 1939: 62).

737/4. POTAMOGETON COLORATUS Hornem. *51, Flint (Dandy and Taylor, 1939: 253). H. 16, West Galway; plentiful in all the loughs of the Slyne Head promontory, W. A. SLEDGE.

737/5. POTAMOGETON ALPINUS Balb. 56, Notts.; *91, Kincardine; *98, Argyll; *105, West Ross; (Dandy and Taylor, 1939: 253).

737/8. ×POTAMOGETON SPARGANIFOLIUS Laestad. ex Fr. 31, Hunts.; *92, S. Aberdeen; *96, Easterness (Dandy and Taylor, 1939: 254).

737/9. POTAMOGETON GRAMINEUS L. H. 35, N. Donegal; Lough Kinny, W. A. SLEDGE.

737/11. ×POTAMOGETON NITENS Weber. 56, Notts.; *63, S.W. York.; *64, M.W. York.; *74, Wigtown; *87, West Perth; *99, Dumbarton (Dandy and Taylor, 1939: 254). H. 16, West Galway; plentiful in the loughs of the Slyne Head promontory, W. A. SLEDGE.

737/12. ×POTAMOGETON ZIZII Koch ex Roth. 27, E. Norfolk; *54, N. Lincoln; *65, N.W. York; *100, Clyde Isles; *105, W. Ross; *111, Orkney; *H. 36, Tyrone (Dandy and Taylor, 1939: 256). *110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

737/13. POTAMOGETON LUCENS L. 36, Hereford; R. Wye above Hereford, F. M. DAY. Bracket in *C.F.*, 110, Outer Hebrides (Dandy and Taylor, 1940: 140).

737/14. ×POTAMOGETON DECIPIENS Nolte ex Koch. 6, N. Somerset; Kennet and Avon Canal at Bathampton, 1940, A. H. G. ALSTON, C. I. and N. Y. SANDWITH. *8, S. Wilts. (Dandy and Taylor, 1939: 343). 15, E. Kent; *22, Berks. (Dandy and Taylor, 1939, 255). *34, W. Gloucester; still in the Avon at Crews Hole and between Conham and Hanham Ferries, A. H. G. ALSTON, C. I. and N. Y. SANDWITH. [Add to *C.F.* and *Top. Bot.* though recorded in White, *Fl. Bristol*, 609.—ED.] *89, E. Perth (Dandy and Taylor, 1939: 255).

737/15. POTAMOGETON PRAELONGUS Wulf. *105, W. Ross (Dandy and Taylor, 1939: 256). H. 16, West Galway; Doonloughan, Slyne Head, W. A. SLEDGE. *H. 37, Armagh (Dandy and Taylor, 1939: 256).

737/16. POTAMOGETON PERFOLIATUS L. *78, Peebles; *105, W. Ross (Dandy and Taylor, 1939: 256).

737/18. POTAMOGETON COMPRESSUS L. *20, Herts.; *47, Montgomery (Dandy and Taylor, 1939: 257). 55, Leicester; canal, Foxton, 1922, A. E. ELLIS.

*737/19. POTAMOGETON ACUTIFOLIUS Link. 11, S. Hants. (Dandy and Taylor, 1939: 257).

737/20. POTAMOGETON OBTUSIFOLIUS Mert. & Koch. 76, Renfrew; Knapps Loch, Kilmacolm, R. MACKECHNIE.

737/20. POTAMOGETON OBTUSIFOLIUS Mert. & Koch. *11, S. Hants; *65, N.W. Yorks.; *83, Edinburgh; *99, Dumbarton; *111, Orkney (Dandy and Taylor, 1939: 257).

737/22. POTAMOGETON FRIESII Rupr. *83, Edinburgh; *84, Linlithgow (Dandy and Taylor, 1939: 258).

737/23. POTAMOGETON BERCHTOLDII Fieb. British records and available material have been revised by Dandy and Taylor (1940 B), who give

the distribution at present known as:—1-30, 32-75, 77, 79-93, 95-103, 105, 106, 109-112. H. 16, West Galway; Renvyle, W. A. SLEDGE.

737/25. POTAMOGETON PUSILLUS L. British records and available material have been revised by Dandy and Taylor (1940 A), who give the distribution at present known as:—1, 2, 4, 6-18, 20-25, 27-35, 37-41, 46, 48, 49, 52-57, 59-61, 63-65, 68-70, 73, 74, 77, 80, 83, 85, 86, 88-90, 93, 95, 96, 102, 109, 111, 112. Add 58 (Dandy and Taylor, 1940) and 110 (Dandy and Taylor, 1940 C) to above. *H. 35, N. Donegal; Magheradrumman, Fanad Head, W. A. SLEDGE.

*737/27. POTAMOGETON TRICHOIDES Cham. & Schlecht. Add to *C.F.* (see revised distribution in *B.E.C. 1938 Rep.*, 62, 1939), 2, 7, 8, 20, 22, 24, 35, 53, 63, 99 (Dandy and Taylor, 1939: 258).

*737/28. POTAMOGETON PECTINATUS L. 70, Cumberland (Dandy and Taylor, 1939: 259).

737/30. POTAMOGETON FILIFORMIS Pers. H. 35, N. Donegal; plentiful in Lough Kinny, W. A. SLEDGE. *H. 39, Antrim (Dandy and Taylor, 1939: 259).

737/31. POTAMOGETON DENSUS L. *87, W. Perth; *106, E. Ross (Dandy and Taylor, 1939: 257).

740/1. ZOSTERA MARINA L. 97, Westerness; seashore, Morar, 1938, E. C. WALLACE.

740/1(2). ZOSTERA HORNEMANNIANA Tutin. 44, Carmarthen; Ferryside, L. HUGH MILNE, det. T. G. TUTIN (*J.B.*, 77, 96).

741/2. NAIAS FLEXILIS (Willd.) Rostk. & Schmidt. H. 16, West Galway; with *Hydrilla* but only a single piece seen: H. 35, N. Donegal; plentiful, The Rosses, Lough Mullagdergh, W. A. SLEDGE.

745/2. HELEOCHARIS UNIGLUMIS (Link) Schultes. 25, E. Suffolk; Aldeburgh Marshes, F. DRUCE.

746/2. SCIRPUS MARITIMUS L. 33, E. Gloster; R. Severn, Forthampton, F. M. DAY.

746/12. SCIRPUS CERNUUS Vahl. 27, E. Norfolk; Bryant's Heath, Felmingham, 1938, A. E. ELLIS.

*746/14. SCIRPUS COMPRESSUS (L.) Pers. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

746/15. SCIRPUS RUFUS (Huds.) Schrad. 45, Pembrokeshire; Newport, 1933, E. H. CHATER, comm. A. J. WILMOTT. 69, N. Lancs.; Sunderland Point near Heysham, W. H. HARDAKER.

747/3. ERIOPHORUM GRACILE Roth. 9, Dorset; bog between Wareham and Corfe Castle, J. W. HAINES. [An interesting record from a new locality, the second in Dorset, not the well-known locality near Studland.—ED.]

*748/1. RYNCHOSPORA FUSCA (L.) Ait. 105, W. Ross; bog by Loch Maree, Miss E. S. KERR, comm. A. H. WOLLEY-DOD.

*750/1. CLADIUM MARISCUS R. Br. 110, Outer Hebrides; Eriskay, Heslop Harrison (1939: 4).

753/1. CAREX PSEUDO-CYPERUS L. 39, Staffs.; Froghall, G. J. V. BEMROSE.

753/3. CAREX ACUTIFORMIS Ehrh. 36, Hereford; marshy coppice at Eaton Bishop, F. M. DAY.

*753/5. CAREX GRAHAMI Boott. 98, Argyll; Ben Douran, 1940, See *J.B.*, *78*, 270, E. C. WALLACE.

753/7. CAREX ROSTRATA Stokes. 39, Staffs.; Consall, G. J. V. BEMROSE.

753/9. CAREX HIRTA L. 2, E. Cornwall; a form with compound spikelets, Widemouth Bay, A. L. STILL.

753/9d. CAREX HIRTA L. forma SPINOSA Mort. 37, Worcs.; Naunton, Ripple, F. M. DAY.

753/11. CAREX SYLVATICA Huds. 39, Staffs.; Stanton, G. J. V. BEMROSE.

753/12. CAREX STRIGOSA Huds. 12, N. Hampshire; abundant in lane, Heather Row near Hook: 13, W. Sussex; abundant on site of Roman Road near Rowhook, E. C. WALLACE. 20, Herts.; damp mixed oakwood on clay, Radlett, 1938, N. E. G. CRUTTWELL.

753/13. CAREX HELODES Link. 2, E. Cornwall; coombe north of St Gennys: foot of hill near Trefronn, Week St Mary, A. L. STILL. *50, Denbigh; wood near Cwm Bach, Llanferris, 1940: *51, Flint; bog near the preceding, 1940, J. A. WHELLAN, comm. DEPT. BOT., NAT. MUS. WALES.

753/14. CAREX CAPILLARIS L. 64, M.W. Yorks.; still at Gordale Scar, where it was found by W. West in 1878 but it does not appear to have been seen there by any living botanist until refound in 1939 by G. A. Shaw.—W. A. SLEDGE. 108, W. Sutherland; sandhills at Melvich, marsh at Durness: 109, Caithness; Dunnet Links, all at near sea-level, P. M HALL and E. C. WALLACE.

753/17. CAREX DISTANS L. 12, N. Hampshire; marshy field near Mapledurwell; also near Sherfield on Loddon; E. C. WALLACE. 108, W. Sutherland; shore at Keoldale, P. M. HALL and E. C. WALLACE.

753/19. CAREX HOSTIANA DC. 12, N. Hampshire; Mapledurwell and near Old Basing: 109, Caithness; shore of Loch Winless, E. C. WALLACE.

753/20×22. CAREX FLAVA L. × VIRIDULA Michx. var. ELATIOR (Anders.) Wilmott. 65, N.W. Yorks.; Semmerwater, W. A. SLEDGE.

753/22. CAREX VIRIDULA Michx. H. 16, West Galway; Bunowen, Slyne Head, W. A. SLEDGE.

753/22d. CAREX VIRIDULA Michx. var. ELATIOR (Anders.) Wilmott. 65, N.W. Yorks.; Semmerwater, W. A. SLEDGE.

753/23. CAREX EXTENSA Good. 45, Pembroke; saltings at Newport, 1927, A. E. ELLIS; 1933, E. H. CHATER, comm. A. J. WILMOTT. 69, N. Lancs.; Sunderland Point near Heysham, W. H. HARDAKER.

753/38. CAREX LIMOSA L. 108, W. Sutherland; lower slopes of Beinn Ceannabeine, Durness, P. M. HALL and E. C. WALLACE.

*753/39. CAREX RARIFLORA Sm. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4). A most surprising plant for the Western Isles, considering its habitat in eastern Scotland.—E. C. WALLACE.

*753/42. CAREX HALLERI Gunn. 110, Outer Hebrides; N. Uist, W. A. Clark (1939: 5).

753/49×45. CAREX GOODENOWII Gay × HUDSONII Ar. Benn. 11, S. Hants.; water meadows near St Cross, Winchester, P. M. HALL, E. NELMES and E. C. WALLACE.

*753/57. CAREX REMOTA L. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

*753/57×59. ×CAREX AXILLARIS Good. 2, E. Cornwall; by canal at foot of Marhamchurch Plane: dry bed of canal above Marhamchurch (the form with simple spikelets, var. *remotiformis* Rouy); A. L. STILL.

753/59(2). CAREX VULPINA L. 16, W. Kent; damp ground among bushes by the River Medway near Hartlake Bridge, N.E. of Tudeley Hale, J. P. M. BRENAN.

753/60. CAREX SPICATA Huds. 37, Worcs.; near R. Severn, Powick, F. M. DAY.

753/61. CAREX PAIRAEI F. Schultz. 2, E. Cornwall; Tintagel, A. L. STILL. *8, S. Wilts.; Chute, 1940, J. D. GROSE. *98, Argyll, roadside bank, Ledaig, near Connel Ferry, 1940, E. C. WALLACE.

753/63. CAREX PANICULATA L. 109, Caithness; shore of Loch Winless, P. M. HALL and E. C. WALLACE.

753/65. CAREX DIANDRA Schrank. 61, S.E. Yorks.; Kelleythorpe Marsh, Driffield, July 1939. Bracketed as extinct or dubious in this v.-c. in *C.F.*, but it has been known here for 40 years, W. A. SLEDGE. (Remove brackets in *C.F.*—ED.) 109, Caithness; shore of Loch Winless in some abundance, P. M. HALL and E. C. WALLACE. (Add to *C.F.*, not N.C.R.—see *Top. Bot.*—E. C. WALLACE.

753/66. CAREX DISTICHA Huds. 12, N. Hampshire; about Andwell, Mapledurwell and Old Basing, E. C. WALLACE.

753/68. CAREX DIVISA Huds. 61, S.E. Yorks.; Easington, 1938, A. K. WILSON.

*753/71. CAREX RUPESTRIS All. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

753/75. CAREX DIOICA L. 12, N. Hampshire; marshy field at Mapledurwell, 1939, E. C. WALLACE. Recorded from here in Townsend's *Flora of Hampshire* for 1860 but no reference to it can be found during the interval.—E.C.W.

†753/77. CAREX VULPINOIDEA Michx. 61, S.E. Yorks.; Broomfleet Delphs, A. K. WILSON.

†754/8d. ECHINOCHLOA CRUS-GALLI (L.) Beauv. var. ARISTATA S. F. Gray. 11, S. Hants.; in a field of carrots, Heytesbury Farm, Fareham, 1938, P. M. HALL, det. C. E. HUBBARD.

†756/1. SETARIA ITALICA (L.) Beauv. 61, S.E. Yorks.; rubbish heaps, Springhead, A. K. WILSON.

†757/1. COIX LACHRYMA-JOBI L. 23, Oxon.; Waste ground, Jackdaw Lane, Oxford, J. P. M. BRENAN.

†758/3. SPARTINA TOWNSENDII H. & J. Groves. *2, East Cornwall; Tamar saltings, Saltash, J. H. ADAMS. *37, Worcester; in shallow water of the Droitwich Canal, near Salwarpe, W. H. HARDAKER. *48, Merioneth; Abertafol Sands, J. A. WEBB, originally planted on the Cardiganshire side of the Dovey Estuary from whence it has spread, comm. DEPT. BOT., NAT. MUS. WALES.

†765/6. PHALARIS BRACHYSTACHYS Link. 16, W. Kent; Green Street Green, J. P. M. BRENAN.

*770/2. ALOPECURUS ALPINUS Sm. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

*770/6. ALOPECURUS AEQUALIS Sobol. 56, Notts.; pond by the Haxey Gate Inn, Misterton, C. I. and N. Y. SANDWITH.

775/1. MILIUM EFFUSUM L. 2, E. Cornwall; Valency Valley, Boscastle, A. L. STILL.

*†778/1. MIBORA MINIMA (L.) Desv. 25, E. Suffolk; naturalised in nursery garden, Woodbridge, Mrs BULL, comm. A. H. WOLLEY-DOD. 67, S. Northumberland; referred to again by J.W.H.H. in *Vasc.*, *25*, No. 2, 69, where some plants under observation proved viviparous and apparently perennial (see *B.E.C. 1938 Rep.*, 64: 1939).

†780/8(2). **Agrostis pisidica** Boiss. in *Ann. Sci. Nat.*, ser. iv, ii, 255 (1854). *A. trichoclada* Griseb. var. *pisidica* (Boiss.) Boiss., *Fl. Orient.*, v, 516 (1882). 6, N. Somerset; Bristol, C. I. and N. Y. SANDWITH.

†782/1. POLYPOGON MONSPELIENSIS (L.) Desf. 3, S. Devon; High Week, waste ground near Bradley Lane, Newton Abbot, in quantity originating from Torbay Mills, a fodder concern, G. T. FRASER. 61, S.E. Yorks.; Brough, A. K. WILSON.

*791/3. DESCHAMPSIA SETACEA (Huds.) Richter. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

793/1c. TRISETUM FLAVESCENS (L). Beauv. var. VARIEGATUM (Mert. & Koch) Druce. 41, Glamorgan; coast near Barry, Miss E. VACHELL.

†794/6. AVENA STRIGOSA Schreb. 29, Cambs.; Southam: 37, Worcester; bank of river Teme, Cotheridge, 1940, F. M. DAY.

795/2. ARRHENATHERUM TUBEROSUM (Gilib.) Druce. 91, Kincardine; bank of Dee, Gateside, E. C. WALLACE.

†810/1. DIPLACHNE FUSCA (L.) Beauv. 11, S. Hants.; wool-alien, Portchester, P. M. HALL and R. C. L. BURGES, det. at KEW.

814/1. CATABROSA AQUATICA (L.) Beauv. 29, Cambs.; Grantchester Meadows, F. M. DAY.

822/1b. BRIZA MEDIA L. var. ALBIDA Lej. 41, Glamorgan; Lavernock, Miss E. VACHELL.

824/2b. POA PRATENSIS L. var. ANGUSTIFOLIA (L.) Mert. & Koch. 36, Hereford; Fox Hill, Bosbury, F. M. DAY.

*824/5. POA PALUSTRIS L. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

824/6b. Poa trivialis L. var. glabra Döll. 32, Northants; Clack Hill near Market Harborough, 1922: 50, Denbigh; Glyndyfrdwy, 1921, A. E. Ellis, det. C. E. Hubbard.

†824/13b. Poa bulbosa L. var. vivipara Koeler. 6, N. Somerset; waste ground, Bristol, May 1939, with the typical variety, C. I. Sandwith and I. W. Evans. 34, W. Gloucester; waste ground, Avonmouth Docks, May 1932, C. I. Sandwith. New to the Bristol list.

825/2×3. Glyceria fluitans (L.) R. Br. × plicata Fr. 29, Cambs.; Upware, 1931, A. E. Ellis, det. C. E. Hubbard.

825/2b. Glyceria fluitans (L.) R. Br. var. triticea (Fr.) Lange. 50, Denbigh; Ponty Pandy, Glyndyfrdwy, 1921, A. E. Ellis, det. C. E. Hubbard.

825/3(2). Glyceria declinata Bréb. *1, W. Cornwall; Trevorian Common near Sennen, 1926, A. E. Ellis, det. C. E. Hubbard. *7, N. Wilts.; dried-up pond on Broughton Gifford Common, 1940, A. H. G. Alston, C. I. and N. Y. Sandwith. *8, S. Wilts.; Folly Farm, Bedwyn, 1938, J. D. Grose. 22, Berks.; muddy field by farm between Oxford and Eynsham, J. P. M. Brenan. *50, Denbigh; Ponty Pandy, Glyndyfrdwy, 1921, A. E. Ellis, det. C. E. Hubbard.

*825/5. Puccinellia maritima (L.) Parl. 108, W. Sutherland; Keoldale, P. M. Hall and E. C. Wallace.

825/8. Puccinellia rupestris (With.) Fern. & Weath. 3, S. Devon; Wolborough, clay quay near river Teign, G. T. Fraser.

826/1. Scleropoa rigida (L.) Griseb. 22, Berkshire, foot of old wall, Drayton, J. N. Mills.

826/7b. Festuca rubra L. var. fallax Thuill. 3, S. Devon; Lustleigh: 37, Worcs.; on wall-top, Birt Street, Birtsmorton: F. M. Day, det. C. E. Hubbard.

*826/15. Vulpia membranacea (L.) Dum. 69, N. Lancs.; Walney Island, W. H. Hardaker.

†827/4. Bromus tectorum L. 23, Oxon.; waste ground, Jackdaw Lane, Oxford, J. P. M. Brenan.

†827/5. Bromus madritensis L. var. **ciliatus** Guss., *Fl. Sic. Syn.*, i, 78 (1842). 1a, Scillies; Southward Bay, Bryher (Lousley, 1939 C.).

†827/13. Bromus unioloides H. B. K. 16, W. Kent; waste ground, High Brooms, J. P. M. Brenan.

*†827/19(2). BROMUS LEPIDUS Holmberg. 61, S.E. Yorks.; Broomfleet, A. K. WILSON. Forma LASIOLEPIS Holmberg, Springhead, 1937, and Rickering roadside, Hull.—A.K.W.

†827/24. BROMUS SCOPARIUS L. 6, N. Somerset; waste ground, Bristol, C. I. SANDWITH. New to the Bristol list.

*828/2. BRACHYPODIUM PINNATUM (L.) Beauv. H. 33, Fermanagh; railway bank, Lisnarick, R. MACKECHNIE.

†832/1(2). **Triticum monococcum** L., *Sp. Pl.*, ed. i, 86, 153. Alien, eastern Medit. Reg. and cult. 18, S. Essex; waste ground, Dagenham, J. P. M. BRENAN and N. Y. SANDWITH.

†832/8. AEGILOPS TRIUNCIALIS L. 6, N. Somerset; waste ground, Bristol, C. I. and N. Y. SANDWITH. New to the Bristol list.

†832/11(2). AEGILOPS LIGUSTICA (Savign.) Coss. 18, S. Essex; waste ground, Dagenham, J. P. M. BRENAN and N. Y. SANDWITH.

†836/4(2). **Elymus crinitus** Schreb., *Beschr. Gräs.*, ii, 15, t. 24, f. i (1810). Alien, Medit. Reg. 6, N. Somerset; waste ground, Bedminster, Bristol, 1930, C. I. and N. Y. SANDWITH, det. C. E. HUBBARD. Previously recorded by C. T. SANDWITH (*1932 Rep.*, 363) as *E. caput-Medusae*, to which it is very closely allied, differing in the short and straight (not arcuate and divaricate) awns of the lemmas of the lower spikelets, N.Y.S.

844/3. EQUISETUM SYLVATICUM L. 16, W. Kent; copse, Lamberhurst Quarter, J. R. WALLIS.

*844/8. EQUISETUM TRACHYODON A. Br. 92, S. Aberdeen, J. R. MATTHEWS, *Journ. Bot.*, *78*, 21.

851/1. ASPLENIUM MARINUM L. 97, Westerness; north side of Loch nan Uamh; Luinga Mhor, Arisaig, J. S. WILKINSON. 108, W. Sutherland; Ceannabeinne Bay, Eilean Hoan, 1938, D. MCCLINTOCK.

*854/3. POLYSTICHUM LOBATUM (Huds.) Woynar. 110, Outer Hebrides; S. Uist, Heslop Harrison (1939: 4).

854/4. POLYSTICHUM LONCHITIS (L.) Roth. H. 16, West Galway; Muckanaght, Twelve Bens, W. A. SLEDGE.

*856/2. DRYOPTERIS CRISTATA (L.) A. Gray. 17, Surrey; Bagshot area, 1938, L. G. PAYNE, *London Naturalist*, 1938.

856/5. DRYOPTERIS AEMULA (Ait.) Kuntze. 16, W. Kent; still (1941) near Brenchley, probably the only now existing Kent station. Prolonged

search about Tunbridge Wells and Eridge in Sussex has failed to reveal the plant in other recorded stations. J. R. WALLIS.

*856/7. DRYOPTERIS OREOPTERIS (Ehrh.) Maxon. 43, Radnor; by Nant-henllan, near Llandeilo-graban, A. E. WADE.

856/9. DRYOPTERIS PHEGOPTERIS (L.) C. Chr. 41, Glamorgan; in great abundance and exceptional luxuriance in a new habitat within 7 miles of the centre of Cardiff, Miss WARE, comm. Miss E. VACHELL.

859/1. CETERACH OFFICINARUM DC. *43, Radnor; Rhayader, 1922, R. L. SMITH, comm. DEPT. BOT., NAT. MUS. WALES. 57, Derby; limestone rocks in Dovedale, W. H. HARDAKER.

*863/2. HYMENOPHYLLUM PELTATUM Desv. 45, Pembroke; Craig Lwyd, near Trecwn, 1856, Mrs RIPPON, and Treffgarne Rocks, 1931, Miss E. C. HOWELLS, comm. DEPT. BOT., NAT. MUS. WALES.

*867/1. PILULARIA GLOBULIFERA L. H. 35, N. Donegal; Lough Nacung, W. A. SLEDGE.

†868/1. AZOLLA FILICULOIDES Lam. 14, E. Sussex; near to, and S. of Camber Castle, Rye, H. E. BUNKER, comm. P. M. HALL.

869/1. ISOETES LACUSTRIS L. 103, Mid Ebudes; peaty tarns above Carsaig Arches, Mull, A. TEMPLEMAN, comm. A. J. WILMOTT.

870/5. LYCOPODIUM CLAVATUM L. 14, E. Sussex; heathy ground near Rowfant, 1940, E. C. WALLACE. 17, Surrey; still near the Nower, Dorking, 1940, W. E. CHINA, comm. E. C. WALLACE.

872/3. NITELLA FLEXILIS Agardh. 41, Glamorgan; specimens recorded (*1937 Rep.*, 597) as from Kenfig Pool, came from Mynydd-y-Glew, the only recognised locality in the county, E. VACHELL.

872/5. NITELLA TRANSLUCENS (Pers.) Ag. H. 16, West Galway; Renvyle: H. 35, N. Donegal; Lough Kindrum, W. A. SLEDGE.

872/9. NITELLA BATRACHOSPERMA (Rchb.) A. Br. *H. 16, West Galway; Renvyle: H. 35, N. Donegal; Lough Nacung, Gweedore, W. A. SLEDGE.

876/3. CHARA VULGARIS L. 109, Caithness; stream on Dunnet Links, P. M. HALL and E. C. WALLACE.

876/4. CHARA RUDIS (A. Br.) Leonh. H. 35, N. Donegal; Lough near L. Kinny, Fanad Head, W. A. SLEDGE.

876/7. CHARA CONTRARIA Kütz. H. 35, N. Donegal; Magheradrumman, Fanad Head, W. A. SLEDGE.

876/11. CHARA ACULEOLATA Kütz. 27, E. Norfolk; Roydon Fen, near Diss, 1938, E. C. WALLACE and P. M. HALL.

876/12. CHARA ASPERA Willd. H. 16, West Galway; Renvyle and Bunowen: H. 35, N. Donegal; Lough Mulladergh, The Rosses; Lough Kinny and Magheradrumman, W. A. SLEDGE.

876/13. CHARA DESMACANTHA Gr. & B.-W. H. 35, N. Donegal; Lough Kinny, W. A. SLEDGE.

876/16. CHARA GLOBULARIS Thuill. H. 16, West Galway; Renvyle, W. A. SLEDGE.

876/17. CHARA DELICATULA Ag. 108, W. Sutherland; Blar nam Fear More, near Little Assynt, P. M. HALL and E. C. WALLACE.

THE WEATHER OF 1939 AND 1940 AND ITS EFFECTS.

(Adapted by permission from the Phenological Reports of the Royal Meteorological Society.)

1939.

While there was a nearer approach to average conditions throughout the year than of late, there was again a spring with a succession of warm spells separated by brief cold spells. These were preceded by severe cold in late December and early January, and followed, after a warm and sunny early June, by a cool and comparatively sunless summer and early autumn, with the exception of a fine warm period in August and early September; as in the previous year, November was very warm. These conditions prevailed generally throughout the British Isles. There were, however, no destructive late frosts or drought of serious duration, such as occurred in 1938, and very few gales; another marked difference was in respect of the rainfall, which in 1938 was markedly below the average in the south-eastern and above the average in the north-western districts—district conditions which were reversed in 1939 when the greater excess periods occurred in the south-east.

While the severe cold in December-January did considerable damage to delicate plants, it did not adversely affect plant life in general. In south-eastern England, after this cold spell, the hazel was late, but the subsequent warm spells produced a forwardness with the same tendency to persist as was referred to in the 1938 Report, especially as regards insects, the larvae of which experienced early favourable conditions for feeding up after hibernation. In north-eastern England and the other later districts, the forwardness was less marked, and it is interesting to refer to the 1938 diagrams for these districts, and to note the very much earlier dates then caused by the more intense and longer warm spells in spring.

The general influence of the year's weather, so free from extremes, was favourable to fruit, cereal and root crops, and wild fruit was also plentiful. As regards grass, the graphs indicate conditions in striking contrast with those of the previous year, although the hay harvest was only fair. The weather was, however, generally favourable for harvesting the cereal crops. The absence of severe gales and of early frosts resulted in brilliant autumn colours in most districts. Second flowering of many plants occurred. In the late summer there was a plague of the larvae of the " cabbage white " butterflies, following migration of the insects from the continent.

1940.

This year furnished some striking features of phenological interest. It commenced with a prolonged cold spell, and January was probably the coldest for 100 years, although the sunniest for 50 years. February was very dull with one very cold week. After that, a succession of

warm spells followed, separated by comparatively few cold ones, with ample rain and sunshine. Droughty conditions occurred in May and June and again, after a cool and showery July, in August and early September, terminated by a cool moist period after which conditions were not far from average until the end of November. There was general similarity between the weather of south-east and north-west districts. The marked lateness of both plants and insects caused by the cold opening to the year gave place to considerable earliness which mainly persisted from the end of April, and the beauty of spring and early summer was enhanced by the simultaneous flowering of the normally early species which had been retarded and the normally later species which had been brought forward. Alpine plants in Perthshire and Argyll were earlier in flowering than is usual on the western Breadalbane hills, many sedges being in good fruit up to 3000 feet O.D. at the end of June.

The recovery also applied to crops, although some autumn-sown cereals failed to survive the winter and the plum crop was badly damaged by a cold spell. An interesting point emerges concerning the effect of drought on grass; in the N.W., with rainfall 30% of the average, hay was assessed during August as remaining between 77% and 78%, but in the S.E., with rainfall only 3% of the average, the hay deteriorated from 77% to 56%. The large white butterfly again arrived in great numbers and a plague of larvae ensued which caused much damage. Hundreds of pupae were seen by Mr H. W. Pugsley and myself on twigs and leaves of a hedge in a lane near Liphook, Hampshire.

At the end of January many parts of southern and south-central England experienced a severe ice storm which wrought much havoc to trees and shrubs; Wiltshire, Gloucestershire, Berkshire and, to a lesser extent, Surrey and North Hampshire, being most effected. After severe cold a slight thaw with east wind, rain and fog caused a coating of ice to form on twigs and branches of trees, telegraph wires, etc. For two days the ice increased in thickness, weighing down branches and causing severe fractures. The coating of ice varied in thickness from ½ inch to 3 inches in exposed places. The trees that suffered most were the Oaks, Beech, Spanish Chestnut, Ash, Elm, Poplar, and Maple. Young birches were often snapped off half way up.

E. C. WALLACE.

NOMENCLATURE AND CORRECTIONS TO BRITISH PLANT LIST.

A. J. WILMOTT.

Nomenclature is admittedly a troublesome and difficult subject, but it cannot be ignored in our Reports, for which it is necessary to adopt some definite plan to obtain as great a measure of uniformity as possible. In the recently-issued second part of the Report for 1938, the name used in the second edition of the *British Plant List* was added when it was not adopted, but the correction of the proofs of the present *Report* showed that to do this consistently would involve so much extra printing of synonyms, often repeated, as to be impracticable.

Differences in nomenclature arise in many ways. Since the publication of the *British Plant List*, ed. 2, alterations to the International Rules of Botanical Nomenclature have necessitated many changes, particularly by the adoption of a rule invalidating later " homonyms " (i.e. later independent uses of the same name; e.g. *Viola silvestris* Kit. in Schultes (1814) cannot now be adopted because there exists the earlier but illegitimate *Viola silvestris* Lam. (1778) (*nomen superfluum*), and the plant commonly called *V. silvestris* must now be called *V. Reichenbachiana* Jord., by which name it was formerly well known). For an account of the Rules see *1932 Rep.*, 300-313, but further changes were adopted in 1935.

Again, Dr Druce did not follow some of the prescriptions of the International Rules, and many changes must arise therefrom. In particular, the Rules do not permit the use of a " tautonym," i.e. a specific name composed of the same word repeated, e.g. *Glaucium Glaucium* (L.) Karst., and such names must be replaced. Other changes arise when investigation shows that a given name does not belong to the plant for which it is currently used, as when it was shown that *Agrostis alba* of Linnaeus was not even an *Agrostis* but was the shade form of *Poa nemoralis* L. with single-flowered spikelets.

Uniformity in nomenclature can never, however, be absolute, as there can be quite legitimate divergencies due to differences of opinion. Views vary as to the best limits to be assigned to genera, and one author may quite legitimately prefer *Scirpus rufus* L. to *Blysmus rufus* (L.) Panz. Similarly, some varieties of the *Plant List* may legitimately be treated as species, subspecies or forms. Again, the interpretation of some old name may not be as clear as that of *Agrostis alba* L., and there may be some disagreement as to its application, so that a given name, e.g. *Orchis maculata* L., may be currently used for different species; such divergent uses are then indicated in the citation of the authority, either " L. sec. Druce " [i.e. = *O. ericetorum* (Linton) E. S. Marshall] or " L., (et) auct. plur." or " L.; Godfery " [i.e. = *O. Fuchsii* Druce]. And yet again, there are still some differences of opinion regarding the interpretation and/or application of certain of

the Rules which can only be settled at some future International Botanical Congress.

It is therefore clear that authors who hold definite opinions on certain of these matters must be free to adopt in their articles names not accepted for the revision of the *Plant List*, so long as their meaning is made clear by the additional citation of the name (or number) in that List. But some means of avoiding continual citation of synonyms is needed, and I had therefore intended to include under the title of this note an annotated list of all the departures from and additions to the editorially annotated copy of the *Plant List* which were adopted or suggested in the Reports for 1938, part ii, and 1939/40, thus enabling members to correct their copies with ease and permitting a fully corrected copy to be used as the standard of nomenclature for the Reports. Mention has been made elsewhere of the corrected copy kept up to date by the late editor, but examination of this shows that the corrections are far from complete and often need further checking, and they have not been collected together as was done for corrections to the *Comital Flora*.

Having made a full list of all the departures from the corrected copy of the *Plant List* occurring in the Reports mentioned, it was clear that the time required for the adequate investigation of all would unduly delay publication, and that some problems could not be investigated at all owing to the evacuation of the necessary books or specimens. The corrections now listed are therefore limited to those which can be set out without delaying publication, and do not include minor corrections (such as the completion of the double citations of authors so frequently incomplete in *B.P.L.*) unless there is any special reason for their inclusion. The purely nomenclatural matter already set up in type in Plant Notes and Plant Records, although it would be better transferred here, has been omitted, as have also the new names already set up in heavy type, which can easily be picked out by those who wish to correct their Plant Lists, but heavy type is not used elsewhere for mere name-changes inserted here. The desirability of printing the full list (or a complete list of accepted corrections to *B.P.L.*) in a subsequent Report will be considered, and must partly depend on the possibility of bringing out a new edition of the Plant List within a reasonable time. Meanwhile, the citation of the *B.P.L.* number against a name is, in the present Report, regarded as a sufficient indication of synonymy when some other name has been adopted. In a very few instances, departures from the annotated *B.P.L.* are not noted in the following list, because it has not been possible to complete the investigation; the name adopted is probably the correct name, but it is undesirable to make the alteration in *B.P.L.* until all relevant books and specimens have been examined.

The types and signs used in these corrections will be those used in the *Plant List* itself, i.e. names in black type indicate native plants; in black type with asterisk, denizens, looking native but doubtfully

indigenous; in starred italics, naturalised aliens; in unstarred italics, more or less adventive plants: see *Plant List*.

35 NASTURTIUM.

1 **officinale.**

d. **microphyllum** Boenn.

87 HELIANTHEMUM.

2 **Chamaecistus** Mill.—*Vice* tautonym. If *Cistus nummularius* L. is considered to belong to this species, the name *H. nummularium* (L.) Mill. will take precedence.

88 VIOLA.

3 **Reichenbachiana** Jord. ex Boreau. (V. silvestris Kit. ex Schultes, non Lam.).

89 POLYGALA.

4 **oxyptera** Rchb.—This name is adopted as I cannot at present distinguish Reichenbach's plant from the British plants called *P. dubia* Bellynck.

93 TUNICA.

1 **prolifera.**

b. **laevis** (Clav.) Rouy & Fouc.—See Plant Notes.

96 SILENE.

2 **Cucubalus** Wibel.—*Vice S. angustifolia* S. & T.; see 1932 Rep., 312.

*2(2) *Tenoreana* Colla.—*S. angustifolia* [Ten.] Guss. 1827, *nomen illegitimum* (homonym of *S. angustifolia* Poir. 1789).

b. *carneiflora* (Legrand) Wilmott—comb. nov.; see Plant Notes.

102 ARENARIA.

7 **peploides** L.—With small initial " p."

103 SAGINA.

3 **intermedia** Fenzl in Ledeb.—*S. caespitosa* (Vahl) Lange is very different from our British plant; the use of that name was due to misunderstanding. The statement that *S. nivalis* Fr. was the same as *S. caespitosa* meant that neither name could be used for our plant, which is *S. intermedia* Fenzl in Ledeb.

105 SPERGULARIA.

2 **marginata** (DC.) Kittel.—It is doubtful whether *Arenaria media* L. 1762 belonged to this species.

5 **rubra** (L.) J. & C. Presl.—There seems no reason for rejecting this name in favour of *S. campestris* (L.) Asch.

108 *CLAYTONIA.*

*1 *alsinoides* Sims.—With small initial " a."

112 HYPERICUM.

11 **quadrangulum** L. (H. tetrapterum Fr.).—The type of the Linnean name, based on a definitive phrase taken from the *Hortus Cliffortianus*, is a specimen of " *H. tetrapterum* Fr." in Clifford's herbarium. This application is made quite clear, though not adopted, by Pugsley (1940: 25-36).

12 **dubium** Leers. (H. quadrangulum auct. aliq.).

13 [delete]—*H. Desetangsii* Lamotte = × *H. intermedium* (*H. perforatum* × *quadrangulum*): see Pugsley 1940, 36.

117 MALVA.

3 **neglecta** Wallr. (M. rotundifolia auct. plur.).

4 *rotundifolia* L. (M. pusilla Sm.).—The definitive reference given by Linnaeus is from Hort. Cliff., and the type, in Clifford's herbarium, is what has been called *M. pusilla* Sm.: cf. also 1937 Rep., 442.

124 RADIOLA.

1 **Linoides** Roth.—*Vice* tautonym; Roth rightly used the capital " L."

125 LINUM.

1 **bienne** Mill.—Now generally identified with *L. angustifolium* Huds., which it antedates.

127 GERANIUM.

14 Robertianum.

g. **intermedium** Wilmott.—Wrongly placed in *B.P.L.* as a variety of *G. purpureum* (15c).

133 IMPATIENS.

*4 *Roylei* Walp.—*I. glandulifera* Royle 1839, non Arn. in Hook. 1835.

153 MEDICAGO.

1 **falcata** L.—With small initial " f."

6 **minima** (L.) Bartal.—The objection raised by Rendle and Britten (1907: *Journ. Bot.*, xlv, 437) to the citation of Bartalini as author of this combination is without foundation, being due to insufficient examination of Bartalini's work, in which the names *follow* the references given, and do not precede them as Rendle and Britten assumed.

d. *recta* (Desf.) Burnat.—*Vice* longiseta DC.

173 ONOBRYCHIS.

1 **viciifolia** Scop. [" viciaefolia "].—*Vice* tautonym.

176 VICIA.

26 *pannonica.*

b. *purpurascens* (DC.) Boiss.—*Vice striata* (MB.).

197 COTONEASTER.

1 **integerrima** Medik.—*Vice* tautonym.

223 *OENOTHERA.*

*3 *stricta* Ledeb. (O. odorata auct. angl., non. Jacq.).

261 ANTHRISCUS Pers. Syn. i, 320, 1805, emend. Hoffm. Gen. Umbell. i, 38, 1814, *nomen conservandum propositum* 1935; (non Bernh. 1800).

1 **sylvestris** (L.) Hoffm.

2 **Scandix** (Scop.) Aschers. (A. vulgaris Pers., 1805, non Bernh., 1800).

*3 *Cerefolium* (L.) Hoffm.

296 GALIUM.

4 **saxatile** L.—*Vice G. hercynicum* Weig. The locality cited for *G. saxatile* was Barcelonette, in the south of France, but this was misinterpreted as being Barcelone, where the species does not occur, and the name was unnecessarily rejected.

333 INULA.

4 **Conyza** DC. (I. squarrosa (L.) Sch. & Thell., non I. squarrosa L.).

334 PULICARIA.

2 **vulgaris** Gaertn.—*Vice* tautonym.

386 *CRYPTOSTEMMA* R. Br. in Ait.

1 *calendulaceum* (L.) R. Br. in Ait.—Not (L.) Druce.

395 CARDUUS.

3(2) tenuiflorus Curt.—*Vice* 3b.

405 CENTAUREA.

31 *solstitialis* L.—With small initial " s."

415 PICRIS.

1 **echioides** L.

2 **hieracioides** L.—The use of initial capitals for these two specific epithets, rightly used by Linnaeus in other genera, appears to be erroneous here, as neither species had been referred to the old genera, i.e. to *Echioides* or *Hieracioides* respectively.

419 HIERACIUM.

*8 *brunneo-croceum* Pugsl. (H. aurantiacum auct., non L.).

*9 *aurantiacum* L. sec. Pugsl. (=ssp. claropurpureum Naeg. & Pet.).—Cf. Pugsley 1921, in *Journ. Bot.*, lix, 60-69.

423 TARAXACUM.

15 **palustre** (Lyons) DC.—*Leontodon palustre* Lyons 1763, Fasc. 48. The type locality was Hinton Moor (now drained), near Cambridge, and until any locality nearer to Cambridge is ascertained, the name is taken to apply to the plant found in Wicken Fen.

435 CAMPANULA.

4 **rapunculoides** L.—With small initial " r."

443 *GAULTHERIA.*

*1 *Shallon* Pursh.—With initial capital " S," as used by Pursh, the epithet being a vernacular Indian name for the plant.

458 ARMERIA Willd., *nomen conservandum propositum* 1935 (and 458/4 **A. maritima** Willd.).—May be used in place of *Statice* while the matter is still *sub judice*.

477 BLACKSTONIA Huds.—The original spelling.

515 CUSCUTA.

4 **Trifolii** Bab.—With initial capital " T," as used by Babington.

535 SCROPHULARIA.

3 **umbrosa** Dum.—*S. alata* Gilib. is *nomen illegitimum* (*superfluum*). *S. Neesii* Wirtgen has been suggested as being the name of this plant, but I have seen no British specimens agreeing with Wirtgen's descriptions, figure of staminode, and specimens.

558 MENTHA.

2 **alopecuroides** Hull.—The original spelling, with small initial " a," which is correct.

600 CHENOPODIUM.

11 [*pratericola* Rydb.]

b. *Thellungianum* Aell. (C. leptophyllum auct., non Nutt.).—See Plant Records.

606 ATRIPLEX.

8 **laciniata** L. (A. maritima Hallier, *nomen illegitimum*).—Linnaeus's definitive reference is from the Hortus Cliffortianus, and the type in Clifford's herbarium is this species.

615 POLYGONUM.

6 **lapathifolium** L.—With small initial " l," the capital being used in error by Linnaeus.

618 RUMEX.

8 **nemorosus** Schrad.—This name is generally cited as " Schrad. ex Willd., 1809," but sometimes as from Schrader's Cat. Hort. Goett. 1806, a rare work of which I have been unable to trace a copy. If there is a description in that earlier work to validate Schrader's name from 1806, it will take precedence over *R. condylodes* MB., which dates from 1808.

647 CASTANEA.

*1 **sativa** Mill.—*Vice* tautonym.

659 HAMMARBYA O. Kuntze, Revis. ii, 665, 1891. (Malaxis Lindl., non Sw.).

1 **paludosa** (L.) O. Kuntze.

668 EPIPACTIS [Zinn.] Swartz in Vet.-Akad. Handl., Stockholm, xxi, 232, 1800, emend. L. C. Rich. in Mém. Mus. Par. iv, 51, 60, 1818, *nomen conservandum propositum* 1935.

1 **palustris** (L.) Crantz.
2 **Helleborine** (L.) Crantz emend. Rend. & Britt.
3 **leptochila** Godfery.
3(2) **dunensis** (T. & T. A. Steph.) Godfery.—*Vice* 3b.
3(3) **vectensis** (T. & T. A. Steph.) Brooke & Rose.—*Vice* 3c.
4 **purpurata** Sm.
5 **atropurpurea** Rafin.

669 ORCHIS.

10 **ericetorum** (Linton) E. S. Marshall.—The correct application of the name *O. maculata* L. is still unsettled. Although it seems probable that it should be adopted for the next species, it can quite legitimately be used for this species if cited as of " L. sec. Druce." The name *O. elodes* Griseb. is not adopted as there is some doubt concerning the identity of Grisebach's plant.

11 . . . . . —If the name *O. maculata* L. is used for this species, the application should be made clear either by the citation of the *B.P.L.* number or of the synonym *O. Fuchsii* Druce, or citation of a second author, e.g. " L. sec. Godfery."

715 TOFIELDIA.

1 **borealis** (Wahl.) Wahl.—*T. palustris* Huds. is *nomen illegitimum superfluum* = *Anthericum calyculatum* L., with which Hudson misidentified the British plant.

730 BALDELLIA Parl. Nuov. Gen. Monoc., 57, 1854.

1 **ranunculoides** (L.) Parl.—This species does not belong to the well-marked natural genus *Echinodorus* Rich.

746 SCIRPUS.

12 **cernuus** Vahl.—*Scirpus filiformis* Savi 1798 is *nomen illegitimum* (homonym of *S. filiformis* Lam. 1791). *S. pygmaeus* (Vahl) A. Gray 1868 is also *nomen illegitimum* (homonym of *S. pygmaeus* Lam. 1791). *S. cernuus* Vahl was published as a species distinct from *Fimbristylis pygmaea*, but their conspecificity was accepted by C. B. Clarke (in Hook. 1894: *Fl. Brit. Ind.* vi, 655, in note under *S. setaceus*), Ascherson and Graebner (1904: *Syn.* II, 2, 308), and Briquet (1910: *Fl. Cors.* i, 229). In the genus *Fimbristylis* the valid name is *F. pygmaea* Vahl.

747 ERIOPHORUM.

1 **latifolium** Hoppe.—*Linagrostis paniculata* Lam., on which Druce bases *E. paniculatum*, is *nomen illegitimum superfluum*.

753 CAREX.

19 **Hostiana** DC. (C. fulva Host., non Good.).

22 **viridula** Michx. (C. Oederi auct., non Retz.).

d. **elatior** (Anders.) Wilmott.—Comb nov.

60 **spicata** Huds. (*C. muricata* auct., vix L.).

75 **dioica** L.

b. **isogyna** (Fr.) Hartm.—Cf. Plant Notes.

780 AGROSTIS.

2 **stolonifera** L. (A. palustris Huds.).—*Agrostis alba* L. was not an *Agrostis* at all, but was *Poa nemoralis* var. *uniflora* M. & K.

783 CALAMAGROSTIS.

2 **canescens** (Weber) Gmel. emend. Druce.—*Vice* tautonym.

802 PHRAGMITES.

1 **communis** Trin.—*Vice* tautonym.

825 GLYCERIA.

1 **maxima** (Hartm.) Holmberg.—*G. aquatica* (L. 1753: *Poa* sp.) Wahl. 1820, *nomen illegitimum* (homonym of *G. aquatica* (L. 1753: *Aira* sp.) J. & C. Presl 1819).

826 FESTUCA.

18 **myuros** L.—The original spelling, with small initial "m."

827 BROMUS.

13 *unioloides* (Willd.) H.B.K.—With small initial "u."

847 PTERIDIUM Scop. *Fl. carn.* 169, 1760, emend. Kuhn *Bot. Ost.-Afr. Deck.* Reis. III, III, 11, 1879, *nomen conservandum propositum* 1935.

1 **aquilinum** (L.) Kuhn.

859 CETERACH.

1 **officinarum** DC.—*Vice* tautonym.

DRUCE'S COMITAL FLORA: CORRECTIONS AND SUGGESTIONS.

ALBERT WILSON.

In looking through *The Comital Flora of the British Isles*, by the late Dr G. C. Druce, I have noticed a number of errors, and there are also some cases where the information regarding altitudinal range might be amended or slightly extended in any future edition of the Flora. Particulars as to these errors and suggestions are given in the following notes. I have also added a number of new records. They do not claim to be at all exhaustive, and there may be other cases where vice-county numbers have been incorrectly inserted or new records overlooked.

In order to save space the following reference numbers are used. Where no reference is given I am responsible for the statement.

REFERENCES.

(1) *The Flora of Northumberland and Durham*, by G. R. Tate and J. G. Baker, 1868.
(2) " West Lancashire Flora Notes," by J. A. Wheldon and A. Wilson. *Lancashire and Cheshire Naturalist*, May 1925.
(3) " The Altitudinal Range of British Plants," by A. Wilson. Reprinted from *The North Western Naturalist*, 1931.
(4) *The Flora of Westmorland*, by A. Wilson, 1938.
(5) *The Flora of Devon*, by W. K. Martin and G. T. Fraser, 1939.
(6) " Further Notes on the Altitudinal Range of British Plants," by A. Wilson. Reprinted from *The North Western Naturalist*, 1940.
(7) *The Naturalist*.
(8) *The North Western Naturalist*.
(9) *A Supplement to the Yorkshire Floras*, by F. A. Lees, edited by C. A. Cheetham and W. A. Sledge, 1941.

p. 2, line 16, for " (Wilson) " read " (Bickham)."
p. 3, line 17, add " 61 " (9).
p. 4, line 7, for " 1500 ft. in Swaledale " add or substitute " 1900 ft. on Dartmoor " (5).
p. 4, line 21, add " 60 " (2).
p. 5, line 3 from bottom, add " 61 " (9).
p. 6, line 16, add " 69."
p. 6, line 7 from bottom, for " 1150 " read " 1800," J. F. Pickard (7), May 1937.
p. 7, line 3, after " Malham " add " Tarn."
p. 8, line 2 from bottom, for " 3500 " read " 3600," J. W. H. Trail and F. B. White.
p. 9, line 20, add " 47-49, 62-69."
p. 10, line 8, add " 60 " and remove from bracketed list.
p. 11, line 4, for " 1650 " read " 1050."
p. 11, line 3 from bottom, for " on " read " in."

p. 11, line 2 from bottom, for " (Wilson) " read " (Salter)."
p. 12, line 22, for " on Angle Tarn " read " in Angle Tarn, Patterdale." (There are two Angle Tarns in the Lake District.)
p. 12, line 23, for " Donegal " read " 1100 ft. in Donegal, H. C. Hart in *Fl. of Donegal*."
p. 15, line 7, after " 1200 ft. on Dartmoor," add " 1300 ft. in Denbigh," Dallman (8), 1932.
p. 20, line 23, for " 1850 ft. in W. Yorks." read " 2470 ft. in Westmorland."
p. 21, line 15 from bottom, delete " 61 " (9).
p. 25, line 5, after " Ben More " add " Assynt."
p. 25, line 11 from bottom, add " 61 " (9).
p. 27, line 9 from bottom, after " Lowland " insert " 1430 ft. in Salop."
p. 28, line 8, add " 69," G. M. Brown.
p. 30, Add " *Brassicella Wrightii* O. E. Schulz," and particulars concerning it.
p. 31, line 22, add " 60," J. Moss (2).
p. 32, line 16 from bottom, for " (Wilson) " read " (Marshall)."
p. 33, lines 11 and 12, after " ascends to," read " 2900 ft. in Angus, 2800 ft. on Helvellyn, and descends to 25 ft. in Wales."
p. 33, line 24, for " 750 ft. on the Matlock Tor " read " 1080 ft. in Derby (Dovaston)."
p. 33, line 7 from bottom, for " (Wilson) " read " (Baker) " (1).
p. 37, line 6 from bottom, for " 1000 " read " 1660."
p. 38, line 17 from bottom, for " 1200 ft. on Grange Scar " read " 1950 ft. on Long Fell, near Hilton."
p. 39, line 19, place " Wilson " in brackets.
p. 39, line 12 from bottom, for " Thirsk " read " 62."
p. 39, line 8 from bottom, add " 61, 64 " (9).
p. 40, line 10, add " 60," J. W. Hartley and J. A. Wheldon (2).
p. 40, line 14, add " 62 " (9).
p. 40, line 22, add " 60."
p. 40, line 14 from bottom, add " 62, 64, 65 " (9).
p. 40, line 10 from bottom, add " 62, 64 " (9).
p. 40, line 2 from bottom, add " 62 " (9).
p. 41, line 3, add " 61 " (9).
p. 41, line 7, add " 62 " (9).
p. 41, line 13 from bottom, for " 630-640 " read " 630-1640," Burkill and Willis, *Journ. Bot.*, 1894.
p. 42, line 18 from bottom, for " 1490 ft. on Tarnbrook Fell " read " about 2000 ft. on Dartmoor " (5).
p. 42, line 3 from bottom, add " 1850 on Dartmoor " (5).
p. 43, line 21, for " 63 " read " 64."
p. 44, line 18, delete " 61 " (9).

p. 45, line 9, add " 69 " (4).
p. 45, lines 17-18, for " 480 ft. in Caernarvon; 800 ft. in Cardigan," read " 2300-2500 ft. on Cader Idris (Evans)" (6).
p. 46, line 15 from bottom, for " 2000 " read " 2500."
p. 48, line 15, for " 1650 ft. in Harwood Dale " add or substitute " 1900 ft. on High Cup Scar."
p. 50, line 5, for " 2700 ft. on Helvellyn and Carnedd Llewelyn " read " 2700 ft. on Carnedd Llewelyn and 2850 ft. on Helvellyn."
p. 50, line 21, insert " and to 3700 ft. on Ben MacDhui (Wilmott)."
p. 51, line 16 from bottom, after " Mayo " add " and ascends to 1200 ft. on Benbradagh, Derry, *Fl. of North-east of Ireland*, 2nd edition, 1938."
p. 55, line 2, add " 69."
p. 55, line 5 from bottom, for " 2400 " read " 2750."
p. 59, line 6 from bottom, add " 60," Dr Ellis (2).
p. 64, line 5, for " *tetraspermum* " read " *tetrapterum*."
p. 64, line 14 from bottom, after " Yorks." add or substitute " 1430 ft. in Salop."
p. 65, line 13 from bottom, delete " 69." (This was an error. The late Mr W. H. Pearsall told me the record referred to *M. sylvestris*.)
p. 67, line 14, for " *grandiflora* " read " *grandifolia*."
p. 67, line 5 from bottom, add " 69 " and delete " 69 " from the bracketed list.
p. 69, line 21 from bottom, for " 1680 " read " 2100."
p. 70, line 20, add " 69 " (4).
p. 72, line 26, add " 69 " (4).
p. 74, line 5, add " 69."
p. 74, line 14, add " 60," J. N. Frankland; add " 63, 64 " (9).
p. 74, line 11 from bottom, for " *Evonymus* " read " *Euonymus*."
p. 75, line 18, add " to about 1250 ft. near Malham Tarn (W. West) " (6).
p. 76, line 23, after " Lowland " add " ascends to 1750-1780 ft. on Cader Idris (Evans & Salter) " (6).
p. 77, line 19, add " 56," John Brown (8), September 1941, p. 207; add " 62 " (9).
p. 78, line 18 from bottom, substitute a small " f " for the capital " F " of *falcata*.
p. 81, line 4, add " 1500 ft. in Durham " (1).
p. 85, line 16, I know of no record for v.-c. 60.
p. 86, line 6, for " 1200 ft. in Westmorland; 1500 ft. on Kirkstone Pass," substitute " 1500 ft. on Kirkstone Pass, Westmorland." Also add " 1600 ft. on Dartmoor " (5).
p. 86, line 17, for " on " read " in."
p. 87, line 8 from bottom, add " 69 " (4).

p. 89, line 7, for "1800 ft." read "1770 ft."
p. 91, line 15 from bottom, add "69," G. M. Brown.
p. 93, line 20, delete "62" (9).
p. 94, line 2, add "63" (9).
p. 94, line 6 from bottom, for "1500 ft." substitute "2000 ft. in Cwm Idwal."
p. 94, line 19, delete "1500 ft. in Wales."
p. 95, line 9 from bottom, add "69" (4).
p. 95, line 2 from bottom, for "1050" read "1130."
p. 98, line 18 from bottom, after "Pikes" insert "2830 ft. on Helvellyn."
p. 99, line 3, for "(Wilson)" read "(Baker)" (1).
p. 99, line 14, delete "base of Pillar Rock."
p. 99, line 26, after "Craig Breidden" add "formerly, now extinct, but still in 43."
p. 99, line 29, for "[48]" read "[47]." (Craig Breidden is in v.-c. 47, not 48.)
p. 100, line 22, delete the "60" in the bracketed list. (It is native and locally abundant in v.-c. 60.)
p. 102, line 12, for "2550 ft." read "2800 ft."
p. 102, line 23, add "65" (9).
p. 103, line 8, add "64" (9).
p. 105, line 20 from bottom, delete "57, 62, 63, 64."
p. 105, line 15 from bottom, for "1350 ft. in Yorks." substitute "1700 ft. in Westmorland."
p. 106, line 6, add "64" (9).
p. 107, line 8, for "1-39, 41, 44, 50, 55, 59, 61, 65-70" read "1-70."
p. 107, line 5 from bottom, add "60, 63, 64."
p. 108, line 10, add "60, 63, 64" (9).
p. 108, line 16, add "65" (9); add "69" (4).
p. 108, line 21, add "64" (9).
p. 109, line 15, add "60."
p. 109, line 7, add "64" (9).
p. 109, line 22 from bottom, add "60, 63, 64."
p. 113, line 14 from bottom, for "on Piers Gill" read "in Piers Gill," and add "2730 ft. on Helvellyn."
p. 113, line 3 from bottom, for "2700 ft." read "2850 ft."
p. 114, line 16 from bottom, for "2700 ft." read "2850 ft."
p. 114, line 15 from bottom, delete "1200 ft. at Cheddar," and insert "200 ft. at Cheddar."
p. 115, line 8 from bottom, for "1500 ft." read "1800 ft. in Yorks. (Sledge)."
p. 118, line 3, after "Mickle Fell" insert "2850 ft. on Helvellyn."
p. 118, line 15, for "1750 ft. on Snowdon" read "2680 ft. in Cwm Glas, Snowdon (Wilson)."
p. 118, line 6 from bottom, add "69."
p. 119, line 8, add "69."

p. 120, line 1, for " Acle " read " Adel."
p. 120, line 10, delete " 65 " (9).
p. 120, line 15 from bottom, add " 65."
p. 120, bottom line, add " 69 " (4).
p. 122, line 9, add " 64 " (9).
p. 122, line 22 from bottom, for " 2700 ft." read " 2900 ft."
p. 122, line 6 from bottom, " extinct ? in 60."
p. 123, line 9 from bottom, for " 1562 ft. in Watendlath " substitute " 1700 ft. in Westmorland."
p. 124, line 3, for " at Glyder Fawr " read " on Glyder Fawr."
p. 124, line 7, add " 60."
p. 124, line 17 from bottom, delete the " 60 " in the list of exceptions.
p. 124, line 8 from bottom, add " 60 " (2), " 64 " (9).
p. 125, line 20, add " 64, 69."
p. 126, line 5, after " and " add " 1530 ft. in " (6).
p. 127, line 22, add " 63, 64 " (9); add " 69 " (4).
p. 130, line 22, for " 1300 ft. in Cumberland; 1500 ft. on The Haystacks," substitute " 1500 ft. on The Haystacks, Cumberland " (3).
p. 131, line 12, some mistakes here.
p. 132, line 23, add " 60."
p. 134, line 10 from bottom, delete " 61, 62, 65 " (9).
p. 135, line 3, add " 65 " (9).
p. 137, line 8, add " 69."
p. 137, line 14, for " 1800 ft. on Great End " substitute " 2650 ft. in Westmorland."
p. 137, line 9 from bottom, for " (Wilson) " read " Baker) " (1).
p. 138, line 9 from bottom, for " 1200 ft. in Derby " substitute "1900 ft. on High Cup Scar."
p. 141, line 2 from bottom, add " 60."
p. 142, line 9 from bottom, for " 2100 ft. in Teesdale " add or substitute " 2600 ft. on Helvellyn."
p. 143, line 6 from bottom, for " 1850 ft. on Dent Crag " substitute " 2700 ft. on Helvellyn."
p. 145, line 1, add " 61 " (9).
p. 146, line 18 from bottom, for " 1350 ft. in Yorks." substitute "1525 ft. in Teesdale."
p. 146, line 17 from bottom, I think " but perhaps planted over 1000 ft." would be better omitted. It has certainly not been planted on Tal-y-Fan near Ro Wen at 1440 ft.
p. 148, line 12 from bottom, delete " 63 " (9).
p. 149, line 19, for " 3000 ft. on Scawfell " add or substitute " 3110 ft. on Helvellyn."
p. 150, line 23, for " (Wilson) " read " (Baker)."
p. 150, line 6 from bottom, for " 2200 ft." read " 1200 ft."
p. 154, line 16 from bottom, after " 2000 ft. " for " in " read " on."
p. 156, line 22, for " 60 " read " 69."

p. 157, line 6, delete " 69."
p. 160, line 9 from bottom, after " Lowland " insert " 900-1000 ft. in West Yorks. (Pickard)" (6).
p. 163, line 6, add " 69 " (4).
p. 165, line 15 from bottom, for " 1950 ft. on Highfield " substitute " 2050 ft. in Westmorland."
p. 166, line 8, add " 69 " (4).
p. 166, line 17 from bottom, add " 60," H. E. Bunker; add " 69 " (4).
p. 168, line 3, add " 69."
p. 170, line 7, delete " 69."
p. 171, line 12 from bottom, delete " 69."
p. 172, line 3, for " 300 " read " 200."
p. 172, line 25 from bottom, for " 900 ft. in Monmouth " substitute " 1100 ft. on Dartmoor " (5).
p. 172, line 8 from bottom, for " 1250 ft." read " 1330 ft."
p. 173, line 9 from bottom, for " 2700 ft." read " 2850 ft."
p. 174, line 4, after " Lowland " for " 1250 ft. in Wales " substitute " 1850 ft. in Devon " (5).
p. 174, line 16, delete " 69."
p. 174, line 12 from bottom, add " 60 " (2).
p. 176, line 8, add " 61 " (9).
p. 177, line 7, for " 1950 ft. on Helvellyn " substitute " 2100 ft. on Dove Crag, Patterdale."
p. 177, line 21, add " 60," H. E. Bunker.
p. 179, line 17 from bottom, after " Highlands," add " 1850 ft. in Devon " (5).
p. 180, line 21 from bottom, after " ascending to," insert " 1650 ft. in Salop."
p. 181, line 3, after " ascending to," insert " about 2400 ft. in Westmorland."
p. 181, line 5, add " 69."
p. 181, line 23, I have no record for 69.
p. 184, line 16 from bottom, for " 1500 ft. in Wales " read " 1700-1750 ft. on Carnedd Llewelyn," E. Dovaston.
p. 184, line 12 from bottom, add " 69," W. H. Pearsall.
p. 185, line 14 from bottom, delete " 62 " (9).
p. 186, line 11 from bottom, delete " 62-64 " (9).
p. 188, line 17 from bottom, for " Gorlpe " read " Gorple."
p. 192, line 15, for " Broon " read " Brecon."
p. 195, line 16 from bottom, for " 1650 ft. in Widdale " read " 2000 ft. on Penyghent " (6).
p. 195, line 8 from bottom, after " ascends to " insert " 2470 ft. in Westmorland."
p. 196, line 6 from bottom, for " Senner " read " Semmer."
p. 196, line 12 from bottom, delete " 63 " (9).
p. 197, line 20 from bottom, add " 60."
p. 199, line 5, for " 1400 ft. in Westmorland " read " 1500 ft."

p. 199, line 5, for " 1450 ft. in Brecon " add or substitute " 1920 ft. in Cwm Idwal."
p. 199, line 17, for " (Salter) " read " (Wilson)."
p. 199, line 14 from bottom, add " 69."
p. 201, line 2, add " 62 " (9).
p. 202, line 17, delete " 62 " (9).
p. 204, line 9, add " 65," and remove " 65 " from bracket list (9).
p. 205, line 6, add " 65 " (9).
p. 206, line 15, add " 60," J. N. Frankland.
p. 206, line 11 from bottom, add " 62, 64, 65 " (9).
p. 207, line 21 from bottom, add " (65) " (9).
p. 207, line 17 from bottom, for " 1250 ft. in Yorks." substitute "1700 ft. in Westmorland."
p. 207, line 14 from bottom, add " 69."
p. 208, line 6, delete " 69 " from the exceptions.
p. 210, line 20, add " 64 " (9).
p. 210, line 15 from bottom, I know of no record for 69.
p. 213, line 8 from bottom, add " 64 " (9).
p. 215, line 20 from bottom, delete " 61;" add " 62, 65 " (9).
p. 216, line 1, add " 69," B.E.C. Excursion, 1938.
p. 216, line 12 from bottom, add " 62 " (9).
p. 217, line 24, for " 1600 ft. on Cautley Crag " substitute " 2030 ft. on Dove Crag, Patterdale."
p. 217, line 11 from bottom, delete " 69."
p. 218, line 14 from bottom, after " Highlands " insert " 2400 ft. on Knock Fell.
p. 220, bottom line, for " 1500 ft. in Weardale (Salter) " read " 1000 ft. in Weardale (Baker) " (1).
p. 221, line 10, for " in Malham " read " on Malham Moor."
p. 221, line 22, for " (Salter) " read " (Wilson)."
p. 221, bottom line, after " 3000 ft." insert " in Scotland."
p. 221, bottom line, after "Teesdale" insert "800 ft. in Westmorland."
p. 222, line 15 from bottom, delete the " e " in Harewood.
p. 222, line 5 from bottom, for " (Salter) " read " (Wilson)."
p. 223, line 11 from bottom, add " 61," delete " 64 " (9).
p. 223, line 3 from bottom, add " 65 " (9).
p. 225, line 23, delete " 60," add " 65."
p. 225, line 10, add " 64 " (9).
p. 225, line 3 from bottom, delete " 62 " (9).
p. 228, line 14 from bottom, delete " 60."
p. 228, line 5 from bottom, add " 60."
p. 228, delete " *Utricularia ochroleuca* Hartm."
p. 230, line 3, for " 900 ft. in England " read " 1600 ft. on Dartmoor " (5).
p. 230, line 19 from bottom, add " 69 " and delete " 69 " in the brackets.
p. 231, line 1, delete " 69."

p. 232, line 5, add " 65 " (9).
p. 232, line 7 from bottom, add " 63 " (9); remove the " 69 " to the bracketed list.
p. 236, line 3, add " 62, 65 " (9).
p. 237, line 21, add " 69 " (3).
p. 238, line 16, add " 2480 ft. on Knock Fell."
p. 240, line 19 from bottom, insert " to 1470 ft. in Salop."
p. 242, line 17, delete " 69 " from the list of exceptions (4).
p. 242, line 20 from bottom, add " 69 " (4).
p. 243, line 10, almost certainly extinct in 65 (9).
p. 245, line 14 from bottom, insert " 2400 ft. in Knock Ore Gill."
p. 246, line 5, for " Knockfell " read " Knock Fell."
p. 248, line 9, after " Northumberland " add " 1525 ft. on Kirkstone Pass."
p. 249, line 13, for " 1000 ft. in Britain " read " 1430 ft. in Salop."
p. 250, line 12 from bottom, for " 1380 ft." read " 1430 ft."
p. 252, line 15, add " 62 " (9).
p. 252, bottom line, add " 62 " (9).
p. 253, line 12 from bottom, add " 69."
p. 254, line 14 from bottom, for " 2700 ft." read " 2850 ft."
p. 255, line 6, for " 1200 ft. in England " read " 1470 ft. in Salop."
p. 256, line 9, after " Lowland " insert " to 1017 ft. in Westmorland."
p. 256, line 12, add " 69."
p. 257, line 14 from bottom, delete " 60."
p. 258, line 3 from bottom, add " 64 " (9), " 69."
p. 260, line 21, for " 2550 ft. in Yorks." substitute " 3000 ft. on Helvellyn."
p. 261, line 4 from bottom, add " 69."
p. 262, line 4 from bottom, add " 63 " (9).
p. 263, line 9, for " 1380 ft. in England " read " 1470 ft. in Salop."
p. 263, line 18, after " Lowland " insert " to about 1400 ft. in Merioneth (Evans)."
p. 263, line 14 from bottom, add " 69 " (4).
p. 268, line 2 from bottom, add " 63 " (9).
p. 270, line 9, delete the " 69 " from the list of exceptions.
p. 273, line 1, for " *cinerea* L." read " *atrocinerea* Brot."
p. 273, line 3, for " 1500 ft." read " 1960 ft."
p. 276, line 4 from bottom, add " 69 " (4).
p. 278, line 8, delete " 60, 63."
p. 278, line 13 from bottom, add " 69," G. M. Brown and C. C. Foster.
p. 279, line 4, after " Scotland " insert " 1480 ft. in Teesdale."
p. 281, line 3, delete " 62 " (9), " 69."
p. 281, line 2 from bottom, add " 69;" formerly in 60, now probably extinct.
p. 283, line 10, add " 60."
p. 284, line 1, add " 61, 64 " (9).
p. 284, line 9, add " 62, 64, 65 " (9), " 69."

p. 284, line 21, add " 60."
p. 284, line 22, add " 63, 64 " (9).
p. 284, line 31, add " 60, 63, 64."
p. 285, line 11 from bottom, add " 62," G. W. Crosland (9).
p. 286, *Ophrys sphegodes* is, I fear, extinct in 50 owing to building, and v.-c. 50 should be placed in brackets.
p. 286, line 14 from bottom, add " 6." I have seen it in N. Somerset (and see J. W. White, *Fl. Brist.*, 564, 1912).
p. 291, lines 16 and 17, delete " 60 " and " 69."
p. 291, line 27, add " 69."
p. 293, line 9, add " 69 " and delete from the bracketed list on line 10.
p. 293, line 17, after " Lowland " add " to 1600 ft. in Brecon," H. H. Knight (6).
p. 293, line 20, add " 65 " (9).
p. 294, line 12 from bottom, add " 60."
p. 294, line 3 from bottom, add " 69."
p. 295, line 13, for " 1200 ft." read " 1400 ft."
p. 297, line 15 from bottom, add " 69."
p. 297, line 5 from bottom, add " 69."
p. 298, line 22, add " 63, 64 " (9).
p. 299, line 7 from bottom, for " 1050 ft. in Teesdale " read " 1175 ft. in Westmorland."
p. 300, line 8, add " 61 " (9).
p. 300, line 14 from bottom, for " 2400 ft. on Mickle Fell " add or substitute " 2630 ft. on Dun Fell."
p. 300, line 7 from bottom, add " 69," Sprott (4).
p. 302, line 8, remove the ? from 65 and add " 69," Dr W. A. Sledge.
p. 302, line 8 from bottom, add " 64 " (9); add " 69 " (4).
p. 303, line 3, add " 64 " (9).
p. 306, line 11 from bottom, after " Lowland " insert " to 1650 ft. in Salop."
p. 308, line 23, for " 1200 ft. in Lancashire " substitute " 1350 ft. in Westmorland."
p. 309, line 3, after " Derby " add " 1650 ft. in Salop."
p. 310, line 15 from bottom, transfer "61, 65" to the bracketed list (9).
p. 310, line 4 from bottom, transfer " 69 " to the bracketed list (4).
p. 312, line 3, reported from Hunder Moss, Balderdale, 65, by Prof. Lewis, 1903 (9).
p. 312, line 5 from bottom, add " 63 " (9).
p. 313, line 4, for " 3000 ft." read " 3350 ft.," A. Bennett, *Journ. Bot.*, 1907.
p. 313, line 24, for " Llwygy " read " Lligwy."
p. 314, line 14, add " 63, 64 " (9).
p. 314, line 25, add " 64, 65 " (9).
p. 315, line 8, delete " 62 " (9).
p. 315, line 20, delete " 61 " from the exceptions (9).
p. 315, line 8 from bottom, transfer " 61 " to brackets list (9).

p. 316, line 12, add " 65 " (9).
p. 316, line 22, for " Crunnock " read " Crummock."
p. 317, line 13, add " 61, 63-65 " (9); add " 69," Pearsall, *B.E.C. Rep.*, 1929.
p. 317, line 24, some mistake here (transfer " 69 " to the previous line).
p. 317, line 16 from bottom, add " 62-64 " (9).
p. 317, line 8 from bottom, I think " 69 " should be added to the exceptions; I know of no record.
p. 318, line 14 from bottom, add " 61 " (9).
p. 321, line 21, for " 1250 ft. in England " read " 1520 ft. in Westmorland."
p. 321, line 12 from bottom, add " 69."
p. 322, line 10, add " 69."
p. 322, line 20, add " 61 " (9).
p. 323, line 13 from bottom, for " 2700 ft. in England and Wales " read " 3050 ft. in England and 2700 ft. in Wales."
p. 324, line 17 from bottom, for " 1650 ft." read " 1920 ft."
p. 325, line 6 from bottom, delete " 60."
p. 326, line 4, for " 3500 ft. in Scotland (Hooker) " read " 3600 ft. (Trail), *Annals of Scot. Nat. Hist.*, 1909."
p. 326, line 15, extinct in " 65 " (9).
p. 327, line 17, delete " 61 " (9).
p. 328, line 5, delete " 61 " (9).
p. 328, bottom line, add " 69."
p. 330, line 7, omit " 60."
p. 331, line 2, add " 62, 63, 65 " (9); add " 69 " (4).
p. 331, line 20 from bottom, add " 69 " (4).
p. 332, line 7, add " 60."
p. 333, line 4, add " 69."
p. 333, line 15, add " 62 " (9).
p. 335, line 13 from bottom, delete " 60 " from list of exceptions.
p. 336, line 15 from bottom, for " 3000 ft." read " 3520 ft.," Marshall, *Watson Bot. Ex. Club. Rep.*, 1907.
p. 338, line 23, for " 2250 ft. in Teesdale " read " 2450 ft. in Westmorland."
p. 339, line 2, delete " 61, (62), 63 " (9).
p. 339, line 10, for " 1900 ft." read " 3300 ft.," *Watson Bot. Ex. Club Rep.*, 1907.
p. 340, line 19, add " 61 " (9).
p. 341, line 12, for "1200 ft. in England" read "1550 ft. in Devon" (5).
p. 341, line 16, add " 60."
p. 341, line 9 from bottom, add " 60, 61 " (9).
p. 342, line 20, delete " 62 " (9).
p. 347, line 6 from bottom, for " (Wilson) " read " (Baker) " (1).
p. 348, line 16, delete " 69 " from the exceptions.
p. 349, line 14, add " 69 " (4).

p. 350, line 22, for " 1000 ft. in Somerset " read " 2000 ft. on Dartmoor " (5).
p. 352, line 2 from bottom, add " 61 " (9).
p. 355, line 3, for " 2900 ft. on Cross Fell " add or substitute " 3020 ft. on Helvellyn."
p. 356, line 18, for " 1500 ft." read " 1800 ft."
p. 356, line 22, add " 69."
p. 357, line 17 from bottom, insert " 1550 ft. in Salop."
p. 358, line 14, for " 1800 ft." read " 1900 ft."
p. 358, line 12 from bottom, add " 69."
p. 360, line 7, for " 1650 ft." read " 1800 ft."
p. 363, line 3, add " 69 " (4).
p. 363, line 3 from bottom, delete " 69 " from the list of exceptions.
p. 364, line 15, add " 69 " (4).
p. 365, line 16, add " 62 " (9).
p. 365, line 16 from bottom, add " 61 " (9).
p. 366, line 13 from bottom, for " 1000 ft. in Ribblesdale " read " 1200 ft. in Westmorland."
p. 370, line 6, add " 69 " (4).
p. 370, line 19 from bottom, delete " 69 " from the list of exceptions.
p. 371, line 13 from bottom, add " 61, 62 " (9).
p. 374, line 21, for " 3000 ft." read " 3100 ft."
p. 375, line 18, add " 69."
p. 378, line 26, add " 61 " (9).
p. 379, line 18 from bottom, add " 1900 ft. on Helvellyn."
p. 380, line 11 from bottom, for " 1800 ft. in W. Yorks." substitute " 2440 ft. in Westmorland."
p. 380, line 2 from bottom, for " 2480 ft. in Westmorland " substitute 2700 ft. on Helvellyn."
p. 380, line 16, add " 62 " (9).
p. 382, line 3, delete " 60, 64 " and add " 69."
p. 383, line 22, add " 2700 ft. in England."
p. 384, line 15, add " 3000 ft. in England."
p. 384, line 3 from bottom, I think the 59 is an error.
p. 385, line 14 from bottom, delete " 61 " (9).
p. 386, line 3, for "400-1200 ft." read "100-2000 ft. in Westmorland."
p. 386, line 18, for " found it Wales " read " found in Wales."
p. 387, line 4, for " 25-2400 ft." read " 15-2450 ft."
p. 387, line 19, add " 62 " (9).
p. 389, line 6 from bottom, for " 20-1000 ft. in the Lake District and Dublin " read " 1850 ft. in Teesdale; 1000 ft. in Dublin."
p. 390, line 21, delete " 63, 64 " (9).
p. 391, line 3 from bottom, delete " 64 " (9).
p. 392, line 23, for "on top of Helvellyn" read "3000 ft. on Helvellyn."
p. 392, line 18 from bottom, delete " 61 " (9).

p. 393, line 20, after "Lowland" add "1750 ft. on Cader Idris (Evans)" (6).
p. 393, line 23, add " 48."
p. 393, line 4 from bottom, add " 69," J. A. Martindale (4).
p. 396, line 10 from bottom, add " 60;" add " 65 " (9).
p. 397, line 9, add " 65 " (9).
p. 397, line 11 from bottom, add " 64 " (9).
p. 397, line 4 from bottom, add " 61 " (9).
p. 398, line 16 from bottom, add " 69 " (4).
p. 398, line 10 from bottom, after " Lowland " add " 1200 ft. on Penmaenmawr (F. Talfourd Jones) teste Bot. Dept., Nat. Museum of Wales."
p. 398, line 8 from bottom, add " 49."
p. 398, line 7 from bottom, add " 64 " (9).

ADDITIONS AND CORRECTIONS TO COMITAL FLORA, FOR DEVON VICE-COUNTIES 3 AND 4.

EDWARD C. WALLACE.

The publication of the new *Flora of Devon* in 1939 has necessitated a considerable number of additions and corrections to the *Comital Flora* which are brought together below for convenience. The revision of several critical genera at present being undertaken is the reason for my not including *Rubus*, *Rosa*, *Sorbus*, *Hieracium*, *Euphrasia* or *Thymus*.

Note.—The prefix † indicates an introduced or adventive species; * indicates a new vice-county record.

2/1. *Thalictrum flavum* L. Add 3 (remove from brackets), queried in *Top. Bot.*

6/6. *Ranunculus Lingua* L. Bracket 3, either long extinct or record erroneous.

6/22. *R. trichophyllus* Chaix. Delete 4.

6/24. *R. heterophyllus* Weber. Add *4.

6/26. *R. pseudo-fluitans* (Syme) Newbould ex Baker et Foggitt. Add *3 and *4.

9/1b. *Helleborus viridis* L. var. *occidentalis* (Reut.) Druce. Add 3 and *4.

†9/2. *H. foetidus* L. Add and bracket 4.

14/1. *Aconitum anglicum* Stapf. Remove brackets from 3 and 4.

19/1. *Nuphar lutea* (L.) Sm. Add *4, status doubtful.

20/1. *Nymphaea alba* L. Add *4, query status.

21/4. *Papaver Lecoqii* Lamotte. Add *3 and *4.

35/2. *Rorippa sylvestris* (L.) Besser. Add *4.

†36/2. *Barbarea verna* (L.) Asch. Add *4.

†36/5. *B. intermedia* Bor. Add *4.

37/1. *Arabis hirsuta* (L.) Scop. Add *4.

†37/6. *A. glabra* (L.) Bernh. Add and bracket *3 and *4.

†39/7. *Cardamine bulbifera* (L.) Crantz. Bracket 3 and add 4 in brackets.

44/1. *Erophila verna* (L.) E. Meyer. Add 3 and 4.

44/2. *E. Boerhaavii* (Van Hall) Dum. Add *4.

50/1. *Erysimum cheiranthoides* L. Add *4.

54/5. *Brassicella monensis* (L.) O. E. Schulz. The record for 4, *Journ. Bot.*, *74*, 326, seems overlooked.

†54/6. *B. Cheiranthos* (Vill.) Pugsl. Add *3.

†54/22. *Brassica incana* (L.) F. Schultz. Add and bracket *3.

55/1. *Diplotaxis tenuifolia* (L.) DC. Add *4.

†61/2. *Lepidium latifolium* L. Add and bracket *4.

†61/4. *L. ruderale* L. Add *4.

†64/3. *Thlaspi alpestre* L. Add and bracket 3.
†65/1. *Iberis amara* L. Add and bracket *4.
66/1. *Teesdalia nudicaulis* (L.) R. Br. Add *4.
67/1. *Hutchinsia petraea* (L.) R. Br. Bracket 3 and 4, the former probable error and *Top. Bot.* makes no reference to 4.
80/2. *Raphanus maritimus* Sm. Add *4.
87/2. *Helianthemum Chamaecistus* Mill. Add *4.
88/10. *Viola calcarea* (Bab.) Greg. Add *4.
88/19. *V. Lejeunei* Jord. Add *4.
88/20. *V. Lloydii* Jord. Add *3 and *4.
88/25. *V. latifolia* Drabble. Add *3.
88/30. *V. derelicta* Jord. Add *4.
88/31. *V. lepida* Jord. Add *3.
88/34. *V. Curtisii* Forst. Delete 3, and also delete 3, *V. lutea* Huds.
92/2. *Dianthus deltoides* L. Bracket 3.
100/2. *Cerastium arvense* L. Add *4.
†102/8. *Arenaria tenuifolia* L. Bracket 3.
103/9. *Sagina Reuteri* Boiss. Add *4 with query.
†108/2. *Claytonia perfoliata* Donn. Add *3.
112/8. *Hypericum hirsutum* L. Bracket 4.
115/1. *Althaea officinalis* L. Add and bracket 4, very doubtful.
†115/2. *A. hirsuta* L. Add and bracket 3.
†117/4. *Malva rotundifolia* L. Add *4.
123/1. *Tilia platyphyllos* Scop. Add and bracket *3 and *4.
123/3. *T. cordata* Mill. Add *4, query status.
127/1. *Geranium sanguineum* L. Add *4.
127/4. *G. pratense* L. Add *4.
†127/5. *G. phaeum* L. Add *4.
127/7. *G. pyrenaicum* Burm. fil. Add *4.
127/11. *G. rotundifolium* L. Add *4.
†132/3. *Oxalis stricta* L. Add *3.
†133/1. *Impatiens Noli-tangere* L. Add and bracket *3.
†133/3. *I. parviflora* DC. Delete 3 and 4.
138/2. *Rhamnus catharticus* L. Bracket 3.
147/3. *Genista tinctoria* L. Add 3 and 4. (Queried in *Top. Bot.*)
151/3 *Ononis spinosa* L. Bracket 4.
152/1. *Trigonella ornithopodioides* DC. Add *4.
153/4. *Medicago hispida* Gaertn. var. *denticulata* (Willd.) G. & G. Add *4.
†154/3. *Melilotus officinalis* Lam. Add *4.
155/3. *Trifolium ochroleucon* Huds. Delete 3.
155/5. *T. Molinerii* Balb. Add and bracket *3.
†155/19. *T. agrarium* L. Add *4.
166/1. *Astragalus glycyphyllos* L. Add *4.
†173/1. *Onobrychis viciifolia* Scop. Add and bracket 4.
176/7. *Vicia bithynica* L. Add *4.
176/9. *V. lutea* L. Delete 4.

†176/10. *V. hybrida* L. Add and bracket *4.
†176/14. *V. lathyroides* L. Add and bracket *4.
†178/1. *Lathyrus latifolius* L. Add *3 and *4.
†178/7. *L. hirsutus* L. Add and bracket *4.
178/8. *L. Nissolia* L. Delete 4. (Queried in *Top. Bot.*)
†178/9. *L. Aphaca* L. Add *4.
†183/2. *Prunus Padus* L. Add and bracket *3 and *4.
184/12. *Spiraea Filipendula* L. Add *4.
187/2×1. *Geum rivale* L. × *urbanum* L. Remove ? for 3.
†189/11. *Potentilla norvegica* L. Add *4.
†193/2. *Poterium polygamum* Waldst. & Kit. Add *4.
195/2. *Pyrus communis* L. Add *4.
195/16. *Pyrus germanica* (L.) Hook. f. Add *4.
†196/2. *Crataegus oxyacanthoides* Thuill. Add and bracket *3.
203/1. *Chrysosplenium alternifolium* L. Add *3.
205/1. *Parnassia palustris* L. Bracket 4.
207/2. *Ribes nigrum* L. Add *3.
211/1(2). *Sedum Fabaria* Koch. Add *4.
211/4. *S. Forsterianum* Sm. Remove brackets from 3 and add *4.
†211/5. *S. sexangulare* L. Add *3.
†211/7. *S. album* L. Add *4.
†211/10. *S. dasyphyllum* L. Add *3.
214/1. *Hippuris vulgaris* L. Bracket 3.
217/3. *Callitriche palustris* L. Add *3 and *4.
217/5. *C. intermedia* Hoffm. Add *3.
220/6. *Epilobium Lamyi* F. Schultz. Add *4.
220/8. *E. roseum* Schreb. Add *4.
†245/3. *Bupleurum rotundifolium* L. Add *4.
245/5. *B. tenuissimum* L. Delete 3.
253/1. *Sium latifolium* L. Delete 3.
†257/1. *Myrrhis Odorata* (L.) Scop. Add and bracket *3 and *4.
263/1. *Foeniculum vulgare* Mill. Remove brackets from 3.
265/4. *Oenanthe pimpinelloides* L. Add *4.
269/1. *Silaus flavescens* Bernh. Add *4.
†283/2. *Caucalis daucoides* L. Add *3 and *4.
†283/8. *C. latifolia* L. Add *3 and *4.
288/2. *Viburnum Lantana* L. Add *4.
†291/5. *Lonicera Xylosteum* L. Add *4. (All records in *C.F.* save 13 and 14 should be bracketed.)
296/3. *Galium erectum* Huds. Add *4.
296/10. *G. tricorne* Stokes. Remove brackets from 3 and add *4.
†296/12. *G. Vaillantii* DC. Add *3.
301/3. *Valeriana dioica* L. Add *4.
308/1. *Scabiosa Columbaria* L. Bracket 4.
†320/3. *Erigeron canadensis* L. Add *4, but query existing now.
*324/1. *Filago spathulata* Presl. Add *3 and *4.
†327/1. *Anaphalis margaritacea* (L.) Benth. & Hook. fil. Add *4.

328/3. *Gnaphalium sylvaticum* L. Add *4.

†333/1. *Inula Helenium* L. Add *4.

333/5. *I. crithmoides* L. Add *4.

367/1. *Diotis maritima* (L.) Cass. Add and bracket *4 extinct.

†368/1. *Anthemis tinctoria* L. Add *3 and *4.

†380/2. *Petasites albus* (L.) Gaertn. Add *3.

†381/1. *Doronicum Pardalianches* L. Add *4.

†381/2. *D. plantagineum* L. Add *3.

†383/8. *Senecio viscosus* L. Add and bracket 4.

396/4. *Cirsium acaule* (L.) Weber. Add *4, query extinct.

†405/1. *Centaurea Jacea* L. Add *4.

405/11. *C. nemoralis* Jord. Add *4.

423/15. *Taraxacum palustre* (Lyons) DC. Add *4.

†425/2. *Lactuca Serriola* L. Add *3.

†435/4. *Campanula rapunculoides* L. Add *4.

†435/6. *C. persicifolia* L. Bracket 3.

436/1. *Legousia hybrida* (L.) Delarbre. Delete 4. Not in *Top. Bot.* or *Supps.*

438/3. *Vaccinium Vitis-Idaea* L. Add *4.

439/1. *Oxycoccus quadripetalus* Gilib. Add *3.

†462/1. *Cyclamen hederifolium* Ait. Add and bracket *3.

476/1. *Microcala filiformis* (L.) Hoffmanns. et Link. Delete 3, queried in *Top. Bot.*

478/2. *Centaurium littorale* (Turner) Gilmour. Delete 3 and 4

480/6. *Gentiana anglica* Pugsl. Add *3 and *4.

†486/1. *Polemonium caeruleum* L. Add and bracket *4.

497/2. *Symphytum tuberosum* L. Bracket 3.

†503/1. *Pulmonaria officinalis* L. Add and bracket *3.

†503/2. *P. longifolia* Bor. Add and bracket *3.

506/7. *Myosotis sylvatica* (Ehrh.) Hoffm. Bracket 3 and add *4 in brackets.

515/2. *Cuscuta europaea* L. Add *4.

515/4. *C. Trifolii* Bab. Add *4.

527/4. *Verbascum virgatum* Stokes. Add *4.

†527/5. *V. Blattaria* L. Add *4.

532/3. *Linaria repens* (L.) Mill. Add *4.

549/5. *Melampyrum sylvaticum* L. Delete 3.

550/4. *Orobanche major* L. Add *3, with a query.

550/8. *O. Picridis* F. Schultz. Add and bracket *3.

558/2. *Mentha alopecuroides* Hull. Delete 3 and 4.

558/10. *M. gentilis* L. Add *4.

562/4. *Satureia sylvatica* (Bromf.) Druce. Delete 4: no ref. in *Flora* but doubtful record for 3 is given. *Top. Bot.* gives 4, Devon South (*sic*), hence entry in *C.F.*

†578/1. *Galeopsis speciosa* Mill. Add *4.

578/4. *G. Ladanum* L. Add *4.

581/4. *Lamium hybridum* Vill. Add *4.

†586/4. *Teucrium Chamaedrys* L. Add *4.

600/4. *Chenopodium hybridum* L. Delete 3.

600/5. *C. urbicum* L. Add *4.

600/6. *C. murale* L. Add *4.

†600/7. *C. opulifolium* Schrad. Delete 4.

†600/13. *C. glaucum* L. Add *3 and *4.

611/7-. *Salicornia gracillima* (Towns.) Moss, *S. Smithiana* Moss, and *S. prostrata* Pall. sec. Moss cannot be corrected in *C.F.*, which needs thorough revision in this genus.

612/1. *Suaeda fruticosa* (L.) Forsk. Delete 3.

615/1. *Polygonum dumetorum* L. Delete 3.

615/3. *P. Bistorta* L. Add *4.

615/10. *P. mite* Schrank. Add *4.

615/11. *P. minus* Huds. Add 3, virtually new to v.-c., see *Top. Bot.* for vague reference.

615/15. *P. aequale* Lindman. Add *4.

618/1. *Rumex Hydrolapathum* Huds. Delete 4. Not given for 4 in *Top. Bot.*, but 3 is given twice (*Top. Bot.* and *2nd Supp.*).

618/10. *R. rupestris* Le Gall. Bracket 4.

623/2. *Daphne Mezereum* L. Delete 3.

626/1. *Viscum album* L. Add *4.

627/1. *Thesium humifusum* DC. Delete 3.

†628/9. *Euphorbia virgata* Waldst. & Kit. Add *3.

†628/11. *E. Cyparissias* L. Add *4.

633/6. *Ulmus stricta* Lindl. Add *3.

644/1. *Carpinus Betulus* L. Add *4.

†647/1. *Castanea sativa* Mill. Add *3.

†650/1. *Salix pentandra* L. Add and bracket *4.

†651/3. *Populus nigra* L. Add *3 and *4.

653/2. *Ceratophyllum demersum* L. Add *4.

659/1. *Hammarbya paludosa* (L.) O. Kuntze. Add *3.

667/3. *Cephalanthera longifolia* (Huds.) Fritsch. Add *3.

668/4. *Epipactis purpurata* Sm. Add *4.

668/5. *E. atropurpurea* Rafin. Delete 3 and 4.

674/1. *Gymnadenia conopsea* (L.) R. Br. Add *4.

†678/2. *Crocus officinalis* Huds. Add *3.

681/1. *Gladiolus illyricus* Koch. Delete 3.

†684/3. *Narcissus biflorus* Curt. Add *4.

686/2. *Leucojum aestivum* L. Remove brackets from 3, and add *4 in brackets.

†702/1. *Allium Ampeloprasum* L. Add and bracket *3.

†702/3. *A. Scorodoprasum* L. Add and bracket *4.

†702/7. *A. triquetrum* L. Add *4.

†703/1. *Muscari racemosum* (L.) DC. Add and bracket *4.

707/1. *Ornithogalum pyrenaicum* L. Bracket 3.

†707/2. *O. umbellatum* L. Add *4.

†708/2. *Lilium pyrenaicum* Gouan. Add *3.
713/1. *Colchicum autumnale* L. Remove brackets from 3, and add and bracket 4.
718/8. *Juncus subnodulosus* Schrank. Add *4.
718/14. *J. compressus* Jacq. Add *3 and *4.
†719/9. *Luzula luzuloides* (Lam.) Dandy et Wilmott. Add *4.
721/2. *Typha angustifolia* L. Add *4.
722/1. *Sparganium neglectum* Beeby. Add 4, but see *Top. Bot. 1st Supp.* for previous record.
723/1(2). *Arum neglectum* (Towns.) Ridl. Add *5 (p. 634).
727/3. *Lemna trisulca* L. Add *4.
727/4. *L. gibba* L. Add *4.
732/1. *Sagittaria sagittifolia* L. Add *4.
737/9. *Potamogeton gramineus* L. Delete 4.
737/11. ×*P. nitens* Weber. Add *4.
737/13. *P. lucens* L. Bracket 3 and add 4 in brackets.
737/25. *P. pusillus* L. Add *3 and *4.
739/2. *Zannichellia pedicellata* Fr. Add *4.
†744/1. *Cyperus longus* L. Add and bracket *3.
745/4. *Eleocharis acicularis* (L.) Roem. et Schult. Add *4.
746/14. *Scirpus compressus* (L.) Pers. Add *3.
747/1. *Eriophorum latifolium* Hoppe. Remove query for 4.
748/1. *Rhynchospora fusca* (L.) Ait. f. Delete 4. 3 already added (*B.E.C. Rep. 1928*, 763 (1929)).
748/2. *R. alba* (L.) Vahl. Add *4.
753/1. *Carex Pseudo-cyperus* L. Add *4.
753/8. *C. lasiocarpa* Ehrh. Bracket 3.
753/25. *C. digitata* L. Delete 3.
753/38. *C. limosa* L. Add and bracket *3.
753/57×59. ×*C. axillaris* Good. Add 3.
753/58. *C. canescens* L. Add and bracket 3 and 4. (*Top. Bot.* gives 3, Devon S. ?).
753/63×57. ×*C. Boenninghauseniana* Weihe. Add *3.
753/65. *C. diandra* Schrank. Bracket 3; 4 very doubtful.
753/66. *C. disticha* Huds. Add *4.
753/68. *C. divisa* Huds. Delete 4. Given for 4 in *Top. Bot.* without personal authority.
753/75. *C. dioica* L. Delete 4.
†754/10. *Panicum sanguinale* L. Add *3.
†756/2. *Setaria viridis* (L.) Beauv. Add *4.
770/6. *Alopecurus aequalis* Sobol. Delete 3.
†780/1. *Agrostis semiverticillata* (Forsk.) C. Chr. Add *3.
794/3. *Avena pratensis* L. Delete 4. *Top. Bot.* gives 4.
†808/1. *Cynosurus echinatus* L. Delete 4.
809/1. *Koeleria gracilis* Pers. Delete 4.
818/1. *Melica nutans* L. Delete 3.
825/1. *Glyceria maxima* (Hartm.) Holmb. Add *4.

825/3(2). *G. declinata* Bréb. Add *3.
826/6. *Festuca heterophylla* Lam. Add *3.
826/18. *Festuca myuros* L. Add *4.
827/7. *Bromus erectus* Huds. Add *4.
827/20. *B. molliformis* Lloyd. Add *3 and *4.
†827/22. *B. arvensis* L. Add *4.
†829/2. *Lolium temulentum* L. Add *4.
†829/3. *L. remotum* Schrank. Add *3.
844/3. *Equisetum sylvaticum* L. Delete 4. (Queried in *Top. Bot.*).
851/4. *Asplenium lanceolatum* Huds. Remove brackets from 4.
856/8. *Dryopteris Thelypteris* (L.) A. Gray. Remove brackets from 3, add *4.
863/2. *Hymenophyllum peltatum* (Poir.) Desv. Add *4.
870/1. *Lycopodium alpinum* L. Add and bracket *3.
872/3. *Nitella flexilis* Agardh. Add *3 and *4.
872/5. *N. translucens* (Pers.) Agardh. Add *4.
876/5. *Chara hispida* L. Bracket 3 and delete 4.
876/12. *C. aspera* Willd. Add *4.

NOTES ON THE FLORA OF BUXTON AND DISTRICT.

F. T. and R. H. Hall.

The following records of the more uncommon plants of Buxton and neighbourhood are, for the most part, supplementary to the *Flora of Derbyshire* (Rev. W. R. Linton, 1903) and Dr Eric and H. Drabble's "Notes on the Flora of Derbyshire," *Journ. Bot.*, 1909, 1911, 1913, 1916; also *Journ. Derbyshire Archaeological and Nat. Hist. Soc.*, 1917, 1926-7.

Voucher specimens, with a few exceptions, are in the private herbarium of the authors.

In cases where it was deemed advisable not to gather specimens owing to the great local rarity of the species, photographs of the plants (*in situ*) are available.

The vice-county is No. 57, unless otherwise recorded.

Where a plant still flourishes at an old station, it is re-recorded with due acknowledgment to the original recorder.

RANUNCULACEAE.

2/2. Thalictrum minus L. "Priestcliffe Lees, near Miller's Dale" (W. H. Painter, contribution *Flora Derbyshire*, 1889). Still well established but confined to a belt about the 1000 ft. line.

Burfoot, Miller's Dale; abundant. Water-cum-Jolly, a few plants; probably an extension from the hill (Burfoot) above.

6/4. Ranunculus auricomus L. Ashwood Dale; Chee Dale; Monks Dale (Limestone).

6/11. [R. sceleratus L. Not seen in this part of the county.]

6/22. R. trichophyllus Chaix. Monk's Dale—in stream at several points but not plentiful. Thickly incrusted with mineral salts. Lathkill Dale—a little.

6/31. R. Lenormandi F. Schultz. Mam Gap, Edale. Moss Carr, near Hollinsclough (v.-c. 39).

6/32. R. hederaceus L. Have not met with it on limestone. The following records are on gritstone: Black Edge, Fairfield, Doves Holes. Brand Top—in many places. Washgate Valley.

6/33. R. Ficaria L. The form producing bulbils in axils of leaves is common in damp shady places. Where the plant grows in more open situations seed is produced. No specimens have yet been met with producing both bulbils and seed at the same time.

8/1. Trollius europaeus L. Recorded by Rev. W. Moyle Rogers in *Journ. Bot.*, 1885, for "Rocks near Lover's Leap (Buxton); and near the top of the hill opposite the

railway station, Miller's Dale." At each of these stations the plant is still vigorous.

Limestone bank, Dale Road, Buxton. Grin Plantation. Cowdale. Cunning Dale. Most abundant on Topley Pike; also above Chee Tor. Still found in Monk's Dale, as recorded by West, *Journ. Bot.*, 1884. Isolated clumps are met with in many places on the limestone uplands at about the 1000 ft. line. It appears to have increased somewhat since the publication of Linton's Flora in 1903.

9/1. HELLEBORUS VIRIDIS L. var. OCCIDENTALIS (Reut.) Druce. Recorded by Miss Hawkins (1854) for Cunning Dale (vide Dr Robertson's Buxton Guide). Still there. An extensive patch in Grin Plantation, Buxton, at east end at about 1150 ft. Flagg Dale.

9/2. [H. FOETIDUS L. Appears to be absent from this part of the county.]

11/1. AQUILEGIA VULGARIS L. Rev. W. Moyle Rogers recorded *A. vulgaris* with *Trollius* " near top of hill above Miller's Dale station " in *Journ. Bot.*, 1885. Both plants are still found at this station, which is limestone and reaches to 900 ft. White-flowering specimens of *Aquilegia* are frequent intermixed with the type; while *Gymnadenia conopsea*, *Hypericum pulchrum*, and *Helianthemum Chamaecistus* are associates.

FUMARIACEAE.

†31/4. CORYDALIS LUTEA (L.) DC. Frequent on walls—but probably planted—at Over Haddon, near Bakewell. The lower walls of Throwley Old Hall—now in ruins—are richly ornamented with *Corydalis*, producing a very pleasing effect (v.-c. 39).

CRUCIFERAE.

35/2. RORIPPA SYLVESTRIS (L.) Besser. Buxworth Canal.

35/4. R. ISLANDICA (Oeder) Schinz et Thell. Water-cum-Jolly.

37/1. ARABIS HIRSUTA (L.) Scop. Very abundant on limestone rocks and cliffs. Ashwood Dale; Deepdale; Chee Dale; Burfoot, Miller's Dale.

39/2. CARDAMINE AMARA L. By River Dove at Hollinsclough, on Derbyshire side. Dove Dale—common. Miller's Dale.

39/3. C. IMPATIENS L. Blackwell Dale; Water-cum-Jolly, by the path near River Wye. Locally plentiful in Lathkill Dale. Dovedale.

43/3. DRABA INCANA L. The locality Lover's Leap in *Fl. D.* needs bracketing, the plant not having been seen of recent years. Abundant on the slopes of Burfoot (Highfield), Miller's Dale; near the entrance to the small

cavern. Associated, at this point, with *Arabis hirsuta, Arenaria verna, Thalictrum minus,* and *Solidago Virgaurea.* Water-cum-Jolly—a little, probably escaped from hill above.

43/4. D. MURALIS L. In *Flora of Derbyshire* Linton states *D. muralis* is plentiful. We have only seen it plentiful in Ricklow Dale and this during the summer of 1939. Small patches have been observed in Deep Dale, Buxton; Blackwell Dale; Monsal Dale; Taddington Dale.

†47/2. HESPERIS MATRONALIS L. Well established—on limestone and millstone grit—in many places about Buxton. Grin Plantation—a little. Pictor Wood, Ashwood Dale; abundant on railway embankment near Pictor railway tunnel. Miller's Dale. On gritstone, Gadley Lane, Buxton.

†49/3. SISYMBRIUM ALTISSIMUM L. By river Wye, Ashwood Dale, on waste ground.

†61/3. LEPIDIUM DRABA L. Railway bank north of Miller's Dale railway station.

64/4. THLASPI CALAMINARE Lej. & Court. (*T. virens* Jord.) The very rare *T. virens* in Derbyshire grows only in the neighbourhood of old lead-mines on the Carboniferous Limestone. Although it has not yet been met with in the "High Peak" district, there does not appear any obvious reason why it should not exist; especially when one recalls that there are numerous disused lead-mine workings about Miller's Dale, Great Longstone, etc.

67/1. HUTCHINSIA PETRAEA (L.) R. Br. Not at all common in the district: just manages to perpetuate itself. The station under Monsal Dale railway viaduct was almost obliterated during 1938 owing to structural alterations. During these alterations a large quantity of rubble was tipped down the embankment. In spite of this several plants were observed in bloom in the spring of 1939.

Miller's Dale—one plant on rock shelf. Pictor, Ashwood Dale; about half a dozen plants.

RESEDACEAE.

85/2. RESEDA LUTEA L. Near Friden Brick Works, on waste ground; also a little by High Peak railway track between Friden and Parsley Hay.

VIOLACEAE.

88/33. VIOLA LUTEA Huds. Often in great abundance on the limestone uplands and grassy slopes of the dales. Much less frequent on the gritstone.

Grin Low, Buxton; Hill opposite Millers Dale railway station. Priestcliffe Lees. Burfoot, Miller's Dale; an

extensive patch with *Arenaria verna* as dominant. Monsal Dale. Meadows above Cressbrook Dale. Ravensdale and Tansley Dale. Chelmorton Low, most abundant. Ricklow and Lathkill Dales. At Brand Top, near Buxton; along with var. *amoena* Hensl. which is here abundant. (Gritstone).

CARYOPHYLLACEAE.

92/2. DIANTHUS DELTOIDES L. On rock escarpment in Bradford Dale (F. Crosland).

96/10. SILENE NUTANS L. Frequently met with in the limestone dales; when found it is usually abundant.

Limestone rocks above Ashwood Dale. On the north bank of the dale, between Miller's Dale and Litton Mill, there was a remarkably fine floral display during the first week in July of 1939. One large clump was even established on the limestone wall, skirting the River Wye, and overhanging the river.

Deepdale, Buxton. Monk's Dale—plentiful on east ridge. Dovedale—record in *Fl. D.* confirmed.

102/1. ARENARIA TRINERVIA L. Deepdale; Cressbrook Dale. Dovedale—near the Dove Holes.

102/10. ARENARIA VERNA L. A strictly local plant found in great profusion on broken ground in the vicinity of old lead mines. Lead-wort—a local name—seems most appropriate. (In Yorkshire the name Lead-wort refers, I believe, to *Thlaspi alpestre*.)

Burfoot, Miller's Dale; the dominant plant, at certain points, where it is associated with—*Thalictrum minus*, *Draba incana*, *Viola lutea*, and *Saxifraga platypetala*.

Priestcliffe—at 1000 ft. Tideswell Dale, a little. Water-cum-Jolly, a little. Ravensdale and Tansley Dale—growing on heaps of calcite. Lathkill Dale—a little, near the old stone pylons.

103/7. SAGINA CILIATA Fr. Plentiful on "The Slopes," Buxton; petals absent.

PORTULACEAE.

108/1. CLAYTONIA ALSINOIDES Sims. Corbar Wood, Buxton.

HYPERICACEAE.

112/7. HYPERICUM MONTANUM L. Duke's Drive, Buxton (Rogers, *Journ. Bot.*, 1885). Still there, growing on limestone rock. Wooded area, Ashwood Dale, opposite Lover's Leap. Cunning Dale, with *H. pulchrum*, *Helianthemum Chamaecistus* and *Campanula glomerata*.

112/9. H. PULCHRUM L. Frequent both on limestone and gritstone.
Limestone—Cunning Dale; Miller's Dale—hill overlooking railway station. Ravensdale.
Gritstone—Cavendish Golf Links, Buxton. Washgate; Hollinsclough; Goyt Valley; Malcoff, near Chapel-en-le-Frith. Cracken Edge, Chinley.

112/11. H. QUADRANGULUM L. On limestone in Ashwood Dale, by spring rising from bank-side opposite Pictor tunnel. Also Chee Dale; Monk's Dale; Lathkill Dale; Mill Dale; Dovedale.
In ditch, by main road, Hassop to Rowland.
Gritstone—By stream, Cavendish Golf Links, Buxton.

112/12. H. DUBIUM Leers. Linton questions the nativity of this species in v.-c. 57; there being only two antiquated and unreliable records available when the *Flora of Derbyshire* was issued.
During Aug. 1935 several plants were located on a gritstone bank at Combs, near Chapel-en-le-Frith. Specimens submitted to Mr A. R. S. Proctor, F.L.S., Duffield, received confirmation of determination. Several visits have been made to this station since discovering the plant but, while still there, it does not appear to make any progress.

112/15. H. HUMIFUSUM L. Very uncommon in Buxton neighbourhood. Jewitt's record for Ashwood Dale (1811) is now unreliable, we fear, as we fail to find any trace of the plant in this dale.
Cavendish Golf Links—on shaly bank overlooking the stream.

112/17. H. ELODES L. Has not been met with, although conditions appear highly suitable in many places on Millstone Grit.

MALVACEAE.

117/1. MALVA MOSCHATA L. On limestone in Monk's Dale; Ricklow Dale; Lathkill Dale.

GERANIACEAE.

127/1. GERANIUM SANGUINEUM L. Met with in almost all the limestone dales in the neighbourhood. The records in *Fl. D.* (Linton) for Miller's Dale, Chee Dale, Monk's Dale, Monsal Dale, Cressbrook Dale, and Deep Dale, are all confirmed by present writers.
Additional records:—Limestone rocks above railway, Ashwood Dale. Wooded area above Chee Tor. Topley Pike. Demon's Dale. On the National Trust Property, Taddington Wood, in the less wooded area, the screes, and the open ground above the wood.

At Ravensdale *G. sanguineum* is abundant. We note, however, that during August of most years the plant is badly galled by *Eriophyes geranii*.

†127/5. G. PHAEUM L. New Smithy, Chinley; probably a garden escape, but well established. Stubbins Lane, Chinley; well removed from any dwelling.

127/7. G. PYRENAICUM Burm. fil. Cowdale, near Buxton; abundant in several places.

127/8. G. COLUMBINUM L. Miller's Dale (Cont. *Fl. D.*, Painter, 1889). Still met with but in small quantity.

127/9. G. DISSECTUM L. Miller's Dale.

127/13. G. LUCIDUM L. Abundant, but local. Cowdale; Cunning Dale.

RHAMNACEAE.

138/2. RHAMNUS CATHARTICUS L. At about 950 ft. on limestone rocks above railway, Ashwood Dale. Chee Dale, occasional. Wooded area above Chee Tor, abundant. Taddington Wood.

LEGUMINOSAE.

147/1. GENISTA ANGLICA L. Must be regarded as rare in this district. Heathy ground west of Thirkelow rocks; near Buxton.

147/3. G. TINCTORIA L. Appears to be absent from this part of Derbyshire.

151/2. ONONIS REPENS L. Local. Limestone rocks above Ashwood Dale at 950 ft. By roadside between Miller's Dale and Tideswell. Abundant in a lane between Monk's Dale and Tideswell.

†154/3. MELILOTUS OFFICINALIS Lam. Occurred as a casual at Great Rocks Dale, and Hindlow, near Buxton, in 1933. Not observed since. Tideswell Dale—several plants Aug. 1939.

155/22. TRIFOLIUM FILIFORME L. On limestone rocks at Blackwell Mill. Above Chee Tor.

172/1. HIPPOCREPIS COMOSA L. Blackwell Mill, on rocky limestone slopes, in several places. Must be regarded as rare in this part of Derbyshire.

ROSACEAE.

183/2. PRUNUS PADUS L. Common on the limestone cliffs above Ashwood Dale. Several very fine trees by the River Dove, on the Derbyshire side, between Glutton and Hollinsclough.

184/12. SPIRAEA FILIPENDULA L. Strictly local and not abundant at any of the stations. The records in *Fl. D.* for Cressbrook and Tansley Dales are confirmed.

Tideswell Dale, scattered sparsely on the bankside for some distance. Basalt outcrop, near Litton turning, Tideswell.

185/154. RUBUS SAXATILIS L. Local and somewhat rare. Miller's Dale, limestone hill opposite railway station, at a little under 950 ft. Monk's Dale, abundant on the east bank, towards the head of dale. Ravensdale, abundant on rough stony slope.

185/155. R. CHAMAEMORUS L. Locally plentiful on moors near Cat and Fiddle Inn, at about 1750 ft. Although both stameniferous and pistiliferous plants grow together, fruit is seldom, if ever, produced.

The following note from the *North Staffs. Field Club Report* for 1886 is of interest (Mr R. Garner, the Staffordshire botanist was the speaker): "This plant, an inhabitant of the high moors on Axe Edge, near where Staffordshire, Derbyshire, and Cheshire meet, we never found but once. The specimens before you were gathered by one of us forty-five years back, and we fear it may, ere this, have disappeared from that locality." After almost a century of observed growth it is still abundant.

186/1. DRYAS OCTOPETALA L. Jewitt's record (1811) for " near Ashwood Dale " appears to be unreliable now, the plant not having been seen of recent years.

189/6. POTENTILLA VERNA L. Topley Pike, one clump on edge of cliff overlooking Deep Dale; also a number of small patches on bankside sloping into Deep Dale. Pictor, Ashwood Dale; an extensive patch. Miller's Dale, in several places. Abundant along the eastern ridge of Ravensdale.

193/1. POTERIUM SANGUISORBA L. Grassy rock shelves, above railway, Ashwood Dale. Head of Lover's Leap, Buxton. Plentiful in Grin Plantation on grassy banks.

193/4. P. OFFICINALE (L.) A. Gray. "Lover's Leap, Buxton" (Painter, 1889). Still there. Grin Plantation, Buxton. Above Ashwood Dale on east side. Locally abundant in meadow by River Dove, between Glutton Bridge and Hollinsclough.

SAXIFRAGACEAE.

199/10. S. HYPNOIDES L. Frequent on limestone at Cowdale, Thirkelow Rocks, near Buxton; and Ricklow Dale.

203/1. CHRYSOSPLENIUM ALTERNIFOLIUM L. Very uncommon. Near Lover's Leap, Ashwood Dale. Cowdale, a little. Chee Dale. Very fine specimens at Demon's Dale near Taddington Dale.

205/1. PARNASSIA PALUSTRIS L. *Parnassia* appears to be extending its range on the limestone very considerably. This is probably due to two factors. Leaching of the soil has undoubtedly taken place in many localities to a considerable degree. Evidence of this is provided by the appearance of calcifuge mosses on the limestone, together with areas thinly carpeted with *Calluna vulgaris*, *Vaccinium Myrtillus*, and, less frequently, *V. Vitis-Idaea*. It would appear that the gradual changing of the soil from " basic " to " acidic " has resulted in the extended distribution of *Parnassia*. But probably the most important factor governing the local increase of the plant is the cessation of the vandalism prevalent in Buxton neighbourhood 40-50 years ago, when small clumps were potted and sold to visitors.

Most abundant on the grass-covered lime-ash banks, Grin Plantation, Buxton. By roadside between Harpur Hill and Ladmanlow. On grass verge at Brierlow Bar. Well established in meadow between Brierlow Bar and Chelmorton.

Plentiful on banks near railway viaduct, Duke's Drive, Buxton. Cunning Dale. Railway embankment, Ashwood Dale, near Topley Pike; where it is associated with *Helianthemum Chamaecistus*, *Scabiosa Columbaria*, *Listera ovata*, and *Coeloglossum viride*.

Roadside between Heathfield Nook and Kingsterndale. Monk's Dale, in several places, but not abundant. Flagg Dale. Priestcliffe Lees. Ravensdale. Taddington Dale.

207/5. RIBES ALPINUM L. Although widely distributed in the limestone dales, it is not really plentiful.

Cowdale plantation, one tree. A small clump of stamen-bearing trees at Kingsterndale. At the junction of Chee Dale and Flagg Dale the stameniferous and pistiliferous trees grow in close proximity. To the rear of Miller's Dale Church and on the edge of the cliff overlooking Monk's Dale both types are found. Fruit is plentiful. Dovedale, near refreshment hut, on both sides of the river (v.-cc. 57 and 39). Washgate Valley, two trees on gritstone.

CRASSULACEAE.

211/1. SEDUM TELEPHIUM L., em. Gren. & Godr. (*S. purpureum* Link.) Local on limestone, often abundant. Most abundant on bankside at Cowdale. Plentiful in old quarry between Waterswallows (Fairfield) and Peak Dale.

Near Raven's Tor, Miller's Dale. Tideswell Dale, a little. On grassy bank near railway, under Priestcliffe Lees. Ravensdale. High Dale, Brushfield. Demon's (Dimins) Dale, near Ashford. Glutton Dale, in many places. Ricklow Dale.

DROSERACEAE.

213/3. DROSERA ROTUNDIFOLIA L. We have not met with *Drosera* in v.-c. 57. It is, however, recorded for the adjoining v.-c. 39. [Many records in W. R. Linton, *Fl. Derbysh.* —ED.]

UMBELLIFERAE.

243/1. CONIUM MACULATUM L. Was recorded for Buxton in *Flora of Derbyshire* (Waterfall), but has not been seen during recent years.

Between Conksbury Bridge (Lathkill Dale) and Alport, abundant. Between Alport and Picory Corner.

255/1. PIMPINELLA MAJOR (L.) Huds. Frequent in limestone dales. Local.

"Abundant in Ashwood Dale at Lover's Leap" (Baker, *Journ. Bot.*, 1884). Still plentiful.

Hill opposite railway station, Miller's Dale; very fine specimens. Tideswell Dale. Ravensdale, a little. Plentiful in Monk's Dale, on east slope, with *Campanula Trachelium* and *Stachys officinalis*.

Var. ROSEA (Koch) Druce. Blackwell Dale. Miller's Dale—Wood near end of Chee Tor railway tunnel; also on hill above railway station.

255/2. P. SAXIFRAGA L. Frequent on grass-covered, lime-ash banks in Grin Plantation, Buxton; associated with *Gymnadenia conopsea*. Priestcliffe Lees. Miller's Dale—Observed here by Rogers in 1884 (*Journ. Bot.*). Monk's Dale—Common on east slope, away from scrub; also on terraces above the dale.

Var. DISSECTA With. At Miller's Dale, with the type, but much more common. Monk's Dale.

Var. ROSEIFLORA Drabble. With type, Grin Plantation, Buxton.

257/1. MYRRHIS ODORATA (L.) Scop. Local. Frequently met with, in large masses, both on limestone and gritstone. Often near dwellings, but truly wild at stations well removed from human habitation.

Grin Plantation, Buxton. A tremendous mass behind Miller's Dale Church, extending into Monk's Dale. Disused L.C.I. Quarry, Miller's Dale. Priestcliffe Lees, also Priestcliffe.

On gritstone at Brand Top; Washgate; and Dale Head, near Thirkelow rocks. It is also on limestone at the last-named station.

266/1. AETHUSA CYNAPIUM L. Somewhat uncommon in the district. Waste ground, by roadway, Water-cum-Jolly; in several places.

277/2. HERACLEUM SPHONDYLIUM L. The pink-flowered form is frequent on limestone.

282/1. DAUCUS CAROTA L. Not met with in the locality.

CORNACEAE.

285/1. CORNUS SANGUINEA L. Head of Lover's Leap, Buxton. Plentiful in Lathkill Dale. In hedgerow between Thorpe Cloud railway station and Peveril Hotel. The records in *Fl. D.* for Monsal and Cressbrook Dales are confirmed.

CAPRIFOLIACEAE.

†287/1. SAMBUCUS RACEMOSA L. Well established in disused Millstone Grit Quarry north of Buxton, where it produces an abundance of its scarlet fruit.

Ashwood Dale—one tree of many years' growth among scrub, on rocks, above railway; no habitation near; probably bird sown.

288/1. VIBURNUM OPULUS L. Frequent, especially on limestone, up to 900 ft.

Wooded area, Ashwood Dale; probably the same station as recorded by Jewitt, 1811 (*Hist. of Buxton*).

Miller's Dale—hill opposite railway station. Above Chee Tor, Taddington Dale; and Monsal Dale.

RUBIACEAE.

296/6. GALIUM ULIGINOSUM L. Waterswallows, Fairfield. Brand Top.

VALERIANACEAE.

301/3. VALERIANA DIOICA L. Grin Plantation, Buxton. Near Dale Head, Buxton. Moss Carr, near Hollinsclough (v.-c. 39).

304/4. VALERIANELLA CARINATA Loisel. A little on limestone bank in Tideswell Dale.

DIPSACEAE.

306/2. DIPSACUS PILOSUS L. Plentiful on rock shelf, Demon's Dale, near Ashford.

308/1. SCABIOSA COLUMBARIA L. Very plentiful on limestone slopes and lime-ash heaps.

Cunning Dale, Cowdale, Ashwood Dale, Topley Pike, Glutton Dale. On grass verge at Kingsterndale. White-flowered specimens are frequently met with.

308/5. S. ARVENSIS L. Frequent by the roadsides, in the lanes and dales about Tideswell, Litton, Cressbrook, and Miller's Dale.

Less frequent on Millstone Grit, but well established in a meadow above Washgate Valley (upper reaches of River Dove) where there is an annual display of very fine heads of bloom.

COMPOSITAE.

310/1. EUPATORIUM CANNABINUM L. Chee Dale, by River Wye, a little. Frequent small clumps in Monsal Dale, by river. In Lathkill Dale small clumps are found in many places; but under Over Haddon the river bed often becomes dry during the summer months—some water finding its way to a lower level—and at this point the bed is almost covered with *Eupatorium*; producing a most pleasing effect when in bloom. Also by the river at Alport.

312/1. SOLIDAGO VIRGAUREA L. Frequent on limestone screes, hedge-banks, and in the dales. Less frequent on gritstone.

Blackwell Mill, Chee Dale, Miller's Dale, especially in an old limestone quarry; Monsal Dale; Cressbrook Dale.

On gritstone at Washgate Valley.

Var. CAMBRICA Huds. Topley Pike, as recorded in *Fl. D.*; Water-cum-Jolly; and Burfoot, Miller's Dale.

326/1. ANTENNARIA DIOICA (L.) Gaertn. One large patch in Grin Plantation, Buxton, with a little in several places on grass-covered lime-ash banks; Countess Cliff, south-west of Buxton, several small patches.

†327/1. ANAPHALIS MARGARITACEA (L.) Benth. & Hook. fil. Cunning Dale on eastern ridge—one patch. Well established at Friden on railway embankment.

†333/1. INULA HELENIUM L. A few plants by roadside at Combs, Chapel-en-le-Frith; probably a garden escape.

333/4. I. CONYZA DC. Very local. Appears to be confined to one locality in this district.

Abundant in both Monsal and Cressbrook Dales. In the latter dale we noted that fasciation of the plant was very common.

334/1. PULICARIA DYSENTERICA (L.) Bernh. Extensive patch on railway embankment, Ashwood Dale, not far from Lover's Leap. Chinley.

378/1. ARTEMISIA ABSINTHIUM L. Waste ground together with *A. vulgaris* in Tideswell Dale.

†381/1. DORONICUM PARDALIANCHES L. Grin Plantation, Buxton; one very large patch. Pictor Wood, Ashwood Dale; plentiful in several places.

391/1. CARLINA VULGARIS L. Local. Frequent on dry limestone banks, especially where ground has been disturbed when prospecting for lead.

Grin Plantation, Buxton. Monk's Dale. Miller's Dale, Priestcliffe Lees, Burfoot, Ravensdale, Tansley Dale, Longstone Edge, Hassop old lead mines, Lathkill Dale.

395/1. CARDUUS NUTANS L. Frequent on limestone.

Miller's Dale, Monk's Dale, Cressbrook Dale, Ravensdale, Longstone Edge, Hassop (Deep Rake) Lead Mines. Ladmanlow, near Buxton. Very common in meadows above Chee Tor.

396/1. CIRSIUM ERIOPHORUM (L.) Scop. Linton's record for Buxton (Buxton Guide) ceases to be of value, the plant not having been met with for many years.

The record "Hassop Mines, abundant," we can confirm, the station being visited by both of us on Aug. 7th, 1939. Deep Rake Lead Mines is probably the more correct designation of this station.

396/3. C. HELENIOIDES (L.) Hill. Particularly abundant in Buxton district, where it reaches to 1150 ft. It appears to be extending its range rather rapidly on the limestone.

The following records from *Fl. D.* are all confirmed:—Lover's Leap, Buxton; Monk's Dale, Taddington, Cressbrook Dale, Dovedale, Grin Wood, Burbage—mixed with *Parnassia* (Baker), and on gritstone at Malcoff.

Additional records:—Ashwood Dale—wooded area opposite Lover's Leap, abundant. Near Topley Pike. Cunning Dale. Harpur Hill. Miller's Dale. Fairfield.

On gritstone at Cavendish Golf Links, Buxton; and abundant in damp meadow between Glutton and Hollinsclough.

402/1. SERRATULA TINCTORIA L. Locally plentiful.

Lover's Leap, Buxton. Ashwood Dale, above railway; Cunning Dale; railway embankment, near quarry, Topley Pike.

409/1. CICHORIUM INTYBUS L. Has been observed in several places, as a casual, during recent years.

415/2. PICRIS HIERACIOIDES L. Ashwood Dale—wooded area opposite Lover's Leap; also bankside opposite Devonshire Arms Hotel; abundant in Old Dale, Blackwell Mill. Cressbrook Dale.

416/2. CREPIS PALUDOSA (L.) Moench. Grin Plantation, Buxton; in several places. Was observed here in 1885 by Rogers (*Journ. Bot.*).

A little by River Wye in Chee Dale. Several plants in upper reaches of River Dove (Gritstone), about half-mile from its source. (This is probably the same station as recorded by Rev. W. H. Purchas, *Journ. Bot.*, 1885; if so it should read v.-c. 39.)

416/3. C. BIENNIS L. Not yet observed by us.

CAMPANULACEAE.

432/1. JASIONE MONTANA L. Very infrequent in the locality. Not observed on limestone.

Washgate Valley—a little in many places. More plentiful on bankside near the Pack Horse Bridge.

435/1. CAMPANULA GLOMERATA L. Dale Road, Buxton; a little on bankside. Ashwood Dale, here and there among scrub above railway; plentiful at one point, near railway.

Cunning Dale—on bank opposite old lime kilns, and in meadow above. The plant is particularly well established here. Deep Dale.

435/2. C. LATIFOLIA L. Cowdale, near Buxton; plentiful. Chee Dale. Cressbrook Dale. Ravensdale.

435/3. C. TRACHELIUM L. West's record for Monk's Dale (*Journ. Bot.*, 1884) still holds good. Water-cum-Jolly—here and there. Ravensdale.

VACCINIACEAE.

438/2. VACCINIUM MYRTILLUS L. Grin Low—on limestone; with a little in Grin Plantation. Topley Pike. Above Great Rocks Dale.

Frequent on gritstone at Axe Edge, Goyt Moss, Brand Top, and Washgate Valley.

438/3. V. VITIS-IDAEA L. On limestone with *V. Myrtillus* at Grin Low, Buxton; and Topley Pike. At each of these stations growth is stunted. Still "plentiful on Axe Edge" as recorded by Baker (*Journ. Bot.*, 1884). Washgate Valley—plentiful; also moors near Cat and Fiddle Inn.

439/1. OXYCOCCUS QUADRIPETALUS Gilib. Near Stanley Moor Reservoir, Buxton. Abundant on boggy ground not far from Dove Head. Moss Carr, near Hollinsclough (v.-c. 39).

ERICACEAE.

444/1. ANDROMEDA POLIFOLIA L. Axe Edge (Garner, *Fl. D.*, confirmed by Mr J. Armitage).

453/3. PYROLA MINOR L. Only one record is given in the *Flora of Derbyshire* (Linton) for *P. minor*, this being very vague. From information received through Mr A. R. S. Proctor, Duffield, I learn that the station referred to

was the hill opposite Miller's Dale railway station. For many years, until recently, the limestone was quarried at this point, resulting in the loss of the plant. W. R. Linton's record, therefore, from Painter's contribution to *Flora of Derbyshire*, needs bracketing.

During September 1932 my son and I located a new station for *P. minor* in a copse at the junction of the Cowdale and Kingsterndale roads. It is covering an area of approximately 3-4 square yards. A slight increase of area has been noted since first discovered.

MONOTROPACEAE.

456/1. MONOTROPA HYPOPITYS L. Grin Plantation, Buxton.

Information concerning the establishment of *Monotropa* in this neighbourhood was communicated to us by two lady visitors to Buxton (names unknown) in August 1935. This led to ourselves locating the plant the following year, when nine spikes were observed. During the present year a very careful search revealed that a larger area than had previously been noted was productive of flowering spikes. It is found under *Salix* sp., on a lime-ash bank, at about 1230 ft.

OLEACEAE.

472/1. LIGUSTRUM VULGARE L. Well established on limestone rocks in the neighbourhood.

Ashwood Dale, Topley Pike, Monk's Dale, Chee Dale, Cressbrook Dale, Ravensdale, Deep Dale near Ashford.

APOCYNACEAE.

473/2. VINCA MINOR L. Cowdale Wood. An extensive patch on bankside.

GENTIANACEAE.

481/1. MENYANTHES TRIFOLIATA L. Jewitt's record, " Pool near the New Church, Buxton," is now obsolete, the pool having been filled in. Not known for limestone. One would expect to meet with it much more frequently on millstone grit than experience proves to be the case.

Moss Carr, Hollinsclough; and near the farm at head of Moss Carr (v.-c. 39).

POLEMONIACEAE.

486/1. POLEMONIUM COERULEUM L. Within recent years *Polemonium* seems to have extended its range in this part of Derbyshire. It is of strictly local occurrence, but when found is usually abundant. A few of the older records for Buxton are probably unreliable now.

Nuns Brook, Fairfield (Yoredale), about half-dozen clumps. An extensive area, coming close to the highway, on National Trust property, Taddington Wood, and not very far from the Café. By River Wye, near Ashford fishponds. Plentiful on bank overlooking river at Alport. Ricklow Dale, abundant on bankside not far from cave.

The rich colour of the flowers of *Polemonium*, in the wild state, is very marked.

BORAGINACEAE.

†497/4. SYMPHYTUM PEREGRINUM Ledeb. "By River Bradford, Youlgrave"; Purchas (*Fl. D.*). Still there.

SOLANACEAE.

524/1. HYOSCYAMUS NIGER L. Has appeared in several places during recent years as a casual.

SCROPHULARIACEAE.

527/3. VERBASCUM THAPSUS L. Ashwood Dale—bank overlooking sewage works. Plentiful in disused limestone quarry, near railway station, Miller's Dale. Tideswell Dale. Lathkill Dale.

527/8. V. NIGRUM L. Plentiful at Alport, near Youlgrave; in several places. (Recorded by Painter, 1889.)

532/7. LINARIA MINOR (L.) Desf. Great Rocks Dale. Abundant on High Peak Railway track near Friden.

532/26. L. CYMBALARIA (L.) Mill. Cowdale and Tideswell Dale.

LENTIBULARIACEAE.

553/2. PINGUICULA VULGARIS L. Grin Plantation, Buxton; on grass-covered banks of lime-ash. Ashwood Dale (Topley Pike end), abundant on embankment below railway, and in meadow immediately above. (Miss Hawkins—*vide* Robertson's Buxton Guide—has a record for *Pinguicula* at this point made prior to 1854.) Monk's Dale with *Parnassia* and the moss *Climacium dendroides* W. & M.

LABIATAE.

562/8. CALAMINTHA ACINOS (L.) Clairv. Tideswell Dale. Dovedale—Painter's record 1889 confirmed.

POLYGONACEAE.

615/3. POLYGONUM BISTORTA L. Temple fields, Buxton, an extensive patch. "Meadow near Grammar School, Buxton" (Baker, *Journ. Bot.*, 1884). This is now Buxton College playing field; Bistort is still abundant. North-west side St James' Church, Buxton.

†618/5. RUMEX ALPINUS L. Kirkham's farm, Brandside. Flash, near Buxton; by roadside in several places (v.-c. 39).

URTICACEAE.

634/1. HUMULUS LUPULUS L. Buxton College sports field, College Road. Old gritstone quarry, Nithen, Buxton.

641/1. [MYRICA GALE L. Not met with in the locality (probably not in v.-c. 57 at all), although soil conditions in many places would suggest its occurrence.]

SALICACEAE.

650/11. SALIX REPENS L. Grin Low, Buxton. Above Chee Tor.

ORCHIDACEAE.

662/1. NEOTTIA NIDUS-AVIS (L.) Rich. The record in *Flora of Derbyshire* for Lathkill is still authentic.

674/1. GYMNADENIA CONOPSEA (L.) R. Br. Frequent on grass-covered banks in Grin Plantation, Buxton, up to 1230 ft. Cunning Dale, a little. Topley Pike. An extensive patch on limestone grassland above Chee Dale, on south side. Ravensdale. Frequent on shaly bank near Packhorse Bridge, Washgate.

674/4. COELOGLOSSUM VIRIDE (L.) Hartm. Several places in Grin Plantation, Buxton. By roadside, on grass verge near Brierlow Bar.

With *Listera ovata*, *Parnassia palustris*, *Scabiosa Columbaria*, on bankside lower end of Ashwood Dale, near Topley Pike.

674/6. PLATANTHERA CHLORANTHA (Cust.) Rchb. Casual, Kingsterndale.

LILIACEAE.

694/1. CONVALLARIA MAJALIS L. Abundant above Chee Tor, also Cressbrook Dale, and Monsal Dale. Taddington Wood (National Trust Property). Dovedale, being a confirmation of Purchas' record (*Fl. D.*).

702/4. ALLIUM VINEALE L. var. BULBIFERUM Syme. On rock-shelf, by Raven's Tor, Miller's Dale, plentiful; also on bankside nearer Miller's Dale hamlet. Recorded in *Fl. D.* for Tideswell Dale; still there.

702/9. A. OLERACEUM L. Topley Pike—on narrow rock-shelf at base of escarpment.

716/1. PARIS QUADRIFOLIA L. Not seen up to present.

NAIADACEAE.

735/2. TRIGLOCHIN PALUSTRE L. Local and uncommon.

On marshy ground, Cavendish Golf Course, Buxton. Washgate Valley.

CYPERACEAE.

753/26. CAREX ORNITHOPODA Willd. Slopes of Highfield, Miller's Dale. (Burfoot is probably the more correct name).

This rare *Carex* is plentiful on the 750 ft. line, or thereabout. It was first recorded by C. C. Babington (*Journ. Bot.*, 1874) from specimens gathered by Mr J. Whitehead of Dunkinfield, in company with Messrs H. Newton and E. Hibbert. Subsequently F. A. Lees pointed out (*Bot. Loc. Rec. Club Report*, 1877) that a specimen of *C. ornithopoda* existed in Jonathan Salt's (Sheffield) herbarium "without date, locality, or collector's name." Linton, however, credits Salt with first finding the plant—May 7th, 1801—but labelled *C. digitata* L.

GRAMINEAE.

818/1. MELICA NUTANS L. Wooded area above railway, Ashwood Dale. Plentiful above Chee Tor. Monk's Dale, and Lathkill Dale in several places.

†829/4. LOLIUM MULTIFLORUM Lam. By roadside above Miller's Dale railway station.

CONIFERAE.

839/1. JUNIPERUS COMMUNIS L. Intensive search has been made for *J. communis* on the limestone cliffs of Ashwood Dale (the station recorded by Baker, *Journ. Bot.*, 1884), but without result.

840/1. TAXUS BACCATA L. Ashwood Dale and Deep Dale, near Buxton. Plentiful in Chee Dale, where it is frequently seen growing out of fissures in the rock face.

FILICES.

851/3. ASPLENIUM VIRIDE Huds. Abundant under rocks on south bank of Back Dale, where it is more frequent than *A. Trichomanes*, which is only occasional. Diamond Hill, frequent.

856/11. DRYOPTERIS ROBERTIANA (Hoffm.) C. Chr. Ashwood Dale—on embankment not far from Topley Pike quarry. By roadside ascending Topley Pike; more plentiful among rocks towards apex of hill. Monk's Dale; Ravensdale; Priestcliffe Lees; above Chee Tor, a little; and slopes of Burfoot, Miller's Dale, at 750-800 ft.

857/4. CYSTOPTERIS FRAGILIS (L.) Bernh. Frequent on limestone in damp shady spots.

Ashwood Dale and Cunning Dale, a little. Thirkelow Rocks; Monk's Dale; Chee Dale; Bradford Dale.

859/1. CETERACH OFFICINARUM DC. Extinct now, we fear.

865/1. BOTRYCHIUM LUNARIA (L.) Sw. Not common.
Reaches 1200 ft. on lime-ash banks, Grin Low, Buxton. A form with divided fertile frond is frequent here.

LYCOPODIACEAE.

870/. LYCOPODIUM L. The *Flora of Derbyshire* has records for *L. Selago* and *L. clavatum*. Up to the present no station for any *Lycopodium* is known to us.

AN UNWORTHY TANGLE: PHUOPSIS STYLOSA BENTH. ET HOOK. FIL. (CRUCIANELLA STYLOSA TRIN.)—NOT " ASPERULA CILIATA ROCHEL "—IN BRITAIN.

NICHOLAS POLUNIN, M.S. Yale; M.A., D.Phil., D.Sc., Oxon.

In *Mém. Acad. Pétersb.*, VI (1818), Trinius described and figured as *Crucianella stylosa* a small but unmistakable Rubiaceous plant from south-western Asia which has since come to be grown in rock gardens in many parts of the world. In Britain and the United States it has become an established favourite, in spite of " its disagreeable odour, in consequence of which it is sometimes jocularly called *P. Foxii* " (according to Sir F. Crisp, *Abridged . . . Guide . . . to Friar Park*, p. 177, 1914). Thus H. Correvon (*Rock Garden and Alpine Plants*, p. 231, 1930) calls it " one of the treasures of the rock garden," and it is so easy to propagate vegetatively or from seeds, whence it spreads rapidly to form dense carpets, that there need be small wonder if *under various names* it has been reported as adventive in several parts of the British Isles. Although the chief morphological interest of this plant probably lies in the explosive mechanism of its closely aggregated flowers with their ultimately long-exserted styles (cf. A. Kerner v. Marilaun and F. W. Oliver, *The Natural History of Plants*, vol. II, pp. 265 et seq., 1895), it is with these various (often irreconcilable) names that the present note is primarily concerned.

In *Pl. Banat. rar.* (1828), *Asperula ciliata* Rochel was described and figured from the Banat region which during the latest peace was mostly included in western Rumania. Taxonomically this plant has nothing to do either with the earlier *Crucianella ciliata* Lam. or with the wholly distinct *C. stylosa* Trin., but unfortunately in 1830 (*Prod.*, IV, p. 582) A. P. De Candolle described an *Asperula ciliaris* which most subsequent authors have considered to be synonymous with Trinius's species. Although De Candolle's reference to Gmelin is indeed suggestive, it seems necessary to re-examine the type material (De Candolle said " v.s. in h. Mus. reg. Par.") before it can be finally decided whether this view is correct; but in any case this question does not affect the present issue as Trinius's specific name was validly published and would clearly take priority. Meanwhile it may be noted that five pages later in the same work De Candolle includes *Crucianella stylosa* Trin., complete with citation and unmistakable "stylo clavato longissimè exserto apice brevissimè bifido," though his reference to Peru should of course be changed to Persia (Prov. G[h]ilan); on the other hand De Candolle's *Asperula ciliaris* was merely " stylo exserto."

There seems to be very little doubt that *Asperula ciliata* Rochel, of which good specimens are to be seen in almost any herbarium, and which, according to H. G. Reichenbach (*Ic. Fl. Germ. et Helv.*, XVII, p. 103 and cf. pl. MCLXXX, 1855) " recedit ab. Asperula tinctoria L. praecedenti foliis junioribus bracteolisque ciliatis, fructu punctulato,"

is indeed a species wholly distinct not only from *Crucianella stylosa* but also from any other *Asperula*—see also Regel (*Ind. Sem. Hort. Petrop.*, Suppl., p. 21, 1864). Unfortunately, however, the Rochel name is invalidated by the earlier *Asperula ciliata* Moench (*Meth. Plant.*, p. 484, 1794), which is now usually " sunk " in (various) other species. Accordingly some new name is necessary for Rochel's plant, which is reputedly of restricted distribution and unlikely to be found in Britain. Such a new name may possibly be supplied by the recently substituted *Asperula hungarorum* Borbás ex Jávorka (*Magyar Fl.*, p. 1037, 1925), which although there a synonym and consequently useless may yet have been validly published elsewhere. This question we can leave for discussion with Central European botanists after the war.

To return to the highly characteristic plant described by Trinius: as Lindley quite understandably remarked (*Edwards's Bot. Register*, XXIV, p. 55, 1838), this " is certainly no Crucianella . . . and . . . requires to have some better place found for it." Such a need may even have been recognized at the time of its first collection, for Trinius (*l.c.*, p. 492) observes that " Hanc . . . plantam elegantissimam a Gmelino *Laxmannia fasciculata* dictam." This last generic name was not, however, validly published; moreover, it was antedated by no less than four different Laxmannias, one of which is conserved (*Kew Bulletin*, p. 93, 1940). Nor, apparently, can *Nemostylis* Chr. v. Steven (*Verz. taurischen Halbinsel wildwachs. Pfl.*, p. 187, 1857) help us, owing to the existence of an earlier *Nemastylis* Nutt. (1837) and its orthographic variant *Nemostylis* (1840). Nor do Boissier's combination *Asperula stylosa* and his statement (*Diagn. Pl. Or.*, I, 3, p. 31, 1843) that it " *Asperulis* nec *Crucianellis* evidenter adnumeranda est " seem tenable, when one considers the pertinent characters in the light of generic descriptions. On the other hand, A. Grisebach (*Spic. Fl. rumel. et bith.*, II, p. 167, 1844) remarks that " Sectionem propriam Phuopsiden . . . format *Crucianella stylosa*," and this is cited (wrong page) by G. Bentham and J. D. Hooker (*Gen. Plant.*, II, 1, p. 151, 1873) in founding the new genus *Phuopsis* (a name already published for a section by Walpers, *Repert.*, VI, p. 25, 1846) to receive Trinius's plant. *Phuopsis stylosa* (Trin.) " Benth. et Hook. fil." ex Jackson in *Index Kewensis*, II, p. 505, 1895, would accordingly seem to be the best name for what is still the only known member of this genus—cf. also Jackson, *l.c.* and p. 1278 (though the combination was not actually made, even if it was meant, in the place cited by Jackson); Engler and Prantl, *Die nat. Pflanzenfam.*, IV, 4, p. 148, 1897; Hegi, *Illust. Fl. Mittel-Eur.*, VI, 1, p. 196, 1918 (in the last two and many other works the combination is attributed to Grisebach, but I have not been able to find where, if ever, he published it); Willis, *Dict. Fl. Pl. Ferns*, ed. 5, p. 506, 1925; etc. Mr N. Y. Sandwith assures me that it is permissible to cite Bentham and Hooker (ex Jackson) as the authors of the combination *Phuopsis stylosa*, and that this combination is legally made in *Index Kewensis*, although Mr A. J. Wilmott considers (*in lit.*) that it is there

" nomen nudum because the reference given doesn't exist!" The whole unfortunate subject is indeed a succession of lamentable errors and unscholarly omissions of the worst order.

Now as to the British reports of *Phuopsis stylosa*; these have indeed occasionally in the past been under the possibly legitimate but certainly less desirable name *Crucianella stylosa* (e.g., in S. T. Dunn, *Alien Flora of Britain*, p. 94, 1905, though he has both the author and the " habitat " wrong), but usually as " *Asperula ciliata* Rochel "! As outstanding examples we may refer to *B.E.C. 1911 Rep.*, p. 54 (1912), *1921 Rep.*, p. 383 (1922), *1922 Rep.*, p. 729 (1923), *1925 Rep.*, p. 877 (1926), *1926 Rep.*, p. 116 (1927), and *1927 Rep.*, p. 398 (1928). The specimens on which most of these reports were based lie before me in Herb. Druce, and clearly belong to *Phuopsis stylosa*; so do the reports of " *Asperula ciliata* Rochel " in Druce's *British Plant List*, in the second edition of which (p. 53, 1928) the distribution is unfortunately given as " W. Eur." Nor were my distinguished predecessor in the Fielding Curatorship and his British followers alone in the dark; the mistake has followed the plant to other lands. In spite of the warning by Boissier (*l.c.*) that " Nomen specificum Candolleanum [*ciliaris*] retinere non potui propter confusionem cum antiquiori *A. ciliatâ* Rochel," Steudel (*Nomenclator Botanicus*, I, p. 448, 1840) having made just such a confusion, it would appear that the frequency of the mistake is due chiefly to an error in the first volume of *Index Kewensis* (1895), though this was speedily rectified in the " Addenda et Emendanda " at the end of the second volume (p. 1278, 1895). Thus, whereas in vol. I we are given on p. 214 " Asperula . . . *ciliaris*, DC. *Prod.* iv 582 = stylosa " (which latter, of Boissier, is upheld as a valid species), and then ". . . ciliata, *Rochel*, *Banat.* t. ix f. 22 " (which is also upheld, and separate), on p. 658 we have " Crucianella . . . *stylosa*, Trin. . . . = Asperula ciliata " (instead of " stylosa," or *ciliaris* in deference to which Boissier's combination (*l.c.*) was made and which would have led to the same " stylosa "). In consequence Rochel's name was indicated and has been rather generally employed, though, as we have seen, his plant is far removed from *Phuopsis stylosa*; to this last certainly most and probably all British reports of *Asperula ciliata* should be transferred. Thus, it is hoped, may be resolved, at least as far as British botany is concerned, what has long remained a most unworthy tangle.

Herbarium, Department of Botany,
Oxford University.

SCHKUHRIA IN THE BRITISH PLANT LIST.

N. Y. Sandwith, M.A., F.L.S.

†360. Schkuhria Roth (1797) *nomen conservandum*, non *Sckuhria* Moench (1794). *Tetracarpum* Moench, *Meth. Suppl.*, 240 (1802).

British alien material of this American genus of Compositae has to be revised, and Druce's List emended, in accordance with the researches of Dr Angel L. Cabrera in *Anales de la Sociedad Científica Argentina*, cxiv, 8-14 (1932). That some revision was needed was indicated several years ago in *The Adventive Flora of the Port of Bristol* (*B.E.C. 1932 Rep.*, p. 339). The five names appearing in Druce's List (1928), viz., *S. pinnata* O. K. (*abrotanoides* Roth), *S. isopappa* Bth., *S. advena* Thell. and *S. bonariensis* Hook. et Arn., are reshuffled nomenclaturally and taxonomically by Cabrera in such a way as to fall into the synonymy of two varieties of a single South American species, *S. pinnata* (Lam.) "Kze." Study of an abundance of Argentine material has convinced Dr Cabrera that *S. pinnata* is a species varying considerably in the shape and size of the paleae of the pappus, characters on which distinct species have been based. The eight paleae may all be awnless, blunt and short, or all long-awned; and between these extremes there is a large series of intermediate forms. He distinguishes, however, three predominating types as varieties, with the following key:—

Paleae all aristate, uniformly attenuate towards the apex and overtopping the corolla (rarely one of the paleae is muticous or submuticous) ..... var. *octoaristata* (DC.) Cabrera.
Paleae partly or wholly muticous, generally brusquely attenuate at the apex and shorter than or equalling the corolla:
Paleae all muticous, more or less obtuse (sometimes one or two paleae aristate) ..... var. *typica* Cabrera (*S. isopappa* Bth. and *S. advena* Thell.).
Paleae generally 4 muticous and 4 aristate ..... var. *abrotanoides* (Roth) Cabrera (*S. abrotanoides* Roth and *S. bonariensis* Hook. et Arn.).

British material of *Schkuhria*, so far as has been seen, is referable to two of these varieties, as follows:

S. pinnata (Lam.) Thell. var. *typica* Cabrera. 34, W. Gloucester: Wee Lane, Bristol, 1917, *Sandwith* (Herb. Sandwith, Druce; det. as *S. advena* by Thellung); Baptist Mills, Bristol, 1926, *Sandwith* (Herb. Kew., Sandwith). 64 (*sic* Cryer in sched.), Mid-west Yorks.: waste ground, Bradford, 1919, *Cryer*, "No. 5" (Herb. Kew.). 79, Selkirk: Tweedside, Galashiels, Oct. 1918, *Miss I. M. Hayward* (Herb. Druce; identified as *S. bonariensis* by W. B. Turrill). In all these specimens the paleae are short, obtuse, awnless and subequal.

S. pinnata (Lam.) Thell. var. *abrotanoides* (Roth) Cabrera. 34, W. Gloucester: St Philip's Marsh, Bristol, 1900, *Bucknall* (Herb. White in Herb. Univ. Bristol); Avonmouth Docks, 1932, *Evans* (Herb. Sandwith). 64, Mid-west Yorks: waste ground, Bradford, 1919, *Cryer* (Herb. White in Herb. Univ. Bristol); this specimen was gathered three days

before var. *typica*, and was un-numbered. In all these specimens 4 short, rounded-obtuse, awnless paleae alternate with 4 which are much longer and conspicuously aristate.

Three comments may be made on Cabrera's account of *Schkuhria*:—

(1) The name *Schkuhria* Roth is a later homonym of the differently spelled *Sckuhria* Moench, both genera having been named in honour of the same botanist, Christian Schkuhr of Wittenberg. Moench himself deliberately re-named Roth's *Schkuhria*, giving it the name *Tetracarpum*. But *Schkuhria* Roth has been recommended and accepted for the list of *nomina conservanda*, for the obvious reason that it has been retained by the great majority of authors, while *Sckuhria* Moench, which was based on *Siegesbeckia flosculosa* L'Hérit., has been almost universally regarded as a synonym of *Siegesbeckia*.

(2) Cabrera and others have attributed the combination *Schkuhria pinnata*, based on *Pectis pinnata* Lam., to Kuntze, *Rev. Gen.*, iii, 2, 170 (1898) " como sinónimo de *Rothia pinnata*." In fact, Kuntze wrote " *R. pinnata* OK. (*Pectis pinnata* Lam. 1792 = *Schkuhria pinnata* OK. olim = *Schkuhria abrotanoides* Roth 1797)." No previous citation of the binomial *Schkuhria pinnata* by Kuntze has been traced, and its publication by him as a rejected synonym does not, according to the International Rules, validate the attribution of this combination to him. The combination *Schkuhria pinnata* (Lam.) should apparently date from its adoption, and therefore valid publication, by Thellung in Fedde, *Rep. Sp. Nov.*, xi, 308 (1912).

(3) Cabrera has perhaps not read Roth's own description of *S. abrotanoides* and is basing his conception of it upon the emended description given by de Candolle in *Prodr.*, v, 654 (1836). Roth himself, in *Cat. Bot.*, i, 116 (1797), described the pappus-scales as 5, rarely 6 or 7, oboval, obtuse, beautifully incised-ciliate at the apex. Now this description might well be taken to apply better to Cabrera's var. *typica*, in which the obtuse exaristate scales are neatly scalloped near the apex, than to his var. *abrotanoides*; and was responsible for some remarks to this effect in *The Adventive Flora of Bristol*, *l.c.* However, the eponymous botanist Schkuhr himself both described and figured *S. abrotanoides* Roth in his *Bot. Handb.*, iii, 126, and t. CCL, b (? 1803), references cited by de Candolle and evidently responsible, at least in part, for his emended description. The flowers and fruits are carefully figured, and the " incised-ciliate " pappus-scales, four of which are longer than the others, attenuate and aristate, leave no doubt as to the identity of the plant with Cabrera's var. *abrotanoides*. Moreover, in his description, Schkuhr writes of the fruit as " mit 8 Spreublättchen gekront, wovon 4 wechselsweise kleiner sind." It is most unlikely that the plants described by Roth and Schkuhr within a few years and in each instance from living cultivated material could have represented different varieties of *S. pinnata*, and it is reasonable to conclude that Cabrera's interpretation of *S. abrotanoides* Roth may stand.

SOME REMARKS ON BRITISH RHINANTHUS.

A. J. WILMOTT.

[This paper was written early in 1940, the Latin descriptions of the new forms being sent to the *Journal of Botany* (lxxviii, 201-213) with the necessary explanations: the delay in the publication of the B.E.C. Reports prevented the contemporary appearance of this, which was the original, paper.]

The genus *Rhinanthus* has received comparatively little study by British botanists. In 1900 or early in 1901 G. C. Druce sent his collection of this genus to Sterneck, who had published several papers dealing with its European forms, and who in 1901 published a monograph ("Monographie der Gattung *Alectorolophus*;" in *Abhandl. der K.K.Z.-b.G. in Wien*, i, part 2, pp. 1-150, tt. i-iv). Druce published the results of Sterneck's examination in the *Annals of Scottish Natural History* (1901: pp. 177-178), adding *A. stenophyllus* (Schur) Sterneck, *A. borealis* (Sterneck) Sterneck—with calyx surface puberulous, and *A. monticola* ("Lamotte") Sterneck, to the British list. In his monograph, Sterneck distinguished a second British species with the calyx surface puberulous, *A. Drummond-Hayi* ("White") Sterneck, but since he made no attempt to see the original specimens of Buchanan White's *Rhinanthus Crista-galli* var. *Drummond-Hayi*, he remained unaware that the types of that plant (from Ben Lawers) were what he was calling *A. borealis*, and the name *A. Drummond-Hayi* was therefore illegitimate.

Druce, in his article, gave no differentiating characters for the species he recorded, but E. S. Marshall, after sending his own herbarium material to Sterneck for revision (in 1902), published in 1903 a paper "On the British forms of *Rhinanthus*" (*Journ. Bot.*, xli, 291-300), reproducing the descriptions from Sterneck's monograph. The retention of the name *Rhinanthus* in preference to that of *Alectorolophus* has since been shown to be correct by Pennell (1931: *Proc. Acad. Sci. Philadelphia*, lxxxii, 16) who demonstrates that Linnaeus described *Rhinanthus* from material of *Rhinanthus Crista-galli* L. In that article, Marshall added *A. rusticulus* (Chabert) Sterneck to our list, from Orkney. In 1907, Beeby (in *Ann. Scott. Nat. Hist.*, p. 234) added *R. groenlandicus* Chabert (from Shetland) on the strength of Ostenfeld's determination of his Shetland material. In 1922, I summarised (in Babington, *Manual*, ed. x, Appendix II, pp. 584-586) from Sterneck's Monograph the characters of these plants, placing *R. groenlandicus* in the position (? wrongly) assigned to it by Ostenfeld. In 1929 Soó (in Fedde, *Repert.*, xxvi, 179-219) published an account of the middle- and south-east-European species and forms of the genus. Whilst working in London he had examined the material in the herbarium of C. E. Salmon, and as a result he mentions in his paper (p. 182) a "ssp. *Salmonii* Soó aus dem Formenkreise von *Rh. Drummond-Hayi* (Withe) [sic !] Druce

emend. Soó: Schottland," following a remark that some species with hairy calyx have also glabrescent forms.

Soó's determinations in Herb. Salmon appear to have been made at two different periods. One series, dated 1928, are in lead pencil, and use names as published in his paper; the other, in red pencil, use names referred to synonymy in the paper, and are presumably earlier. Soó separates from *R. Crista-galli* L. " 1. typus," " 2. ssp. *elatior* (Schur) Soó (=*A. minor* f. *ramosus* Poverlein 1905: in *Ber. Bayer. Bot. Ges.*, x, p. 10) with a f. *genevensis* [of Poverlein, *l.c.*, wrongly attributed by Soó to Chabert, who described it without a name] and a " 2b. var. *longiramosus* (Schur) Soó (=*A. minor* f. *longiramosus* Poverlein, *l.c.*). Soó reduces the description of f. *genevensis* to (translated) " leaves coarsely serrate-dentate. (The type also has similar forms)," and, presumably in accordance with the last remark, he identifies (in Herb. Salmon) both " var. *ramosus* Poverl., resp. f. *genevensis* Chab." and " var. *ramosissimus* [presumably an error for " *ramosus* "] Poverl., resp. f. *genevensis* Chab." He also identifies, in Herb. Salmon, plants of various subspecies of *R. major*. Since 1929 the British forms of the genus do not appear to have received much attention.

For more than twenty years I have collected *Rhinanthus* in many parts of the British Isles, and I have recently incorporated in the British Herbarium of the British Museum most of the specimens there accumulated. As a result of a preliminary examination of this material, I find that existing accounts are quite inadequate to deal with the variation of the British forms of *R. Crista-galli* L. emend., i.e. *R. minor* Ehrh., sensu lato (whichever name may prove to be valid by International Rules of Nomenclature). The variation to be found in each locality needs much further study in the field, for the dried specimens are often, perhaps usually, insufficient to show whether one variable plant, or two or more distinct forms, really occurred. It is in the hope that British botanists, for the time being unable to travel far afield, may, as opportunity should occur, be interested to examine these plants in their own localities, and collect for me series adequate to show (with field notes) the range of variation in each locality, that I write these remarks on my preliminary investigation of the dried specimens.

It is well known that specimens of *Rhinanthus* generally blacken in drying. This blackening can only be prevented by quick drying in which the specimens are continuously in contact with dry warm drying paper, as when they are dried in a wire press, with plenty of airing boards, standing over a warm surface (e.g. in contact with a hot water tank) so that the warm dry air is continuously rising through the press. Specimens so dried (they become brittle but lose most of this brittleness after a time) keep much of their colour, but even then the chrome-yellow corollas tend to become a browner yellow almost or quite indistinguishable from the brown-yellow of some living corollas, so that field notes of the colour of the corolla (when opening, when older, and when withering) and of the corolla tooth, should be made and added on the

labels. The bracts of *R. major* are generally yellowish green, and many, especially upland, forms of *R. minor* tend to be suffused with purple-violet on the bracts, calyces, and even stems. The stems may be quite green, or black-striolate, or suffused with some form of (reddish to violet and blackish) anthocyanin. As all these colourations have been used in descriptions, the variation in the field should be noted, and specimens of each variant collected in case these colourations should prove to be associated with morphological differences. As regards the colour of the corolla tooth of *R. minor*, my own impression is that in the British Isles it is generally blue or bluish, but on the continent the blue-toothed plant—var. *vittulatus* (Gremli: 1881, *Exkurs. Fl. Schweiz*, ed. iv, 380, as *Alectorolophus minor* var.)—is said to be less common, and some continental authors do not allow that *R. minor* ever has the tooth blue or the stem black-striolate, which is certainly incorrect as regards British plants. Typical small *R. minor* on chalk downs can have the stem striolate, and in several localities where I have made notes on the living plants I have found, among plants apparently otherwise indistinguishable, stems sometimes striolate and sometimes not. The colour of the corolla needs study from week to week to see if it changes; and if the same plant and corolla can be observed it would be useful to have field observations of any changes resulting from age. Typical chalk down *R. minor* has a (? broader) chrome-yellow corolla, but according to my field notes I have seen in Scotland yellow and brownish-yellow corollas on plants growing together, the narrow leaves with spreading teeth indicating that they were "*R. stenophyllus*" (with and without striolated stem) but the absence of intercalary leaves being contrary to such a determination.

The variation as regards "intercalary leaves" also requires field study. "Intercalary leaves" [a bad term] are those pairs of leaves which sometimes occur between the topmost branch of the stem and the lowest bract. They are said, by Sterneck and others who accept the theory of seasonal dimorphism, to characterise "autumnal" forms as opposed to "aestival" (summer) forms, but in one meadow by the Wye near Boughrood I have collected plants with one or two pairs of intercalary leaves growing with others without them in precisely the same stage of flowering and showing no obvious distinction other than the absence of intercalary leaves. Gatherings of dried specimens which I have seen indicate that in Britain such a state of affairs is not infrequent. According to the theory, the "aestival" and "autumnal" species—not very good terms, as Sterneck says, since the respective flowering times are given as "May-July" and "August-September"—should show the following differences:—

Aestival.	Autumnal.
lateral branches (few) directed narrowly upwards, never reaching the height of the main stem;	lateral branches (many) leaving the main stem at a right angle and then curving upwards, often "considerably" exceeding the main stem;

stem elongated, the stem leaves shorter than their internodes;	internodes usually shorter than the leaves, wherefore the plant gets a compressed bushy appearance;
leaves broader, more obtuse, directed obliquely upwards, and with amplexicaul base;	leaves narrower, often linear, more elongated, spreading horizontally or even recurved, the lowest shortly petiolate;
intercalary leaves none or one pair (although Sterneck says "none" for *R. minor*), exceptionally (according to Chabert) two pairs;	intercalary leaves three or more pairs;
	bracts with longer teeth;
	beginning to flower when the *aestivales* are dried up or at least in full fruit.

Commenting on this theory Chabert (1899: "Etude sur le Genre *Rhinanthus* L."; in *Bull. Herb. Boiss.*, vii, 447) says that his studies have convinced him that two parallel series or races—the one early flowering, the other late flowering—do exist in the genus, and that the plants of each series are for the most part recognisable by a combination of characters easy to verify, but that the characters are not as constant as one would wish and that the dimorphism shows numerous exceptions. He adds that if one explores an extensive district (two or more kilometres) where an early flowering species abounds over vast areas, one observes individuals having all the characters of autumnal plants, and one also finds, among late flowering *Rhinanthus*, specimens with simple stem, broader leaves, etc., wearing, so to speak, the livery of the early flowering ones. This agrees with my own observations, and C. E. Salmon commented (1928: *Wats. Bot. Exch. Club 1927/8 Rep.*, 440) on a gathering made by J. E. Lousley in 22, Berkshire (by the Kennet Canal, Burghfield, 5th June, 1927): "As this gathering shows, *R. minor* does *occasionally* have leaves on the stem above the uppermost pair of branches, in spite of Sterneck's statement to the contrary. One could not hesitate to place all this gathering under the same name," Lousley adding "I believe that these intercalary leaves occur chiefly when *R. minor* is growing in exceptionally moist situations (e.g. also at Hedge Court Pond, Surrey)." Mr Lousley's suggestion needs further testing in the field.

While admitting that *R. stenophyllus*, *R. calcareus*, *R. spadiceus* ("*R. monticola*" auct.), and *R. lochabrensis* normally have intercalary leaves, and that typical *R. minor* and *R. borealis* normally lack them, I find it impossible to use this character to separate *R. minor* from *R. stenophyllus*, as there appear to be so many intergrades between these two last. In both one may find plants with and without intercalary leaves, plants with broader leaves and others with narrower, plants with elongated leaves and others with shorter ones, leaf-teeth spreading or not, flowers yellow or brown-yellow, corolla tooth blue and corolla tooth white, stem black-striolate or not. As regards the breadth of leaf, I find that both *R. minor* and *R. borealis*—both normally with broad leaves—

are in some places associated with plants with much narrower leaves but otherwise apparently indistinguishable, which suggests that in *Rhinanthus*, as in some other genera (e.g. *Salix*, *Orobus*) each (or most) species may have a broad- and a narrow-leaved form, sometimes the one commoner sometimes the other, presumably due to a single gene difference. Moreover, since unbranched specimens can so often be found, which appear to be otherwise the same as the branched individuals, one needs characters other than that of the presence or absence of intercalary leaves for the identification of these simple-stemmed plants.

The failure of the simple theory of seasonal dimorphism—in this genus at least—has led to a more expanded form of the theory. Soó (1929: 180-181) classifies these " pseudoseasonal-polymorphic races " thus:—

1-4. " Campicole " forms (valley races), tall growing forms.

1. " Vernal " races, with simple or scarcely branched stems, side branches mostly sterile, short and few; internodes long; intercalary leaves none; fl. May-June.
2. " Aestival " races, with branched stems, with 2-4 mostly flowering pairs of branches; internodes shorter; intercalary leaves 0-1 pair; fl. June-July; commonly mixed with the preceding.
3. " Autumnal " races, with richly branched stem, with many pairs of long flowering branches; internodes short; intercalary leaves 2-many pairs; fl. August-September.
4. " Subautumnal " races—better differentiated only in *R. major*—as the preceding but with 0-1 pair of intercalary leaves (but transition forms " 2-3 " [? with 2-3 pairs] occur mostly mixed with the autumnal races).

5-7. " Monticole " forms (Mountain races including Alpine races), small forms.

5. " Vernal-monticole: alpine " races: as the aestival races, but dwarf; internodes numerous, short; intercalary leaves 0-1 pair; fl. June-July. Alpine races.
6. " Monticole " (previously most called monomorphic) races: as the aestival races, but dwarf; lower internodes short; intercalary leaves 0-2 pairs: fl. June-July. Montane races.
7. " Autumnal-monticole: alpine " races: as the autumnal races, but dwarf; fl. August-September. Alpine races.

Soó adds: " In addition, transition forms occur between the various monticole, and between the campicole and monticole races, which are, however, generally rare. For many monticole groups, moreover, the dark-violet suffused calyx is characteristic."

Whether, with such complications—and transitions—, the seasonal polymorphism theory (even if " pseudo-") can usefully be applied to the

British forms of *Rhinanthus*, should be tested in their own areas by British botanists. Soó places all the forms with which he deals in a table (pp. 214-215), which, so far as British plants are concerned, runs thus:—

Species.	Vernal.	Aestival.	Autumnal.	Subautumnal	
Crista-galli	typus	elatior	stenophyllus	v. ramosissimus	campicole
—	rusticulus	—	monticola	—	monticole
Drummond-Hayi	borealis	—	—	—	campicole
—	Drummond-Hayi	—	—	—	—
major	typus	aestivalis	serotinus	—	campicole
—	—	—	polycladus	—	monticole
apterus	—	apterus	—	—	—
Borbasii	Borbasii	—	—	—	campicole

For the purposes of this article, i.e. to assist those who may be interested in helping to disentangle the confusion by collecting and sending me series of specimens with field observations, the following notes on the characters of forms of *R. minor* and its near allies may be useful.

R. minor Ehrh. Typically (apparently) the small almost simple-stemmed plant (though often with very short (? not developing) branches), of chalk and limestone short grassland, with broad obtuse leaves having more or less appressed teeth, (usually) no intercalary leaves, and broad chrome-yellow corollas; mostly S.W. to N.E. England and E. Scotland.

R. stenophyllus (Schur) Druce. Taller, branched, with longer narrow and acute tapering leaves, teeth in this country usually spreading, intercalary leaves usually two pairs, corolla perhaps narrower, usually brownish-yellow. Common in Scotland, also in western England; a similar form in East Anglian Fens is specially required for study.

Between these two, however, I find intermediates of all sorts. The common plant of alluvial valley meadows in southern England is larger, but still with (generally !) broad obtuse leaves, and may have one (or two) pairs of intercalary leaves. Plants are sometimes found with narrower but parallel-sided leaves which do not taper. Plants two feet high with very broad leaves also occur in some places [var. *robustus* Druce (1922: in *B.E.C. 1921 Rep.*, 300); lectotype (now chosen by me) in Herb. Druce from 9, Wareham, June 1916].

The forms of "*R. Crista-galli*" are described by Soó (1929: 185-) thus:—

1. *typus*. Stem 10-50 cm. high, simple or with 1 (-) pairs of short sterile branches; internodes few, elongate. Leaves 5-10 (-15) mm. broad, intercalary none. Inflorescence beginning at node 5-7. Flowers May-June.

f. *minimus* (Schur) = *A. minor* f. *gracilis* Poverlein. Stem to 15 cm. high, slender, few-flowered. With the type.

f. *vittulatus* (Gremli). Tooth of upper [corolla] lip larger, violet. With the type.

2. ssp. *elatior* (Schur) Soó = *A. minor* f. *ramosus* Poverlein. Stem to 50 cm. high, branched, with 1-3 (4) pairs of short suberect flowering branches; internodes several, elongate. Leaves 5-10 (-15) mm. broad, intercalary none (rarely one pair). Inflorescence beginning at node 6-9 (10). Flowers June (-July).

f. *genevensis* Chabert. Leaves coarsely serrate-dentate. (The type has similar forms). [N.B.—Chabert's description of the form around Geneva was: Stem 20-30 cm. high, black-striolate, thick, quadrangular, branched, intercalary leaves none, branches spreading or obliquely ascending, leaves broad, oblong-lanceolate, with coarse teeth, those of the lower leaves porrect, those of the upper slightly spreading, bracts yellowish-green, style sometimes included [in the corolla] and recurved at the end of anthesis, sometimes projecting horizontally.]

2b. var. *ramosissimus* (Schur) Soó = *A. minor* f. *longiramosus* Poverlein. As the preceding, but stem with many pairs of erect-arcuate elongated branches (subequal to or longer than the main stem), intercalary leaves 0-1 [pair], stem leaves often narrow.

Once again, I must admit that I cannot fit the characters given by Soó to the British material I have seen: all sorts of intermediates seem to occur.

On the Downs of Southern England there occurs a very narrow-leaved tall slender plant, much branched in the lower half, the upper part of the stem with greatly elongated internodes (averaging 5 cm. in length) and many pairs of shorter (but still narrowing from a broadened base) intercalary leaves. It is certainly distinct from the narrow-leaved plant commonly met with in Scotland which, for reasons given in my paper in the *Journal of Botany*, I have referred to as *R. stenophyllus* (Schur) Druce, and in that paper I have named it *R. calcareus*. It is certainly a late-flowering species. The leaves are only 2-3 mm. broad although over 2 cm. long, and they are wide-spreading or even recurved. The fruiting calyx is small, only about 12 × 9-11 mm. long and broad, and the capsule is nearly round, 8-9½ mm. long and 9-9½ mm. broad. I add the localities whence I have seen specimens, in case any member has the opportunity of visiting any of them and confirming those which are doubtful on account of the poorness of the available material.

Localities mentioned without details refer to the records already published in the *Journal of Botany*, 1940; the remainder are of additions since that date:—

7, N. Wilts. North Down, near Colne, 7.9.1941, E. C. Wallace (No. 4550).

8, S. Wilts. Ham Hill [the date of collection was erroneously printed as 1927 instead of 1937]; Littleton Down, Imber, 14.8.1938, J. D. Grose, who writes: "*R. calcareus* suffers terribly on the downs, presumably by the nibbling of rabbits. Extensive colonies may be found in which every plant has been mutilated in this way. The secondary growth is usually profuse, and it is just the central stem which has been bitten short before it became tough and wiry. I have had no doubt of the identity of these plants, but have not collected them. My distinct impression is that this species is the common form of our chalk downs." [The plant recorded by E. S. Marshall (No. 2715) as *R. stenophyllus* (*Journ. Bot.*, 1904, 171) from Arn Hill, Warminster, is not *R. calcareus*.]

9, Dorset. Melbury Hill (chalk); Bere Regis (chalk bank).

12, N. Hants. Hawkley, 31.8.1941, E. C. Wallace.

13, W. Sussex. Downs above (S. of) Sutton; Littleton Farm, near Duncton, by lane side towards Downs; Pangdean. In 1941 I collected it with E. C. Wallace on Barlavington Down, very near the type locality; the plant is very stiff and harsh to the touch; one specimen had 7 pairs of intercalary leaves.

14, E. Sussex. Lewes Downs ?

15, E. Kent. Dover ?

23, Oxon. Wytham ?

H.9, Clare. Ballyvaghan, 10.8.1939, W. A. Sledge. The larger specimens of this gathering had the main stems eaten off near the base.

H.15, S.E. Galway. Field and roadside near Kinvarra, 10.8.1935, N. D. Simpson, as *R. stenophyllus*—poor (starved?) specimens, but the intercalary leaves 6, 4, 3, and 1, together with the very narrow leaves, leave little doubt of the identification.

The plant which has been called *R. monticola* (Lamotte) Marshall is not the plant which Lamotte intended by *R. minor* var. *monticola*, as I pointed out in the *Journal of Botany* (1940: 203-), where I named the Scottish plant *R. spadiceus* because of its dark "treacle-brown" flowers. It is a small plant, usually 10-15 cm. high, typically considerably branched below with short mostly abortive branches and there with very greatly contracted internodes, so that the leaves and branches are crowded towards the base of the plant while the upper 3-4 internodes are much elongated. The intercalary leaves are 1-3 (4-5) pairs, and this makes the habit variable since the top branches (if intercalary leaves are few) may be in the part of the stem with elongated internodes instead of all branches being in the contracted portion. The upper branches may also be somewhat elongated and with a flower. Simple- or subsimple-stemmed plants are often found among typically branched ones. The inflorescence is lax and few-flowered, the usually small calyx being much suffused with blackish-violet (often other parts also). It has been collected in many parts of the Scottish Highlands, in grassy

places in heather moor, and at lower elevations as one goes north. It has also been recorded for Yorkshire. Soó names some plants from the south of England as "*R. monticola*," but these are, I think, only contracted forms of other species, growing in dry situations and possibly collected in dry seasons. The variation in length of internode from the bottom to the top of the stem evidently needs intensive study, in relation not only to the occasional areas of contraction, but also to the effect of dampness and dryness of the habitat and of the season, and to the time of the year (in relation to the seasonal dimorphism theory). As I extracted from this paper into the *Journal of Botany*:—"I am not completely satisfied as to the status of this plant. In some localities it is found comparatively uniform and unmistakeable, and then it seems to deserve the rank of species which it has been given. But *R. stenophyllus* can be found with a certain aggregation of leaves and branches below the middle, due to contracted internodes; it can have dark flowers (among plants with yellow ones), and can be suffused about the calyx with deep violet; it might be suspected that if it grew in dryish upland peat instead of in lowland meadows it would sometimes take on a form very like that of *R. spadiceus*. Some intermediate taller plants have been identified by Soó as '*R. monticola*,' and among the mass of material in Herb. Mus. Brit. there are many plants which in various ways seem to be intermediate between the two species. It is possible that hybridity cannot be excluded, since hybrids between *R. major* and *R. minor* are recognised, but so far as I am aware these parasitic plants have not been cultivated, and data are completely lacking. The numerous forms now referred to either *R. minor* or to *R. stenophyllus* still remain to be disentangled, and until that has been done it is impossible to be more definite concerning the status of *R. spadiceus*. Further field observations are needed to clear up the relationships between the various forms of the series *Minores* which have the surface of the calyx glabrous."

Plants distributed from Orkney "Mainland" by H. H. Johnston (Numbers 1879 and 2714) differ in various respects from typical *R. spadiceus* and I have named them (1940: 207) ssp. *orcadensis*. The stem is more dwarf, 7-12 (14) cm. high, simple or (generally) branched, and lacks the elongated internodes although it may have 1-2 pairs of intercalary leaves. The plant therefore looks like a little bush, as its upper branches are frequently relatively elongated and may flower. The leaves are spreading and often recurved, and are usually broader, and the plant gets from these features of stem and leaf quite a distinct facies. The corolla also, in the dried plant, seems to be broader and the lower lip looks larger.

R. rusticulus (Chabert) Druce is a small unbranched plant originally recorded for Britain from Orkney (S. side of Loch Stenness, Mainland, E. S. Marshall (No. 2442) and W. A. Shoolbred, 13.7.1900): see *Journ. Bot.*, xli, 295 (1903). The specimens cited do not appear to be quite identical with simple-stemmed forms of *R. minor*, but since simple-

stemmed forms of other species occur, I am not prepared to say whether they really represent a distinct species. Small unbranched plants like these need further field study in relation to larger plants occurring in the same district; for instance, whether some may not be small forms of *R. stenophyllus*, or even of *R. spadiceus*, needs examination.

R. Perrieri and *R. rusticulus* were originally described by Chabert (1899: 512) as a variety of *R. minor* which he found growing "gregariously on chalk marl from 1200-1300 metres in subalpine meadows on Mt. Nivolet in Savoy—stem 5-8 cm. high, simple or more rarely with two abortive branches, green, with 2-6 flowers; internodes sometimes longer sometimes shorter than the leaves; stem leaves oblong, obtuse, with obtuse spreading teeth." The word "gregariously" is to be understood from his remarks on p. 431:—"*R. minor* grows as solitary individuals, *R. minor rusticulus* forms extended colonies, *R. Perrieri* grows in tufts." Sterneck (1901: 108), followed by Soó (1929: 187) unites *R. Perrieri* with *R. minor* var. *rusticulus* (for which combination the names *A.* and *R. Perrieri* should by International Rules have been used). According to Chabert, *R. Perrieri* was specially distinguished by its accrescent corolla, the tube of which, when the flower opens, is included in the calyx, but is ultimately much longer than the calyx lobes. Except for the two characters already mentioned, there are only the following differences in Chabert's descriptions to distinguish *R. Perrieri* from *R. minor* and/or "*rusticulus*":—small size and few flowers—which can be found in *R. minor* and are also characteristic of "*rusticulus*;" the stem is simple—but it can be so in *R. minor* and is usually so in "*rusticulus*;" the stem is black-striolate, not green as in "*rusticulus*" and perhaps usually in *R. minor*; the stem, bracts, and calyx are at first green but become rubescent and ultimately wine-red ("oenochroa"), whereas in *R. minor* they only become rubescent; the stem-leaves are shorter than the internodes, and whereas they may be so in "*rusticulus*," Chabert considers them to be longer than or subequalling the internodes in *R. minor*; the leaf teeth are spreading, as in "*rusticulus*" and are said to be not so in *R. minor*; the lowest teeth of the bracts are described as being "a little longer than the others, which decrease to the apex (acute, not aristate)," and in *R. minor* (not described in "*rusticulus*") they are described as patulous, acute or acuminate, gradually shorter and porrect to the apex; the calyx is blackish-veined (p. 430), and is lanceolate (narrowly oblong, p. 436) when young, later broadening and swelling without elongating until it is ultimately rounded, but in *R. minor* (not described for "*rusticulus*") it is always rounded; the corolla (14 mm. long) is yellow and fuscous spotted, but in *R. minor* (not described in "*rusticulus*") it is unspotted; the corolla tooth is blue, whereas in *R. minor* (not described in "*rusticulus*") Chabert describes it as flavid, pale, more rarely violet; and it is reduced to a little oval protuberance (p. 444), whereas in *R. minor* it is described as obliquely ovate with rounded apex, c. 1 mm. long and 1.2-1.8 mm. broad; the lower corolla lip is one-third shorter than the upper

and in *R. minor* it varies from one-quarter to one-half shorter; its lobes are rounded but in *R. minor* they are rounded or oblong; it grew on schist (not on chalk like "*rusticulus*") at 2100 to 2300 metres on the south side of Mt. Longcôte in the Savoy.

Certainly, small simple-stemmed plants with dusky calyx occur in the Scottish Highlands, and sometimes they are associated with *R. spadiceus*. What, exactly, "tufted" and "gregarious" growth is meant to signify, I do not precisely understand: the original habitats in the Savoy need re-examination and these features more precise description, but any signs of such growth in Britain should be noted by collectors for the benefit of whom this analysis of the original descriptions of *R. Perrieri* and "*rusticulus*" is given. It is clear, however, that if there be a distinct species, its name must be *R. Perrieri* Chab., and not *R. rusticulus* (Chabert) Druce, unless the two forms are not conspecific, in which case *R. rusticulus* (Chabert) would require a new name, as the previous use of this name was illegitimate.

R. groenlandicus Chabert. This was originally described (from Greenland material only) as 20-35 cm. high, unbranched, with thick prominently quadrangular (sometimes winged) stem, glabrous except for sparse hairs on the sides of the internodes; leaves oblong-lanceolate 5-6 cm. long and 1.5 cm. broad, rather fleshy (unique in this respect in the genus), with remote acute strongly spreading and sometimes outwardly curved teeth . . . Calyx glabrous (except for the finely ciliate glandular margin) much accrescent in fruit, 2 cm. transverse diameter, corolla 15 mm. long. . . . None of the Shetland material which has been identified as *R. groenlandicus* agrees with such a description. That from Burga Water collected by G. C. Druce, July 1921 (see *B.E.C. 1921 Rep.*, (1922), p. 573) has very divergent leaf teeth, but those from Unst, Bunafrith Cliffs, collected by Beeby (No. 641, 28.7.1886), originally identified by Ostenfeld as "*R. groenlandicus* Chab., good," according to Beeby (1907: in *Ann. Scott. Nat. Hist.*, 234; also *B.E.C. 1907 Rep.* (1908), p. 258) are small plants without spreading teeth. Many specimens of *Rhinanthus* were collected in Southern Greenland by Dr N. Polunin in 1937, and although many have very peculiar spreading teeth, some have the teeth appressed; one is tall and simple-stemmed, but its stem is not particularly glabrous; all have the calyx glabrous. Ostenfeld (1901: *Bot. Faroes*, pp. 51-55), discussing "*A. groenlandicus* and its var. *Drummond-Hayi* (B. White) Ostenfeld" at some length, says that Chabert's description is based on "specimens which were very large and robust, which is often the case with those from Greenland"; but that it "is otherwise fairly correct, though he goes to the other extreme from Sterneck in emphasising the glabrosity of the species." He adds: "Further investigations show that among a large number of Arctic specimens there are always some with a hairy calyx, but the greater part with glabrous, though the specimens do not otherwise differ from each other in any respect." He states definitely that "*A. groenlandicus*" may "have sometimes the hairy calyx, but . . . this is rarely

the case with regard to the main species." The Buchanan White specimens which Ostenfeld saw were from " Ben Lowers [sic], alt. 3350 feet," i.e. were of the type gathering of *R. Crista-galli* var. *Drummond-Hayi*, i.e. were *R. borealis* (Sterneck) E. S. Marshall. [This must be remembered in dealing with Beeby's (1907, *l.c.*) record of *R. Drummond-Hayi* for Shetland, teste Ostenfeld.*] Ostenfeld's figure (p. 53) shows small plants, none like the large Greenland specimens, and until the British and Greenland *Rhinanthus* forms are better understood, I do not consider that *R. groenlandicus* can be accepted as being a British plant. One of Dr Polunin's Greenland gatherings was of normal *R. borealis*, and Ostenfeld's remarks about the hairy and glabrous calyces in Greenland may have been due to an insufficient acquaintance with *R. borealis*.

Of the series *Minores*, there remain to be considered the species which have the surface of the calyx hairy. Of this character, Soó (1929: 182, translated) says:—" The hairiness of the calyx is very important; one can distinguish four main types: (a) with quite downy ("zottigem"), (b) with glandular-hairy, (c) with quite short-hairy, and (d) with glabrous calyx; but some species with hairy calyx also have glabrescent forms (. . . ssp. *Salmonii* Soó of the group (" Formenkreise ") of *R. Drummond-Hayi* [Withe] Druce emend. Soó, Scotland)." Our British species belong under (c), with short hairs.

R. borealis (Sterneck) Marshall is usually a simple-stemmed plant with broad obtuse—usually appressed-toothed—leaves and broad chrome yellow flowers, i.e. in general appearance it is somewhat like the small chalk-down form of *R. minor*. Yet, in addition to its hairy calyx, it has a facies of its own easy to recognise once one knows it well. It grows high up on mountain rock ledges [i.e., it certainly is not " campicole " with us], generally as a small or smallish plant, but sometimes, when luxuriant (as collected by C. E. Salmon in Clova, Glen Fiagh, S. corrie, 18.7.1912), as much as 23 cm. high or even taller, with leaves then as large as 47 × 11 mm. As in *R. minor*, there appears to be a narrower- (but still oblong- and obtuse-) leaved form of it, which grows alongside the broader-leaved form. The capsule becomes large (to 11 or even 13 mm. transverse diameter). For comparison with *R. Lintoni* and *R. lochabrensis* I add an account of its other characters:—Stem usually subsimple, 10-15 cm. or more high, not particularly hairy; internodes comparatively few, usually long (equalling or longer than the leaves)—but sometimes the whole plant is dwarfed because all the internodes are shorter (and then shorter than the leaves). Leaves normally oblong (i.e. more or less parallel-sided, not tapering) obtuse, the lower ones finely pubescent, especially on veins beneath, the upper ones and bracts becoming less pubescent and the veins not markedly more so (bracts sometimes glabrescent), teeth generally prominent because their tips tend to diverge outwards, but their outer margin concave rather than

*Beeby's specimens in his herbarium are, however, not *R. borealis*: they are poor and almost leafless, but look nearest to my E. Ross gathering of " *Drummond-Hayi*," mentioned later.

convex; intercalary leaves usually absent, sometimes one pair. Bracts generally, but not always, longer than the calyx, their lowest teeth rather triangular and occasionally aristate. Calyx at first considerably longer than broad (oval-elliptic) but ultimately only slightly so and somewhat ovate (i.e. convex-sided to the usually blunt convex-sided teeth), large (e.g. to 18 × 17 mm.), *with* short *appressed hairs all over the surface* in addition to strong marginal pubescence. Corolla teeth deep blue, rather prominent, often directed somewhat upwards, often rather sharply decurrent downwards.

Specimens of any aberrant forms will be welcomed.

The existence of plants with glabrescent calyx, belonging under species having the calyx puberulous—"*R. Drummond-Hayi*" ssp. *Salmonii* Soó—has already been mentioned. This name referred to a form collected by C. E. Salmon on rocks at the foot of Craig Maid, Clova, determined by Soó in Herb. C. E. Salmon as "*R. borealis* F. ad. *R. minor* typ. vergens, calyce non solum ad margines, sed etiam superficie puberulo: *R. Salmonii* Soó n. f." Salmon had noted on them: "I have never seen *minor* proper as high as 2000 ft. . . . Calyx ciliate, otherwise apparently glabrous." I cannot understand Soó's remarks, for there does not appear to be a single hair on the surface of any calyx of the specimens in Herb. Salmon! Nor does the plant look like *R. borealis*. Certainly *R. minor* at that elevation would be unusual, and the plant needs further investigation *in situ*.

On the other hand, plants which do appear to be *R. borealis* with fewer hairs or glabrous patches on the surface of the calyx, which even then tends to remain normally puberulous near the margin towards the base, were collected by H. J. Riddelsdell on "Ben Nevis, July 1903" (labelled "*R. minor*," with "I think so" added by E. S. Marshall). These I have named (1940: 209) *R. borealis* var. *calvescens*. Another rather similar series was collected by Symers Macvicar in Westerness (Argyll) on Sgurr B. . . . [illegible], Moidart, 950-1400 feet, 2.8.1894. The series contains some specimens with normally puberulous calyx and one with glabrous calyx (except, of course, on the ciliate margin), and various degrees of glabrescence between the two extremes are shown by the remaining specimens. The series is very like *R. borealis*, but shows some differences: it looks reasonably uniform, although it may be that hybridity must be considered. Better material with field notes is required for examination. Ostenfeld, as pointed out under *R. groenlandicus*, indicates that this type of glabrescence is frequent in the Arctic, but certainly it is, from my own experience, extremely rare in the British Isles.

I have mentioned that the plant described by Sterneck as *A. Drummond-Hayi* (=*R. Drummond-Hayi* E. S. Marshall), is not the plant which Buchanan White originally described (in *Scott. Nat.*, 1886, p. 324) as *R. Crista-galli* var. *Drummond-Hayi*. White says that he has only seen the plant in one spot, on Ben Lawers, alt. 3350 feet, and his specimens prove to be *R. borealis*. He described the plant as without

branches, and said that in the dried specimens he " cannot find any constant character by which this can be distinguished from the ordinary form of *R. Crista-galli* except the pubescent calyx," which he would scarcely have said of *A. Drummond-Hayi* Sterneck, with its very narrow peculiarly-toothed leaves. Sterneck also (1901: 116) seems weak in his geography, for after quoting " Withe " [i.e. Buchanan White, similarly mis-cited by Soó!]—" first found on Ben Lawers "—he goes on in the next line to say that he has [translated] " seen specimens from the original locality, Clova." The material in Herb. Mus. Brit. which has been named " *Drummond-Hayi* "—in one or other of its nomenclatural combinations—is not uniform. Two considerable series, one from Clova and the other from Glen Nevis, apparently represent distinct species, and I therefore described them as new species in the *Journal of Botany*. The first was collected by the brothers Linton and was distributed through the Botanical Exchange Club (*1889 Rep.* (1890), p. 266). I therefore named it:

R. Lintoni Wilmott (1940: 209). Stem 10-20 (27) cm. high, slender, simple or with weak branches which only rarely flower; *lower internodes short* so that the leaves (and branches if any) are congested near the base of the stem, *upper* internodes *much elongated* and *longer than the leaves*. *Leaves ascending* generally suberect, *narrow, linear-lanceolate*, gradually tapering to a more or less acute apex, in mid-stem about 30 × 3 mm. long and broad, the lower rather broader (-4½ mm.) and oblong not tapering, and with rounded terminal lobe, *leaf base scarcely broadened and often slightly narrowed*, surface finely pubescent all over especially on midrib beneath, teeth with concave margin and spreading tip; *intercalary leaves none or one pair*. Inflorescence few-, (2)3-4(5)-, flowered, secund. Lowest *bracts* either like upper leaves (or with slightly broader base) or transitional to fully developed bracts, which are ovate below contracted above into a narrow leaf-like prolongation *exceeding the calyx*, finely pubescent especially on veins beneath, the lower teeth subtriangular 2-3 times as long as broad, the lowest occasionally aristate. Calyx at first definitely longer than broad, ultimately slightly so, *with* very short *appressed hairs all over the surface* in addition to marginal pubescence; the subtriangular acute teeth about as long as broad and with glands as well as pubescence. Corolla c. 13-14 mm. long, with narrow scarcely projecting (? violet) teeth. Capsule rather broader than long (c. 9 × 10½ mm.). Seeds with broad wing (c. 1¼ mm.). Fl. July.

E. F. Linton first gathered this on 13.7.1889 in Glen Fiagh, but the specimens distributed were collected two days later, both " Glen Doll " and " Glen Fiagh " [E. F. Linton writes " Fiadh "] being mentioned in Herb. E. F. Linton. Some of the earlier gathering mounted by E. F. Linton was *R. borealis*, but he subsequently differentiated the two.

Naturally, the descriptions of this and of *R. lochabrensis*, being drawn up from dried specimens, are based on limited material. The characters given need testing in the field, and notes on colouration would

be welcome. What seem to be the same species has been collected in:

88, Mid-Perth. N. side of Creag Mhor, Lawers, 18.7.1913, C. E. Salmon.

99, Dumbarton. Ben Voirlich (E. side), 10.7.1914, E. S. Marshall, (No. 3938).

The second plant which I described was collected in Glen Nevis, near Meall Cumhaun (in Lochaber parish), by C. E. Salmon, 19.8.1902:

R. lochabrensis Wilmott (1940: 211). Stem 10-15 (25) cm. high, stouter than in *R. Lintoni*, simple or with one rarely two pairs of weak branches which are rarely slightly elongated with one or two flowers, with more and longer pubescence in the lower part but more glabrescent above; *internodes elongated* even below the topmost branches, longest between the middle intercalary leaves. *Leaves patent*, or *spreading horizontally* (" arrect ") *or recurved*, rather shorter than in *R. Lintoni*, the lowest 20 (25) × 4 (4½) mm. long and broad, those in mid-stem as long as the lower leaves but in their base transitional to the intercalary leaves; *intercalary leaves* (rarely *1*, *2-*) *3* (*-4*) *pairs*, usually rather shorter than the internodes but sometimes all the internodes are shorter and then the intercalary leaves slightly exceed them, shorter and broader than the lower leaves, *all or the upper subbractiform* ovate with elongated spreading lower teeth, less pubescent than the lower leaves. *Bracts* (except sometimes the lowest pair) *shorter than the fruiting calyx*, ovate-triangular, apex (except sometimes in the lowest pair) scarcely at all produced; even less pubescent than the intercalary leaves, lowest teeth only very rarely narrow and subaristate. Calyx at first considerably longer than broad, and remaining so in ripe fruit (e.g. 13 × 11½, 17 × 13½, sometimes smaller), *with* very short *appressed hairs all over the surface* in addition to the rather weak marginal pubescence. Corolla " wholly yellow " (C. E. Salmon), teeth more projecting than in *R. Lintoni*. Capsule small (8 × 8½ mm.), shallowly emarginate. Seeds with wing about 1 mm. broad. Fl. end July-August.

Rather poorly developed specimens which I collected by the " road " up Ben Nevis (35704Aa) are apparently *R. lochabrensis*.

Many gatherings named " *Drummond-Hayi* " are merely *R. borealis*, but some of them—judging from inadequate material—are difficult to fit into either that, *R. Lintoni*, or *R. lochabrensis*. They require further collection and field study. I therefore give the localities of such material seen by me:

92, S. Aberdeen. " Craigindal " [presumably Craig na Dala Beag].

97, Westerness. (Inverness): Aonach Beag; " Roshven Range " [Rois Bheinn], Moidart; (Argyll): Coire a' Chearcaill, near Conaglen.

98, Argyll (main): Ben Chasteil; Meall nan Tigearn.

107, E. Sutherland. Near the west end of Loch Lannsaidh (near Dornoch).

I have not yet made any intensive study of the British forms of *R. major*, but as Soó has determined specimens in Herb. C. E. Salmon

as " ssp. *aestivalis* (Zinger)," " > ssp. *polycladus* (Zinger)," " ssp. *montanus* (but not typical)," and " ssp. *Borbasii* Dörfler," in addition to confirming a determination as " *A. apterus*," I add an account of the characters given by him (1929: 199-203).

The characters by which *R. major* Ehrh. can be easily distinguished from *R. minor* Ehrh. are:—(1) the elongated conical outstanding (c. 2 mm. long) corolla teeth; (2) the more deeply cut (to half-way) lowest (1-3) teeth of the bracts; (3) the closed throat of the corolla; (4) the lower lip being erect and appressed to the upper; (5) the corolla tube not straight but somewhat curved upwards; (6) often yellowish bracts.

Soó (1929: 199-) distinguishes—I omit forms not yet connected with the British Isles:—

§ grex *eumajor* Soó.

1. *typus*. *R. major* ssp. *eumajor* Sterneck (1901: 72) sensu stricto. Stem—50 cm. high, simple or branched with 1(-3) pairs of short sterile branches; internodes few, elongate. Stem leaves 10-15 mm. broad; intercalary leaves none. Inflorescence beginning at node 5-7. Flowers May-June.

   Area: Almost all Europe, except Spain, Italy and S. Greece; ? N. America.

   Two small forms and one with whitish corolla teeth are named.

   The British distribution is given by Sterneck (*l.c.*, 72 and 69) as: " York Shire Thirsk (Del.), Anglesey (Drc); *York*: Richmond (Drc.), *Schottland*: Arbroath (Drc.), Eddlesborough (Drc.)." [I reproduce this effort without comment: words in italic were in spaced type: Edlesborough is in Bucks. !]

2. ssp. *aestivalis* (Zinger, Herb. Fl. Ross. No. 2351) Soó.—f. *longiramosus* Poverlein, 1905, 15.

   Stem—60 cm. high, branched; branches 2-4 pairs suberect or erect-arcuate; internodes many, shortened. Intercalary leaves none or one pair. Inflorescence beginning at node 6-10. Flowers June-July.

   Area: as species.

   Specimens determined by Soó in Herb. C. E. Salmon are:—

   6, N. Somerset. Near Edington Junction, 23.8.1915, E. S. Marshall (No. 4201) as *R. major* v. *platypterus* (cf. *B.E.C. 1915 Rep.* (1916), 362, and *W.E.C. 1915/6 Rep.* (1916), 548).

   15, E. Kent. Sandhills between Deal and Sandwich, 15.6.1925, J. E. Lousley (62), as *R. major* ? v. *platypterus* (see *W.E.C. 1926/7 Rep.* (1927), 390).

   105, W. Ross. Near village of Loch Carron, Aug. 1908, A. Wallis, as *R. major* v. *apterus*.

3. ssp. *polycladus* (Chabert) Zinger.

   Stem—60 cm. high, with many pairs of arcuate-ascending branches; internodes numerous, short or upper elongated. Stem leaves 8-15 mm. broad; intercalary (0) 1 (2) pairs. Inflorescence beginning at node 11-15. Flowers July-August.

Area as ssp. *serotinus*.

To this Soó refers only one sheet, viz.:—

90, Angus. Near Easthaven, Aug. 1916, G. C. Druce, as *R. major* (see *B.E.C. 1916 Rep.* (1917), 582; also 497, where Druce describes his plant as a new var. *angustifolius*—" Foliis angustis, 2-3 mm. lata.").

4. ssp. *serotinus* (Schönheit) Soó—*R. montanus* Sauter; *A. major* ssp. *montanus* (Sauter) Hayek.

Stem—60 cm. high, very much branched, with many pairs of arcuate-ascending branches; internodes many, short. Stem leaves 2-5 (-8) mm. broad, often acutely serrate; intercalary 2-5 (-10) pairs. Inflorescence beginning at node 15-20. Flowers August-September.

Area: Norway, Sweden, Denmark, Germany, Poland, Russia, Switzerland, Austria, Bohemia, Hungary, Rumania.

Soó identified as " *major* ssp. *montanus* (but not typical) " one of the sheets of E. S. Marshall's 4201 from N. Somerset, the other sheet of the same number being determined as ssp. *aestivalis* [q.v.]. The specimens are identical. Salmon adds a note: " You gave this *two* names . . . Are these synonyms ?," but to this query no answer is given. The omission of any mention of the British Isles in Soó's statement of the area might be significant were it not that no account has been taken of the specimen determined as ssp. *polycladus*, either.

§ grex *Borbasii* Soó.

A. Borbasii Dörfl., Herb. Norm. 1897, 3366 emend.—Stem leaves linear- or elongate-lanceolate, acutely serrate; teeth patent. Bracts elongated; teeth narrow, more aristate, spreading.

5. ssp. *Borbasii* (Dörfler) Soó. Diagnosis as above.

Area: S. Germany ?, Bohemia, Lower Austria, Hungary, Rumania, S. Russia, Asiatic Russia—Similar forms occur also in Britain, Fennoscandinavia.

Two sheets were so determined by Soó:—

88, Mid-Perth: Lawers, July 1883, H. T. Mennell, as *R. major* v. *stenoptera*.

96, Easterness: near Nairn, 12.7.1874, A. Ley, as *R. major* v. *apterus*.

§ grex *apterus* (Fries) Soó.

6. ssp. *apterus* (Fries) Schinz & Thell.—*R. major* v. *apterus* Fr. *R. Reichenbachii* Drejer p.p. [Soó does not state what the rest of Drejer's species was].—*A. apterus* (Fries) Ostenfeld.

Stem—50 cm. high, branched, with 2-5 pairs of obliquely erect branches, rarely unbranched; internodes few to many, shortened. Stem leaves 10-15 mm. broad; intercalary leaves none. Inflorescence beginning at node 6-10. Bracts often longer than the flowers. Flowers June-July.

Area: Britain (Scotland), Germany, France?, Denmark, Sweden, Poland, Russia.

The only gathering certified by Soó is that which is presumably intended in Sterneck (1901: 73) by "Garmouth (Drc.)," i.e. 95, Elgin: near Garmouth, 24.8.1898, E. S. Marshall, as *R. major* v.*aptera*, determined also by Ostenfeld as "*A. apterus* (Fr.) Ostf." Ostenfeld determines several gatherings in Herb. Mus. Brit. as *A. apterus* (Fr.) Ostf., but of one from 66, S.E. Yorks, he writes: "*A. apterus* (Fr.) with narrow-winged seeds." I do not cite these because: (1) the var. *stenopterus* Fr., with narrow-winged seeds, needs further investigation as it has been placed both under *major* and *apterus*, and (2) Soó has a note in Herb. C. E. Salmon:—"*Rh. major* var. *apterus* Ostenfeld = partim *Rh. major* typ., partim ssp. *apterus* Fries." Field observations on the development of the wing and of its variation in each locality would be valuable.

R. major × *minor*. Sterneck (1895: in *Öst. Bot. Zeitschr.*, 301) treats *A. minor* var. *fallax* Wimm. & Grab. (1829: *Fl. Siles*, II, i, p. 213) as being this hybrid (×*A. fallax* (W. & G.) Sterneck, 1901: 122), saying that in general appearance it is very like *A. minor* but differs in its larger corolla of which the tube partly exceeds the calyx, in the longer always violet teeth of the upper lip, in the black-striped stem [he does not there allow that *R. minor* ever has these striolations], and finally in the larger more spreading lower corolla lip. This last character made him wonder, he says, whether it might not be *A. lanceolatus* (Neilr.) Sterneck × *minor*, but the quite unawned bract-teeth are against this, and he therefore treats it as stated. He notes that a relatively high percentage (15%) of pollen is abortive. As in other instances, he has not seen any original specimens: his views are based on material collected by Haussknecht in Thuringen (Weissbach and Hohenfeld) and Alsace (Hoheneck). Wimmer and Grabowski (*l.c.*) describe their *A. minor* var. *fallax*, from Silesian material, as:—Taller, leaves and bracts broad, stem spotted, tooth of upper lip blue. They remark that it seems to be transitional to *A. major* but that it is not a transition, and that the spotted stem and violet corolla teeth are not to be considered as among the characteristic features of *A. minor*, as Wallroth wrongly insists.

Certainly in British *R. minor*, even in the strict sense, the stem may be striolate and the corolla teeth blue. Sterneck himself (1895: 301) says [translated] that "all other material which he has seen under the name [of var. *fallax*] in herbaria is always merely *A. minor* (Ehrh.) Wimm., with at most a violet tooth to the upper lip, which occurs fairly commonly in *A. minor*." Since the stem in *R. minor* can also be black-striolate, the only characters left to separate the variety are "taller" and "leaves and bracts broad," neither of which in any way indicate a hybrid with *R. major*. The hybrid should therefore be called "*R.*

major × *minor*," without any reference to "*fallax*" until the types have been investigated.

E. S. Marshall distributed three gatherings which he thought might be the hybrid. One of these is from: 6, N. Somerset: peat moor near Edington Junction, 6.7.1916 (No. 4371), with note—" fairly intermediate. Corolla appendage ± *patent* as in *R. major*. Stems black-striolate. New for Britain, I believe." The corolla tube is longer than the calyx and the determination seems possibly correct: both parents occur there.

The other two gatherings which I have seen so named are apparently merely forms of *R. minor*. That from 105, W. Ross, Duirinish, 9.7.1909, E. S. Marshall (No. 3375) has the corolla teeth as short as in *R. minor* and the lower teeth of the bracts no longer: Marshall's remark on the Somerset 1916 gathering indicates that he himself subsequently rejected the determination of this Ross plant as being the hybrid. The plants from 96, Easterness, Laggan Bridge, 24.7.1916 (No. 4252) show occasional more elongated corolla teeth, and the lowest bract-teeth are rather deep, but Soó has identified it as *R. Crista-galli* " f. *ramosus* Poverlein resp. f. *genevensis* Chab.," and at present it cannot be accepted as being the hybrid. It is much easier to recognise hybrids in the field than in the herbarium, but only when their respective parents and their variations are well known. At present the variations of *R. minor* are certainly *not* well known, and extreme caution is advisable on the subject of possible hybrids.

GENERAL REFERENCES.

Chabert, A.; 1899: Etude sur le Genre *Rhinanthus* L.; in *Bull. Herb. Boiss.*, vii.

Druce, G. C.; 1901: On Three Species of *Rhinanthus* new to the Scottish Flora; in *Ann. Scott. Nat. Hist.*, 177-178.

Marshall, E. S.; 1903: On the British forms of *Rhinanthus*; in *Journ. Bot.*, xli, 291-300.

Poverlein, H.; 1905: . . . Die bayerischen Arten, Formen und Bastarde der Gattung *Alectorolophus;* in *Bayer. Bot. Ges., Berichte*, x, 1-24.

Soó, R. v.; 1929: Die mittel- und südosteuropäischen Arten . . . der Gattung *Rhinanthus* . . .; in Fedde, *Repert.*, xxvi, 179-219.

Sterneck, J. v.; 1901: Monographie der Gattung *Alectorolophus*; in *K.K. Zool.-bot. Ges. Wien, Abhandl.*, I, pt. 2, 1-150, tt. I-IV.

Wilmott, A. J.; 1940: Some British Species of *Rhinanthus*; in *Journ. Bot.*, lxxviii, 201-213.

SOME REDETERMINATIONS OF MELAMPYRUM SPECIMENS RECENTLY DISTRIBUTED BY THE B.E.C.

C. E. Britton, A.L.S.

In the *Journal of Botany*, lxxvii, pp. 81-84 (1939), appear determinations by Dr G. Beauverd of British forms of *Melampyrum pratense* L., several of which have been distributed through the B.E.C. in recent years, and it is desirable to draw attention to necessary changes of names. The numerals that follow indicate year and pagination of B.E.C. Report.

1932, 443.

M. pratense L. var. Wybunbury Moss, Cheshire, G. J. V. Bemrose. Identical with other gatherings from this locality, and referred to var. *paludosum* Gaud. subvar. *eu-paludosum* Beauverd.

1934, 977.

M. pratense L. var. *ericetorum* D. Oliv. Abinger Common, Surrey. My own examples are confirmed as var. *ericetorum* but as a new subvar. *decipiens* Beauverd. It is probable that the set distributed was mixed and also included var. *alpestre* subvar. *elongatum* Beauverd.

M. pratense L. var. *lanceolatum* Spenn. Chelsham, Surrey (Nos. 4127 A and B); Broxbourne, Herts. (No. 3641); Hosey [not Horsey as printed] Common, W. Kent (No. 4144). The Chelsham gatherings are placed to var. *ericetorum* D. Oliv. subvar. *decipiens* Beauverd, those from Broxbourne and Hosey Common are confirmed as *lanceolatum*.

M. pratense L. var. *commutatum* Schoenh. Felbridge, Surrey (coll. A. Beadell); Ottershaw, Surrey (coll. C.E.B.). Further study of both gatherings showed that the name assigned was untenable and the conclusions that the Felbridge plant was var. *integerrimum* f. *vogesiacum* Beauverd, and that from Ottershaw was var. *integerrimum* f. *pseudo-silvaticum* (Schur) Beauverd have been confirmed by Beauverd.

1935, 181-182.

M. pratense L. forma. Epping Forest, S. Essex. Suggested to be f. *divaricatum* and more definitely so identified, *B.E.C. 1935 Rep.*, 101. Beauverd refers examples to var. (or f.) *lanceolatum* Spenn., although he notes them as more or less approaching the Scandinavian f. *divaricatum* (Kern.) Ove Dahl.

M. pratense L. var. *concolor* Schonheit. Trottescliffe, W. Kent. Determined as var. *commutatum* (Tausch) Beck subvar. **pseudo-nemorosum** Beauverd, the latter name new to Britain.

M. pratense L. var. *digitatum* Schur. Shoreham, W. Kent. Confirmed by Beauverd.

M. pratense L. var. *lanceolatum* Spenn. Keston, W. Kent (coll. A. Beadell). Confirmed.

1936, 409.

M. pratense L. var. *ovatum* Spenn. Ranmore, Surrey. Confirmed.

1937, 661.

M. pratense L. var. *lanceolatum* Spenn. 12, N. Hants, near Eversley (P. M. Hall). My example of this is annotated by Beauverd "*M. pratense* var. *ericetorum* D. Oliv. forma ad subvar. *decipiens* Beauverd vergens: infl. initium ad VI um nodum situm! G. Beauverd, 10.x.38."

BOOK NOTICES AND REVIEWS.

The New Systematics. Edited by JULIAN HUXLEY. Pp. viii + 583. Oxford: Clarendon Press, 1940, 21/-.

German-English Botanical Terminology. An Introduction to German and English Terms used in Botany, including Plant Physiology, Ecology, Genetics, and Plant Pathology. By H. and E. ASHBY, H. RICHTER, and J. BÄRNER. Pp. xi + 175. London: Thomas Murby & Co., 1938, 10/-.

Recent Advances in Plant Genetics. By F. W. SANSOME and J. PHILP. Pp. xii + 412. J. & A. Churchill, Ltd., 1939, 18/-.

A Manual of Aquatic Plants. By NORMAN C. FASSETT. Pp. viii + 382. McGraw-Hill Pub. Co., Ltd., 1940, 26/-.

Wayside and Woodland Trees. A Guide to the British Sylva. By EDWARD STEP. Revised by A. Keith Jackson and A. Bruce Jackson. Pp. 186. Frederick Warne & Co., Ltd., 9/6.

An Ecological Glossary. Compiled by J. RICHARD CARPENTER. Pp. viii + 306 + xii. London: Kegan Paul, Trench, Trubner & Co., Ltd., 15/-.

The British Islands and their Vegetation. By A. G. TANSLEY. Pp. xl + 930 with 416 photographic illustrations and 179 text figures. Cambridge University Press, 1939, 45/- net.

To anyone interested in plants in the field, this book is certain to be a mine of information and a great source of pleasure. Its predecessor, the now scarce *Types of British Vegetation*, a partial work hurriedly put together for a special object, has long awaited a successor which should cover the whole field of the vegetation of the British Isles. That is the aim of the present work, which is fulfilled so far as the ecological investigations actually carried out permit. Every aspect of the country's vegetation is dealt with. From the first part the reader will obtain a good understanding of the variation in climate, geological rock and resultant soil, and other factors which determine the nature of the vegetation. The last chapter of this section deals with the effects of animals on vegetation. The second part summarises knowledge and views concerning the history of the vegetation since glacial times, and gives an outline of the types of vegetation (formations) and their distribution. In the third part the nature of vegetation itself is analysed, on the lines laid down by the famous American ecologist, F. E. Clements. In conjunction with the first part, this provides an excellent introduction to modern ecology. The numerous technical terms which have crept into the subject as they have proved

to be required for the new concepts developed by this young and growing science are so clearly explained that they need not be too much feared by the general reader. Once the ideas to which they belong are properly grasped, they become as ordinary useful words as any others. The different methods which have been used to delimit and classify units of vegetation are explained.

Into the remaining three-quarters of the book are condensed the results of all important ecological work which has been done on the various British plant-associations and their constituents. It is possible that the general reader might have preferred to have the results of individual researches on certain subjects more completely digested into a single whole, but to the ecologist it may be an advantage that during the present growth phase of so young a subject premature fixations of ideas which generalised digests might involve have been avoided; the reader is thereby left more free to make his own observations assisted, but untrammeled, by the results of previous studies.

Part IV is devoted to Woodlands—their structure and status; the various oakwoods; beechwoods (on chalk and on sand); ashwoods; pine and birchwoods; alderwoods. Scrub vegetation is dealt with partly under the related woodlands and partly in a separate chapter concluding this section. The following parts deal with:—V: grasslands, their nature and status; grasslands on acid, basic, and neutral soils. VI: vegetation occurring in water and on saturated soils; ponds, lakes, rivers, fens, and bogs. VII: Heath and moor. VIII: Mountain vegetation. IX: Maritime and sub-maritime vegetation.

The whole work is an excellent compilation; all reading it will be sure to gain additional interest in and understanding of the plants met with during their excursions. The profuse photographic illustration is no doubt partly responsible for the price of the book, but greatly adds to both value and enjoyment. Any unevenness which may be perceived is mainly due to the fact that some areas and associations have received much more study than others. Scotland—and possibly also Ireland, with which I am less familiar—seems to me to be less adequately treated, but it has been less studied. The account of *Scirpetum caespitosi* shows evidence of a hasty effort made to fill in a gap, and *Molinia coerulea* and *Myrica Gale* are two other dominants so general in Scotland that they deserve better treatment and possibly higher status than they have received. But such inequalities will serve to indicate where further work is required.

The important part which Fungi play in the decomposition of vegetable debris, and their influence on the habitat in general, does not receive due attention from ecologists. Only in connection with the salt marshes of the Dovey estuary is this subject adequately mentioned in this book, although the well-known general and regular autumnal abundance of fungal growths in other associations indicate clearly how important is the rôle of these organisms in the general economy of Nature.

Another general criticism—of modern ecology rather than of this

book—is that the lists of species given for the various communities too often show too great an ignorance of the general ecological requirements of individual species, requirements often well known to field-working systematists. Ecologists making such lists overlook the fact that a slight very local change in a habitat within " an association "—a depression, a hummock, and the like—bear species, really belonging to other " associations," which are too frequently listed where they do not belong, or with frequencies not belonging to the " association " for which the list is given. Much more ecological knowledge of individual species is required before these lists can have much objective significance.

What appears to be a serious blemish is the alphabetical order of names adopted in the lists of plants, of which neither systematist nor ecologist should approve, dispersing as it does such important ecological elements as grasses, Ericaceae, etc., and sometimes even mixing up mosses, etc., among flowering plants; it also makes the position of the species in the list dependent on the particular nomenclature adopted, which is not conducive to easy collation of lists, and the consistent use of *any* systematic order would have been preferable. Since some trouble has been taken with the nomenclature of the plants, the refusal to use the initial capitals of specific epithets where they are required by the International Rules of Botanical Nomenclature may also be regarded as arbitrariness undesirable in what must remain for many years a standard work, but these are small blemishes in such a valuable addition to the literature of the British Flora.

A. J. WILMOTT.

Concise Flora of Britain for the use of Schools. With explanatory illustrations and keys to identification. By F. K. MAKINS. Pp. xxviii + 212. Oxford: Clarendon Press, 1939.

Welsh Ferns. By H. A. HYDE, M.A., and A. E. WADE, F.L.S. 8vo, pp. x + 131, frontispiece, 10 plates and 67 text figures. National Museum of Wales and Press Board of the University of Wales, Cardiff, 1940. Price 5/-.

This work, in which the Keeper and the Assistant in the Department of Botany of the National Museum of Wales have collaborated, is primarily intended to serve as a handbook to the native ferns of the Principality. Wales is well supplied with ferns, almost all the recognised British species being represented; descriptions of those not known to occur in Wales have been added, so that the book is in fact an up-to-date guide to the British fern flora.

The book is in two sections. The first contains general information on the life-history of a common fern; homosporous and heterosporous ferns; the organisation of the sporophyte, with special reference to shape, segmentation and venation of the frond; characters of the sorus and the sporangium, and a brief account of probable lines of descent, leading to criteria of classification, as formulated by Bower. This section terminates with an account of the various elements in the Welsh

fern population, followed by a note on the collection of British ferns in the National Museum of Wales.

The remaining section, comprising about three-quarters of the book, is a descriptive catalogue of the species. Generic and specific keys are provided, and the illustrated description of each species is followed by the first Welsh record, distribution in Wales, the British Isles and the world, and a list of specimens in the Museum Herbarium. The arrangement followed has been adopted by the authors after consideration of the researches of Bower and, more recently, of Christensen. The most striking deviation from earlier standards occurs in the genus *Dryopteris*, restricted here to the six species of Buckler Fern (*D. Filix-mas, D. Villarsii, D. cristata, D. dilatata, D. spinulosa* and *D. aemula*). The Shield Ferns (*Polystichum*) are interposed between these and the remaining five species of *Dryopteris* of the 1928 *Plant List*. The latter are now distributed between two genera, *Thelypteris*, containing the Marsh, Mountain and Beech Ferns, and *Gymnocarpium*, which receives the Oak Fern (*G. Dryopteris*) and the Limestone Polypody (*G. Robertianum*).

Compared with the *Plant List*, the genera of British ferns has been increased from 21 to 23 (22 Welsh), whereas the species are reduced from 52 to 48 (40 Welsh) by the exclusion of three species of *Botrychium* and one of *Polystichum*. *Asplenium fontanum* is no longer regarded as British.

The photographic illustrations depict ferns *in situ* and detached fronds; the numerous line drawings are of great diagnostic value, and are mostly due to the fine work of Miss E. A. Jenkins. A list of collectors and a combined index and glossary conclude a work which will be of great value to the field-botanist, the teacher and to the country rambler who is in any way fern-conscious. May we hope that its authors will conspire with equal felicity to revise the remaining British species of *Pteridophyta*?

R. M.

Flora of Devon. W. KEBLE MARTIN and GORDON T. FRASER (Editors). Pp. xv + 787, with 8 plates and 2 maps. Arbroath: T. Buncle & Co. Ltd., 1939, 25/- net.

"Glorious Devon," the third largest county of England, has long been famous for its botanical treasures. Attractions of scenery and climate have further encouraged botanists in the investigation of the flora, and an enormous undigested mass of records had accumulated since the publication of Ravenshaw's "List" in 1860. The new Flora therefore fills a very obvious gap in botanical literature, and should receive an enthusiastic welcome from British field botanists.

It has been the custom for British County Floras to follow certain rather definite conventional lines, and in several important respects the present work differs fundamentally from the Floras of other counties.

Local Floras in the past have been essentially personal productions, usually the work of individual botanists, but occasionally that of two authors jointly. They have generally reflected the special interests of

the writers in the form of comments and personal observations on the rarities and critical plants, and, while some outside help has generally been obtained, the strength and the weaknesses of the authors have been apparent throughout. Lt.-Col. Wolley-Dod's *Flora of Sussex* broke the tradition to some extent, but the new Devon Flora is the first to be essentially the work of a syndicate. Its nature was largely dictated by its history. In 1881 the Barnstaple Literary and Scientific Institution established a Botanical Record Committee, most of whose records and herbarium passed into the hands of W. P. Hiern. For many years this able botanist worked extremely hard on the flora of the county, and accumulated an enormous herbarium of Devonshire plants. In 1908 a Botanical Committee of the Devonshire Association was formed to keep systematic records of plants from the whole county, and their successors, the Botanical Section of the same Association, resolved on the production of a Flora in 1930 and carried the project through to publication. Besides the two principal editors, the assistance of the Rev. Thomas Stephenson and Mr Francis M. Day is acknowledged on the title page; of six other members of the Section on page ix; and of some 32 other botanists listed on page xi include others who have helped in writing up parts of the Flora. The authorities at Kew and the British Museum have also given very substantial help in this great " co-operative arrangement." The nomenclature of the Flora was revised by the authorities of the Royal Botanic Gardens, Kew.

The advantages of such widespread help are very great. The labour of compiling an accurate Flora of the size and standard of the one under review would very severely tax the energy and resources of an individual. The " co-operative arrangement " has made it possible to give more or less equal treatment to all groups of plants, however critical, and has produced a work unequalled amongst its kind for accuracy. Nevertheless, it must be admitted that in browsing through its pages one does sometimes feel the need for the " human " notes of a J. W. White, for the personality of a Druce, or for the occasional flashes of quiet wit which enlivened the pages of Salmon's *Flora of Surrey*.

The second distinctive feature of the *Flora of Devon* is the system of usually giving the localities " under the name of the parish only." The wisdom of this procedure is open to doubt. The authors do not state whether Ecclesiastical, Civil or Poor Law parishes are intended, and this may be very important in the area of the towns. In any case, surely the boundaries are subject to change? The size of the civil parishes varies from Lydford of 50,861 acres down to Newton Tracey of only 338 acres—and even smaller. Such variable units can therefore have very little scientific value in showing frequency.

Moreover, although Parish Boundaries are marked on the new Fifth Edition of the 1 in. Ordnance Survey, and have been marked on some old editions, they are not usually indicated on the maps used by botanists. Consequently, inaccuracies are unavoidable in entering up records. For example, discoveries quite correctly described as " Near A "

or " Between A and B," may quite conceivably belong to Parish C. The editors claim that their system avoids " giving detailed directions to those who desire to have a short cut to the finding of our rarer treasures," but in the case of rarities they often proceed to add more detailed records! The writer has succeeded in finding many of the scarcer plants of Devon with far less detailed directions than those given within the pages of this Flora. It may be suggested that the most " accurate and scientific " method of citing localities is by means of the co-ordinates marked on every new Ordnance Survey map. Since this is open to the great objection that the whereabouts of every rarity is precisely indicated, the nearest satisfactory approach to accuracy is to publish records *exactly as written by the finders* with necessary editing in the case of rarities.

The third feature which distinguishes this Flora from all other British works is the manner in which it is soundly based on the herbaria of W. P. Hiern and others in the Royal Albert Museum, Exeter, of the Torquay Natural History Society, and of the Rev. W. Moyle Rogers. Material in these collections is duly indicated by appropriate marks against the records throughout, and no praise is too high for this innovation. It means that in the great majority of species, and especially critical species, any future workers wishing to confirm the records can go straight to the material on which they are based. In this manner the work will prove of great value to students of the wider aspects of British taxonomic and phytogeographical botany. One must bear in mind, however, that herbaria, however large and however carefully compiled, can never take the place of field work, and the syndicate responsible for the *Flora of Devon* have placed rather too much reliance on dried material. Botanists sometimes overlook the fact that even the best herbarium is accumulated by a very selective process. Thus, while it is obvious that if a given collection contains only one specimen of *Bellis perennis* and two of *Himantoglossum hircinum* the latter is not twice as common as the former, it is not always so obvious that the same selective process is often at work in the collection of more critical plants. The editors give an example of this principle on p. 223, where they remark that Herb. Hiern contains only 5 specimens of *Lathyrus montanus*, but no less than 11 of its " var." *tenuifolius*, which they, no doubt correctly, give as less common. Herein lies the danger of calling in specialists not familiar with the county to write up certain genera. It is likely, for example, that there are comparatively few sheets of *Salix alba* and *S. viminalis* in the herbaria simply because Hiern and others did not consider it worth while to continue collecting them. Similarly, *Rumex pulcher* is almost certainly much more common in Devon than the records indicate.

The first 61 pages of the Flora consist of introductory matter. The chapter on "Rainfall and Temperature" follows rather conventional lines. The selected figures give a general idea of the climate of Devon, but many more statistics of greater value for botanical purposes could have been printed in the same space. Thus, monthly tables for selected

stations on the lines of those given in the appendix to E. G. Bilham's *The Climate of the British Isles* would enable botanists to assess conditions at the time of germination and fruiting for all species. Mere annual or seasonal averages, without monthly extremes, are of little value in the study of plant life. The expense of printing the large rainfall map is scarcely justified, and a geological map to assist readers in following the most excellent chapter on geology which follows would have been preferable. The table of " Southern Species in Devon," given on page 18, is a mixture of species which modern plant geographers assign to different groups. Reference should be made to Prof. J. R. Matthew's paper in the *Journal of Ecology*, xxv, 1-90, 1937, for a recent account of the rearrangement of plants formerly classed in Stapf's *Southern Element*.

The " Ecological Studies " which follow contain a great deal of very interesting information and their inclusion is amply justified. Nevertheless, their context is hardly up to the standard one would expect from the title. The writers have been quite content to treat their subject as non-dynamic, and there is little mention of succession or of the units under which ecologists classify vegetation. For Braunton Burrows reference should be made to Dr W. Watson's paper in the *Journal of Ecology*, 1918, for a valuable preliminary account on the right lines. Devon offers so many opportunities of fascinating ecological research that the editors of the Flora should have experienced no difficulty in obtaining help from leading ecologists. A preliminary study of the hydroseres of Slapton Ley, to take just one example, would provide the ideal conditions for a perfect summer vacation!

The recital of species extends to 700 pages, and the arrangement of entries is clear and orthodox. In view of the number of people involved in writing up the manuscript, inconsistencies are not numerous. Few field botanists, however, would expect to find *Sedum Fabaria* Koch and *Gymnadenia densiflora* Wahl. given specific rank in a work where that often misunderstood plant *Papaver Lecoqii* is treated as a variety of *P. dubium*. Aliens are printed in smaller type throughout, and even the most important of them receive only brief entries. Such well-established species as *Senecio Cineraria*, *Mimulus guttatus*, *Linaria arenaria*, *Rumex cuneifolius*, *Sagittaria rigida*, and *Digitaria Ischaemum* deserve considerably more space than has been devoted to them. That space might well have been obtained at the expense of some of the trivial varieties of native species which have been included.

The entries of the status and habitats of species have been compiled with great care and with fuller detail than is usual in local works. The entry of *Erodium dentatum* Bak. fil. and C. E. Salmon is puzzling. Baker and Salmon refer to *E. dentatum* Dumortier as a species likely to occur in Britain, but of which they had no records, and if this critical plant has now been found at Braunton is there any reason why it should be confidently described as an alien? Is *Oenanthe pimpinelloides* not to be found in dry limestone pastures in South Devon, does *Senecio eruci-*

folius not show a preference for the heavier soils, is *Leontodon hispidus* var. *hastilis* (L.) not an alien (if correctly named), and why are *Chara contraria* and *Tolypella glomerata* regarded as doubtfully native?

The records are divided first according to the two Watsonian vice-counties into which Devon is divided. This arrangement is a very wise one, and will prove a great boon to those entrusted with keeping *Topographical Botany* and *Comital Flora* posted up to date. The detailed account of the line dividing v.-cc. 3 and 4 published by W. P. Hiern in the *Transactions of the Devonshire Association*, 1909, should have been reprinted in the Flora for the benefit of those who are unable to obtain access to the original. The vice-counties are divided into three and five divisions respectively, and within the divisions records are arranged according to parishes. References to published records appear to be cited usually on the authority of the finder without reference to the place of publication. Our own Reports, when quoted, are cited only by years and usually without mention of pages, thus making the work of botanists wishing to refer to the original entries less easy.

The last line under each species deals with its distribution in neighbouring counties. In the case of the rarer plants, distribution elsewhere in Britain is sometimes included in the introductory matter to the species. Outside their own territory the authors are not evidently so well acquainted with plant distribution, and it is unfortunate that apparently they did not obtain assistance in connection with their extra-territorial notes. To take a few examples:—*Tulipa sylvestris* has at least two good stations in Dorset (in both of which I saw it growing in 1939); *Cyperus longus* is not extinct in Dorset; *Scirpus triqueter* grows also on the Shannon at Limerick as well as in the other localities loosely described as "S.E. England"; *Carex paradoxa* cannot be described as "a plant of East Anglia brecklands, etc." (although it happens to grow in a small fen within the area of the Breck, the statement ignores the widespread distribution on the eastern side of England); and *Euphorbia Peplis* is not extinct on the mainland of Cornwall.

The record of *Arctostaphylos Uva-ursi* on page 444 is a serious misquotation, and one can only assume that the editors had not themselves referred to the original record in the *Journal of Botany*, xi, 227, 1873. Here Nathorst records the discovery, in post-glacial deposits near Bovey Tracey, of ". . . some seeds and leaves of *Arctostaphylos Uva-ursi* Linn.", which at the present time is not found in Britain to the south of York and Cumberland." In the *Flora of Devon* this record is first correctly treated as that of fossil remains and then incorrectly as an "alien casual" in the same paragraph!

On page 25 and again on page 568 it is suggested that Ley's record of *Rumex rupestris* from Braunton Burrows may have been an error for the alien *R. cuneifolius*. There is no justification for this since Ley collected the right plant on Sept. 14th, 1882, recorded it in *B.E.C. 1882 Rep.*, 76, 1884, and there is a specimen of the gathering in Herb. Mus. Brit.

It must be supposed that the use of the names *Scrophularia alata* Gilib. and *Salix repens* Linn. is deliberate. The account of *Carduus pycnocephalus* is confused: for a better statement of the facts reference should be made to *The Transactions of the Devonshire Association . . .*, lxxi, 243-247, 1939. It may be doubted whether the montane varieties *pratensis* and *sordidus* of *Leontodon autumnalis*, as usually understood in Britain, occur in Devon.

Omissions appear to be very few. There is no mention of the specimen of *Brassicella monensis* Huds. in Herb. Hiern collected by W. T. Wainwright at Woolacombe on June 23, 1909, which Mr Pugsley considers correctly named (*Journ. Bot.*, lxxiv, 326, 1936). In *B.E.C. 1937 Rep.*, 499, 1938, there is a record of *Chenopodium ficifolium* as found at Wolborough by G. T. Fraser, which is not included in the Flora.

At the end of the recital of species seven pages of " Addenda and Corrigenda " are inserted in a position where they are likely to be overlooked. A list of this length might well be expected in a Flora of this size, which takes many months to print, but the additions would be more conveniently included in the Supplement, which is believed to be now in preparation. Future workers would then have one less place to turn to in order to ascertain whether entries in the body of the work had been modified or corrected.

A Summary on page 768 shows that 1622 species, inclusive of aliens and casuals, are recorded in the Flora. This is followed by a concise and well-arranged chapter of Biographical Notices, and indices to the genera and popular names.

The map in the pocket at the end of the volume serves its purpose of indicating the arrangement of the Parishes, Sub-Districts and Districts, and is in keeping with the plan by which records are arranged. Lack of detail in the map makes it difficult to match it up with familiar country. The illustrations include an excellent view of Slapton Ley, five plant photographs of varying quality, and two plates reproducing drawings by the Rev. Keble Martin which are rather lost in their position in the book.

Printing and binding are all that one could wish for, and the rarity of mis-prints is most praiseworthy (the addition of an " e " in Le Gall's name on p. 711 should be noted).

It is to be regretted that criticism must almost inevitably bulk larger than praise in an unbiassed review of a scientific work. To say that part of a book is good takes a mere line; to say that a minor aspect is capable of improvement often necessitates a paragraph of explanation. For this reason there is a danger that the foregoing pages may give a false impression, and it must therefore be stressed that the new *Flora of Devon* is one of the finest, if not indeed the best, of all the local British Floras. Amateur botanists should be extremely grateful to the editors and all their band of helpers for the enormous amount of hard work which must have been entailed in the production of such a magnificent volume.

J. E. Lousley.

A Flora of Cambridgeshire. By A. H. EVANS. Pp. 223. Gurney & Jackson, 1939, 7/6.

A Supplement to the Yorkshire Floras. By the late F. ARNOLD LEES, edited by C. A. CHEETHAM and W. A. SLEDGE. Yorkshire Naturalists' Union. Pp. vi + 134. London: A. Brown & Sons, Ltd., 1942, 6/-.

The Vegetation of Craven in Wharfedale with its Adjacencies in Aire and Ribble. By F. ARNOLD LEES, edited by A. A. DALLMAN. Pp. 111. T. Buncle & Co. Ltd., 1939, 5/-. (Reprinted from the *North Western Naturalist.*)

A Flora of the North East of Ireland. By R. LL. PRAEGER and W. R. MEGAW. 2nd Edition. Pp. lix + 472, 3 maps. Belfast (The Quota Press), 1938, 10/6.

Botany of the Canadian Eastern Arctic. Part 1: Pteridophyta and Spermatophyta. By NICHOLAS POLUNIN. (National Museum of Canada, Bulletin No. 92.) Pp. vi + 408. Ottawa: King's Printer, 1940, 1 dollar.

Dr Polunin is well known in the northern hemisphere for his writings on, and explorations for, the plants of Arctic lands both in Europe and America. It is over ten years ago that he made his first botanical journey in Arctic Scandinavia, soon followed by researches in Labrador and elsewhere in the Canadian Arctic. His knowledge and enthusiasm were such that he undertook for the Canadian Government the work of which the present volume is the first of a series.

The area considered consists of all land in Canada north of the 60th parallel of latitude and east of 95° west longitude with a few exceptions on the western borders of the district. As the area is so immense, covering twenty degrees of latitude, it is divided into ten districts, fully described and depicted on a sketch map. An official map is provided as an end paper. Most of the land is bleak and inhospitable, often ice-covered, such as the interior of Ellesmere Land and Baffin Island, yet almost four hundred plant species are recorded and described. All, too, are apparently natives of the area; there are no adventives in this thinly-populated Eskimo land.

Further parts on " Thallophyta and Bryophyta, Vegetation and Ecology," and " Subarctic Regions " are in an advanced state of preparation. The author spent about a year studying herbarium material from the area in various Herbaria in America and Europe. Details of the whereabouts of the plants collected since botanical exploration began are given—this is invaluable to students—and a very full bibliography of the literature. A historical account of the various collectors in the area is followed by a list of localities at which collecting has been done. Each species found in the area is dealt with in a uniform manner. Name and synonyms are followed by a paragraph of general remarks on the

plant in question, including systematic position and range of variation. Next comes the general distribution, followed by the distribution within the area. Habitat is carefully described with much ecological detail, from the author's personal observation. Lastly, a detailed citation of all records, arranged according to the subdivisions of the area, provides an invaluable summary of what has been accomplished in the past.

Dr Polunin takes responsibility for the nomenclature as he has revised the determination of all the herbarium material that he has seen and studied, and put his own unbiassed ideas into the task. He tends to be a " lumper " when treating the critical groups, preferring to rely on good appreciable differences between plants in conjunction with variations of distribution.

As over one hundred of the plants enumerated occur in Britain, mostly in Scotland, this work will appeal to those who are interested in plant distribution and ecology. Upon our highest mountains the conditions under which such plants as *Cerastium cerastioides*, *Saxifraga rivularis*, *Arctostaphylos alpina*, *Carex bipartita* and *C. rariflora* flourish must approximate very nearly to those pertaining in Baffin and about Hudson Bay. Does any British text-book tell us that the leaves of *Arctostaphylos alpina* turn to a " beautiful wine-red in autumn " and that they " persist for years in a withered condition "? Our *Salix myrsinites* of the Scottish mountains features the characters of retaining its withered leaves, which eventually decay to form humus. These notes are a joy to read and memorize for use in the field in Scotland when opportunities occur once more. This volume and those to come will be a standard work of reference for many years.

E. C. W.

ABSTRACTS FROM LITERATURE.

Compiled mainly by H. A. Hyde and A. E. Wade.

GENERAL.

(A) CYTOLOGY.

Effect of Colchicine.—Kostoff (1939) produced a polyploid condition in seedlings by growing them close to disintegrating pieces of *Colchicum* corm and hence suggested that polyploids should occur naturally in the neighbourhood of *Colchicum* colonies. Bates (1939) observed *per contra* that colchicine-induced polyploids produced in cultivation were stunted in comparison with normal plants and therefore in Nature would have been suppressed by competition.

General.—The Merton Catalogue (Maude, 1939) is a list of the chromosome numerals of all species of British flowering plants so far determined. It is the first such list for so extensive a flora. Out of 526 genera in the *London Catalogue* 444 have been examined; out of 2256 species 1302 have been counted, so that, apart from the great partially apomictic genera *Rosa*, *Rubus* and *Hieracium*, 670 species remain unexamined.

(B) GENETICS.

The Genetic Coefficients of Specific Difference.—From previous studies of closely related species it had been concluded that differences between such species are to be sought not in any one character but in harmoniously integrated tendencies (genetic coefficients) expressed more or less throughout the entire organism. A simple mathematical notation is developed for expressing the resulting morphological hiatus between two species.—Anderson and Ownbey (1939).

(C) BIOLOGY.

Development of Wood.—Knowlson (1939) investigated the anatomy of oaks which had continued to grow for 52 years after the bases of their original trunks had been buried 20 feet beneath quarry débris. New roots had arisen just below the new ground level and the amount of radial growth in the buried portion was much reduced, while the type of wood formed had changed significantly toward that characteristic of roots.

Photoperiodism.—Borgström (1939) has shown by experiment that in the violets no flowers are produced as a general rule when the day is shorter than 12 hours; a 13-15 hour day produces normal (chasmogamic) flowers while a 17 hour day gives cleistogamic flowers. The British species concerned were *Viola canina*, *hirta*, *odorata*, *palustris*, *Riviniana* and *silvestris*. Light is thrown on the phenomenon of the second flowering of some violets in autumn and on the occurrence of cleistogamic flowers in the summer. Cleistogamy is a conspicuous feature of the violets in northern countries, especially in Scandinavia.

POLLINATION AND FERTILISATION OF ROSES are discussed by Bolton (1940).

RESPIRATION.—Audus (1939 B) shows that the response induced by rubbing and bending of the leaf lamina is a widespread phenomenon in the leaves of angiosperms (including some British species), and points out that this sensitivity must have affected the results of past investigation on respiration, where considerable handling of material was a part of the methods used.

VIABILITY OF SEEDS.—The occurrence of buried viable seeds at different elevations and on a salt marsh is dealt with by Milton (1939); and the vitality of weed seeds by Brenchley (1939) and Hyde-Parker (1939).

THE WITHERING OF FLOWERS.—Livens (1939) considers that the function of the flower does not cease with the production of seeds, but that the withered flower serves to repel insects which might injure the ripening seeds, protects the seeds from the inclemencies of the atmosphere and results in diverting the current of vital elements from parts which no longer need them to organs which demand a large and rapid supply of nourishment. The withering of the flowers of a number of wild plants is described in detail.

(D) ECOLOGY.

Attention may be drawn here to the symposium on The Reciprocal Relationship of Ecology and Taxonomy referred to in more detail under the heading Taxonomy (p. 395).

GENERAL.—Richards (1939) would re-define ecology as the study of fluctuations in the density of animal and plant populations. The quantitative data so obtained if correlated with habitat factors should yield important taxonomic results.

AQUATIC PLANTS.—The effect of drastic interference with the vegetation of a large pool by dredging and subsequent recovery is discussed by Calder (1939).

LIMESTONE GRASSLAND.—Boley (1939) describes open downland vegetation near Bristol.

OAKWOODS.—Turner and Watt (1939) describe the "nearest approach in the British Isles to evergreen hygrophilous vegetation."

PEAT MIRES.*—The ecology of a raised (i.e. domed) bog—the first of its kind to be described in Britain—is dealt with by Godwin and Conway (1939). The vegetation is described under the various headings Lagg, River Terrace, Rand, Sphagnetum and Regeneration Complex, Scirpetum, Molinietum and Callunetum. The structure of the Regeneration Complex is substantially similar to that of other raised bogs in Sweden and elsewhere.

PLANT COMMUNITIES.—Tansley (1939 B) discusses what is the ultimate object of the synecologist's study, viz., the ecosystem, and summarises the outstanding work of the preceding 25 years from that point of view.

*Mire (Swedish *myr*): a new term meaning any kind of peat land and also its characteristic vegetation (Godwin & Conway, 1939).

SALT-MARSHES.—Chapman (1939) has investigated the changes in the chloride, exchangeable sodium and calcium and moisture content in Norfolk salt-marshes.

SCREES.—Fenton (1939) discusses the progressive colonisation of screes.

SOIL ACIDITY.—Baker & Clapham (1939) demonstrated annual and monthly variations in acidity of three types of woodland soil; the changes were in part correlated with rainfall.

WEEDS.—The population of certain plots at Woburn Experimental Station has been studied in relation to cultivation and manuring by Mann (1939). The species chiefly concerned are *Spergula arvensis*, *Matricaria inodora*, *Poa annua*, *Stellaria media*, *Veronica* sp., *Polygonum aviculare*, *Gnaphalium uliginosum*, *Capsella Bursa-pastoris*, *Holcus mollis*, *Agrostis stolonifera*, *Rumex Acetosella*, *Equisetum arvense*, *Tussilago Farfara* and *Convolvulus arvensis*.

(E) POST-GLACIAL HISTORY OF BRITISH VEGETATION.

Pollen analyses of peat from three mosses on the Shropshire-Flintshire borders (Hardy, 1939) show that peat formation there began during Pre-Boreal time and continued into the Sub-Atlantic. Miss Hardy records two recurrence surfaces (grenze); and her diagrams exhibit marked parallelisms with those obtained by workers in Denmark, Ireland, England and Wales. A. R. & C. N. Clapham's (1939) Berkshire diagram (which has been zoned similarly) also begins with the Pre-Boreal but ends abruptly soon after the beginning of the Atlantic Period.

(F) PHYTOGEOGRAPHY.

IRELAND.—The origins of the Irish flora have been discussed by Praeger (1939). He regards a sea barrier even if narrow as a very serious obstacle to immigration; moreover the Irish flora does not contain, compared with the British, an undue proportion of species which could have been carried in by sea, winds or bird carriage: terrestial immigration is therefore indicated for the great majority. In regard to the effect of the Ice Age, Praeger is a survivalist. The Lusitanian Mediterranean plants came in overland probably by way of a south-westward extension of the existing land of the British Isles. The American group are more difficult to account for: probably they came by stages along the North Atlantic route, i.e. via Greenland, Iceland, etc. The break between Ireland and Britain came before that between Britain and Europe: hence the absence of many species which would otherwise have reached Ireland; but instances of restricted or discontinuous distribution are more difficult to explain. Work on quaternary floras promises to throw much light on these problems.

(G) TAXONOMY.

A symposium on the reciprocal relationship of Ecology and Taxonomy is published in the *Journal of Ecology* (1939). An introduction by Tansley is followed by a series of articles on various aspects of the question;

Richards deals with the use of ecological data in taxonomy; an appreciation and criticism of the taxonomist by an ecologist is given by Salisbury; Valentine discusses the advantages in using common species in investigating the relationship between taxonomy and autecology, using *Viola Riviniana* as an example; Diver deals with the measurement of ecological factors of use in taxonomy; Huxley with ecology and taxonomic differentiation, and Summerhayes and Turrill with the taxonomist's viewpoint of ecology and taxonomy.

Saunders (1939) deals with the neglect of anatomical evidence in the current solutions of problems in systematic botany.

Biometrical Methods.—Melville (1939 C) describes the application of biometrical methods to the study of elms.

Classification of Dicotyledons.—Gundersen (1939) attempts an arrangement " more or less intermediate between the Rendle system and the Hutchinson system." He places the Dicotyledons in eight groups around eight genera, viz., *Magnolia*, *Ulmus*, *Cistus*, *Dianthus*, *Geranium*, *Myrtus*, *Ligustrum* and *Rubia*. The arrangement " does not claim to be phylogenetic;" and *Casuarina*, *Balanops*, *Myrica*, *Proteales*, *Santalales*, *Euphorbiaceae* and others have not been included.

International Rules of Botanical Nomenclature.—Proposed additions and amendments are proposed by Sprague and others (1939 C).

Specific and Infra-specific Terms.—In studying population differentiation Gregor (1939) advocates the use of the following " specific " terms: *Coenospecies*, a population which is incapable of exchanging genes with other populations, even when given the opportunity. *Ecospecies*, a population with an inherently low capacity for exchanging genes with other populations of its coenospecies. The use of the following " infra-specific " terms is advocated for populations actually or potentially capable of freely exchanging genes: *Cline*, any gradation in measurable characters. *Topocline*, a cline following a geographical gradient. *Ecocline*, a cline apparently correlated with an observable ecological gradient. *Topotype*, a population in a geographical region possessing characters differing from those of another region. A topotype may be extraclinal if it does not fall within a geographical gradient in character expression, or intraclinal if it has reference to a particular range on a geographical gradient. *Ecotype*, a particular range on an ecocline. *Microtopotype*, a micro-geographical population primarily the result of a chance fractionation of a parent population. *Exotype*, a hereditary aberration which occurs so rarely and so sporadically that it never becomes a feature of any population: the category is therefore not a population concept.

Subspecies and Variety.—Reports of a discussion dealing with the use of the words subspecies and variety held at a meeting of the Linnean Society and arranged at the request of the Association for the Study of Systematics in Relation to General Biology are published in the *Proceedings of the Linnean Society* (1939) and in *Nature* (1939).

(H) TOPOGRAPHICAL.

BRITISH ISLES.—Polunin (1939 A) gives an account and analysis of the vascular cryptogams native to Britain and now known to persist north of the 75th parallel of latitude and hence truly arctic in their affinities; he also gives an enumeration of these arctic plants (1939 B).

GREAT BRITAIN.—Accounts of the distribution of *Potamogeton pusillus* L. and *P. Berchtoldii* Fieb. are given by Dandy & Taylor (1940).

SCILLY ISLES.—Notes on the flora of the Scilly Isles with a list of the species collected during 1938 are published by Lousley (1939 C). Twenty-three species, thirteen of which are adventive, and four varieties listed are new to the Scillies. Attention is drawn to the increasing resemblance between the flora of the Scillies and that of the Channel Islands. Lousley (1940) enumerates the more important records made during a visit in 1939, together with a few made during previous visits. Twenty-six species, nine varieties and two hybrids are given as new to the Islands.

DEVON.—*The Flora of Devon* (Martin and Fraser; 1939) is reviewed elsewhere in this Report. Many additions and corrections to *C.F.* are necessitated, which are the subject of a special paper, p. 331.

SOMERSET.—Boley (1939) surveyed the grassland vegetation on Dundry Down.

NORTH SOMERSET.—Skene (1939) gives a complete list of the plants recorded for Steep Holm.

SOMERSET AND WEST GLOUCESTERSHIRE.—Sandwith (1939) gives an account of Bristol Botany in 1938. Three aliens new to Britain are recorded: *Carthamus oxyacantha* M. Bieb. and *Rumex stenophyllus* Ledeb. from Avonmouth, W. Glos., and *Aegilops ligustica* (Sav.) Cass. from the N. Somerset side of Bristol.

WILTSHIRE.—Grose (1939) gives a list of plant records for Wiltshire extending over several years. Eleven species are new to the county, the most interesting being *Gentiana baltica* Murb. from Bedwyn Common and *Antennaria dioica* (L.) Gaertn. from Morgan's Hill. Some topographical records and a considerable list of phenological records are reported by Aked-Davies (1939).

ESSEX.—A considerable number of new records which have accumulated between the years 1926 to 1939 are published by Brown (1939).

NORFOLK.—Chapman (1939) continues his studies of Norfolk salt-marshes.

WARWICKSHIRE.—Bush (1939) gives an account of the grasses, sedges and rushes of the Tile Hill Nature Reserve.

STAFFORDSHIRE.—Some additions to the Flora of North Staffordshire made during the years 1932-38 are given by Edees (1939).

SHROPSHIRE.—Dallman (1939) enumerates new records made during the year 1938.

WALES.—*Welsh Ferns* is reviewed elsewhere in this Report.

CARDIGAN.—Godwin and Conway (1939) have studied the ecology of Tregaron Bog.

Limnanthaceae show certain cytological differences and are less closely related. The position of Linaceae and Zygophyllaceae is doubtful.

142/2. ACER CAMPESTRE L. Its value as an ornamental tree and for hedges is referred to by Gooch (1939).

150/1. CYTISUS SCOPARIUS (L.) Link. Variation in habit, size and colour of the flowers is described by Woolley (1939).

185. RUBUS. Crane and Thomas (1939) show that many of the species and microspecies in this genus are clones and subclones produced by segregation and maintained by a sexual reproduction.

194. ROSA. Diploid lines of descent related to the polyploid appear to have been always present. Hybridisation of hexaploids with related diploids followed by the elimination of unpaired chromosomes in the descendants has been important in promoting the appearance of polymorphic diploid races with novel characteristics.—Erlanson (1938).

195. SORBUS. Wilmott (1939 C) deals with the typification of *Sorbus porrigens*, *S. anglica*, and *S. rupicola*.

197/1. COTONEASTER INTEGERRIMA Medik. Pugsley (1940 E) refers to a record of the species from Benderloch, Argyll, printed in the 7th edition of Bentham & Hooker's *Handbook of the British Flora*, by the late Dr A. B. Rendle (1930). It seems that the record is a misidentification of *C. microphylla* and should be ignored, unless an authentic specimen can be produced. Wilmott (*J.B.*, *78*, 199, 1940) reports that he has received specimens of both *C. microphylla* and *C. Simonsii* from the Benderloch locality.

277/2. HERACLEUM SPHONDYLIUM L. An account of the occurrence of multi-perforate plates in the xylem vessels is given by Majumdar (1939).

284/1. HEDERA HELIX L. var. CONGLOMERATA as a rock-garden plant.—Anon (O.C.) (1939).

45. Caprifoliaceae. A study of the pericycle is given by Cooper (1939).

339. AMBROSIA. F. Vignolo-Lutati (1939) discusses the identity and relationship of *A. artemisifolia* L. and *A. elatior* L. He finds that it is not possible to interpret the Linnean diagnoses in the light of the material available, and proposes to adopt the interpretations given by Rydberg in *N. American Fl.*, 33, i, 1922, which have the merit of fitting two recognisable entities. This being allowed, he finds that the plant found commonly in Europe should be identified with *A. elatior* L. sens. Rydberg. Similarly he discusses the relationships of *A. psilostachya* DC. and *A. coronopifolia* Torr. et Gr., and finds that Italian material should be referred to the former, although the latter probably also occurs. It seems unfortunate that a request for photographs of the Linnean types was apparently unsuccessful.

341(2)/1. SIEGESBECKIA ORIENTALIS L. recorded from a second station in Lancashire by Hardy (1940 B).

395. CARDUUS PYCNOCEPHALUS L. and C. TENUIFLORUS Curt. Howell (1939) reports that both species are naturalised in northern California and gives a synopsis of the characters distinguishing them. He lays special stress on two characters found in the phyllaries.

395/3. CARDUUS PYCNOCEPHALUS L. Phillips (1939) deals with the occurrence of this plant on Plymouth Hoe and with the distinction between it and *Carduus tenuiflorus* Curt.

425. LACTUCA. G. L. Stebbins, Jr. (1939) has notes on *L. tatarica* (L.) C. A. Mey. subsp. *pulchella* (Pursh) Stebbins " comb. nov.," and notes (with a key) on the distinctions between *L. virosa* L., *L. Scariola* L., *L. Scariola* L. var. *integrata* G. et G., and *L. saligna* L.

471/1. FRAXINUS EXCELSIOR L. The presence of three abortive ovules on the abnormally long stalk of the seed suggests that this stalk is, for the greater part, not the funicle but the placenta which has broken away from the top of the ovary.—Hilary (1939).

486/1. POLEMONIUM CAERULEUM L. Soueges (1939) describes the development of the embryo, which confirms the affinity of *Polemoniaceae* with *Solanaceae* and *Boraginaceae* and justifies their place in the Order Tubiflorae.

515. CUSCUTA. Self-parasitism is reported by Audus (1939).

539/1. LIMOSELLA AQUATICA L. Chromosomes $2n = 40$.—Blackburn (1939).

539/1(2). LIMOSELLA SUBULATA Ives. First noticed at Kenfig Pool, Glamorgan, in 1901 by Marshall and Shoolbred, but mistaken for *L. aquatica* var. *tenuifolia* Lej. Subsequently Prof. Glück of Heidelberg identified the plants from Kenfig, Crumlin Bog and Morfa Swamp, Glamorgan, and from Glaslyn River, Merioneth, as *L. subulata* Ives.—Vachell (1939). Blackburn (1939) records the chromosome number of plants from Morfa Swamp as $2n = 20$ and records a hybrid from the same locality between *L. aquatica* and *L. subulata* with a chromosome count of $2n = 30$.

541/1. DIGITALIS PURPUREA L. Berkeley (1939) describes a bifurcated inflorescence. The abnormality is shown to be associated with fasciation and the nature and cause of the flattening and forking of the stem are discussed.

545. EUPHRASIA. Additional vice-comital records are given by Pugsley (1940 A).

548. RHINANTHUS. Wilmott (1940) gives the results of a revision of the British material in the British Museum Herbarium. The following new species and varieties are described:—*R. calcareus*, *R. spadiceus* (this is the British plant erroneously called *R. monticola*), *R. spadiceus* with a subsp. *orcadensis*, *R. borealis* var. *calvescens*, *R. Lintoni* and *R. lochabrensis*.

549/3. MELAMPYRUM PRATENSE L. Britton (1939) gives a detailed account of the determinations made by Dr G. Beauverd of a large collection of specimens. Some plants are considered sufficiently distinct to warrant the application of distinctive names. These are dealt with in this Report under Plant Notes.

550/7. OROBANCHE HEDERAE Duby. Thompson (1939 B) deals with the occurrence of this plant in and about Bristol and considers it much commoner on ivy-covered walls in Bristol and several small towns in N. Somerset than in the wilder districts of Somerset, even where ivy is abundant.

588. PLANTAGO. Davy and Lang (1939) examined samples of 102 plants each of two races of *P. maritima* L. and one of *P. serpentina* All. for all possible direct correlations of twenty characters. Various intensities of growth showed the effect of size on different organs. The habit of the scapes was associated with time of flowering, decumbent types tending to be earlier than erect types, and with scape length where erect types tended to be longer than decumbent.

Gregor (1939) deals with population differentiation in North American and European Sea Plantains allied to *Plantago maritima* L.

588/5. PLANTAGO MARITIMA L. Gregor (1938) deals with the distribution in Britain and initial population differentiation. Differentiation is most marked for growth-habit and size characters, such as the habit and size of the scapes and the leaf dimensions. Three ecotypes are named, *decumbens, ascendens* and *erecta,* and one geo-ecotype, *immaculata.*

588/8. PLANTAGO LANCEOLATA L. Hope-Simpson (1939) gives some observations on forms with a reduced number of stamens. The occurrence of a reduced andraecium appears to be correlated with lateness of flowering. In five of the twenty-five plants with reduced number of stamens the corolla lobes remain more or less converged.

618/2(2). RUMEX AQUATICUS L. as a British plant is dealt with by Lousley (1939 A). It is shown that *R. aquaticus* L. is distinct from *R. domesticus* Hartm. and *R. Hydrolapathum* Huds. with which it has been confused in the past. In Britain it is known only from the shore of Loch Lomond in Stirlingshire.

628. EUPHORBIA. F. D'Amato (1939) discusses the embryology and caryology of certain species, including *E. Paralias* L. and *E. amygdaloides* L.

633/4(2). ULMUS DIVERSIFOLIA Melville sp. nov. The East Anglian Elm is described under this name.—Melville (1939 A).

649/1. FAGUS SYLVATICA L. The early growth of seedlings under natural and experimental conditions is dealt with by Harley (1939). From the experiments it appears that shading of seedlings produces symptoms similar to those found in seedlings

under woodland conditions. These are:—1, Great water content. 2, Poor root growth. 3, Low dry weight. 4, Low root shoot ratio (dry weight). 5, Incomplete mobilization of nitrogen before the fall of cotyledons. 6, A very small or complete lack of absorption of nitrogen.

A fungus isolated from "pyramidal" type of beech mycorrhiza is described and considered to be *Mycelium radicis Fagi* (Chan.). The slow growth of this fungus in pure culture is stimulated by an extract of beech roots, for which a method of preparation is given.—Harley.

650/3b. SALIX ALBA L. var. CAERULEA (Sm.). A detailed description of the anatomy of the wood of the cricket-bat willow is given by Metcalfe, G. (1939).

650/3d. SALIX ALBA L. var. ELYENSIS Burtt Davy. This new variety is described by Burtt Davy (1938) and is reported from Norfolk and Hampshire.

652/1. EMPETRUM NIGRUM L. The flowering and systematic position of this plant are discussed by Blackburn (1939).

91. Orchidaceae. The address to the Botanical Section of the Congress of the South-Eastern Union of Scientific Societies by Hall (1939) was devoted to a discussion of the hybrid wild orchids of Britain. Crosses are far commoner in temperate than in tropical vegetation. Microscopic examination is often required to determine the origin of an orchid.

An account of orchids hardy in Britain is continued by Darnell (1939). Figures of the flowers are given. The following British orchids are dealt with:—*Ophrys Trollii* Heg., *Orchis elodes* Griseb., *O. Fuchsii* Druce, *O. incarnata* L. (=*O. latifolia* L. sec. Pugsley), *O. latifolia* auct. angl. (=*O. pardalina* Pugsl.) and *O. laxiflora* Lam.

668/3(3). EPIPACTIS VECTENSIS (T. & T. A. Stephens.) Brooke & Rose. *Epipactis leptochila* Godf. var. *vectensis* Stephenson is raised to specific rank by Brooke & Rose (1940).

669. ORCHIS. The results of the examination of the exsiccatae of the Dactylorchids in the Botanical Museum of the University of Copenhagen together with other relevant information are given by Pugsley (1939 A). The chromosome numbers as published by Hagerup, Vermeulen and Heusser are given as follows:—*Orchis latifolia* L. (*O. incarnata* auct.), with var. *ochroleuca* Boll., *O. cruenta* Müll., *O. maculata* L. var. *Meyeri* Rchb. f. and *O. foliosa* Soland. are diploid species, with the chromosome number $2n = 40$, while *O. majalis* Rchb., with subsp. *occidentalis* Pugsl., *O. purpurella* Steph., *O. praetermissa* Dr., with subsp. *junialis* Verm., *O. sesquipedalis* Willd., *O. Munbyana* Boiss. & Reut., and *O. maculata* L. var. *genuina* Rchb. f. and var. *elodes* (Griseb.) Camus, are tetraploids ($2n = 80$). Different plants referred to as *O. Traunsteineri* Saut. give

varying results, $2n = 40$, $2n = 80$, and $2n = 122$. *O. majalis* subsp. *Traunsteineroides* Pugsl. is tetraploid ($2n = 80$). The hybrids *O. latifolia* × *maculata* have the chromosome number $2n = 60$.

Pugsley (1940 F) describes the distribution of *O. pardalina* Pugsl., *O. praetermissa* Druce and *O. maculata* L. (*O. Fuchsii* Druce) in Cornwall and South Devon and concludes that no ground exists for supposing *O. pardalina* to be a hybrid *O. maculata* (*Fuchsii*) × *praetermissa* and obviously not *O. ericetorum* × *praetermissa*.

The Wicklow orchid is raised to the rank of species as *O. Traunsteinerioides* Pugsl. and the form of *O. maculata* L. growing at St Ives, West Cornwall, is described and figured as var. *cornubiensis* Pugsl.

669. ORCHIS MASCULA L., O. LATIFOLIA L., GYMNADENIA CONOPSEA (L.) R. Br. Burges (1939) investigates the defensive mechanism in orchid mycorrhiza and states that fungal infection of a mycorrhizal type is usually limited to the roots. Two types of resistance are recognised, a mechanical resistance in the form of wall thickenings and cuticularisation and a protoplasmic resistance. In the latter there is a complete breakdown of the invading fungus. During the breakdown of the fungus, histological changes can be observed; these have been correlated with a loss of vitality in the endophyte. The vitality of the endophyte at different stages has been tested by dissecting out the hyphae by means of a micromanipulator and transferring the hyphae to agar. Plasmolysis experiments have also been used. Bernard's observation that a toxic material exists in the tubers has been confirmed. Using micropipettes, a toxic material has been isolated from the cells in which the fungus is undergoing digestion.

669/6. ORCHIS PARDALINA Pugsl. Recorded from North Staffordshire by Edees not in association with *O. praetermissa*.

669/11(2). ORCHIS HEBRIDENSIS Wilmott (1939 B: 192) is described as a new species, from Barra, v.-c. 110.

669/11(2)×9. ×ORCHIS HEBRIDELLA Wilmott. Under this name Wilmott (1939 B: 193) describes the hybrid between *Orchis hebridensis* and *O. purpurella* from Barra, v.-c. 110.

669/14. ORCHIS MASCULA L. The development of the sinker is described by Sharman (1939).

669/18. HIMANTOGLOSSUM HIRCINUM (L.) Koch. Sledge (1939) records the occurrence of the Lizard Orchid in Yorkshire and gives a brief history of its occurrence in Britain.

678. CROCUS L. Fritsché gives some account of the morphology, seed dispersal (by ants) and germination.

684/1. NARCISSUS PSEUDO-NARCISSUS L. The anatomy of flowers and leaves of normal plants and plants grown on a horizontal klino-

stat are compared. In the flowers growth on a klinostat does not affect the development or distribution of statocytes, but changes occur in the shape and size of cells of the outer tissues of peduncle and receptacle. In leaves the cells of epidermis and palisade tissue are smaller in transverse section and epidermal cells are shorter longitudinally than in upright plants. The average number of stomata per sq. mm. is greater.—Brain.

684/4. NARCISSUS POETICUS L. The spermatogenesis as observed *in vivo* is described by Kostriukova and Benetskaia.

684/7. NARCISSUS MINOR L. Considered by Pugsley (1939 B) to be a native of Portugal.

684/9. NARCISSUS INFUNDIBULUM Poiret. Pugsley (1939 B) identifies the Cornish plant, previously called *N. odorus* L., as this species.

688/1. TAMUS COMMUNIS L. Burkill (1939 A) gives a fuller account of his experiments and observations on the trigger mechanism in the germination of the seed. He also describes the growth and tensions between the nerves in the leaf blade (1939 B). Burkill (1940) describes the distribution of raphides in the leaves.

716/1. PARIS QUADRIFOLIA L. The frequency of the occurrence of the five-leaved variety is discussed.—Stearn et al. (1939).

727/1. LEMNA MINOR L. An account is given of the effect on growth and assimilation of all combinations of four light intensities and four levels of potassium supply under controlled conditions by White (1939).

737. POTAMOGETON. Dandy and Taylor (1940, 139) give an account of the species occurring in the Outer Hebrides. Ten species are recorded.

737/3. POTAMOGETON DRUCEI Fryer. This is shown by Dandy and Taylor (1939) to be identical with *P. nodosus* Poir. The vice-county distribution is given as 6, 9, 22, and 34. Vice-county 8 given by Druce in his *Comital Flora* is an error for " 6."

737/23. POTAMOGETON BERCHTOLDII Fieb. Dandy and Taylor (1940, 49) give an account of the distribution in Britain with references to all the specimens examined.

737/25. POTAMOGETON PUSILLUS L. Dandy and Taylor (1940, 1) give an account of the distribution in Great Britain and include references to all specimens examined.

740/1. ZOSTERA MARINA L. Tutin (1938) gives a brief account of the taxonomy, a detailed account of the autecology and some account of the epidemic disease responsible for its extensive mortality.

740/1(2). ZOSTERA HORNEMANNIANA Tutin. Tutin (1938) gives some account of the autecology.

750/1. CLADIUM MARISCUS R. Br. Conway (1938) continues studies in the autecology and gives an account of the growth rates of the leaves and of the distribution of the species in Europe. Von Post's interpretation of its distribution is confirmed by experi-

mental evidence. This interpretation is that the species is benefited by high summer temperature (a mean of 14-16° C. in the warmest months), that the growing point of the stem is frost sensitive, and that the species is excluded from localities where frost is so intensive that it can penetrate to the underground regions of the plant.

753/49(2). CAREX EBORACENSIS Nelmes. Nelmes (1939) describes this from Copgrove, near Knaresboro, Yorkshire, collected by the Rev. James Dalton in 1802.

753/59. CAREX VULPINA L. This name has been applied to two distinct species, one with an eastern and the other with a western distribution. Nelmes (1939) shows that the eastern plant is the true *C. vulpina* L. and is rare in Britain, whilst the common British plant with a western distribution is *C. Otrubae* Podp.

758/3. SPARTINA TOWNSENDII H. & J. Groves. A detailed account of the structure and development of the hydathodes is given by Skelding and Winterbotham (1939).

791. DESCHAMPSIA FLEXUOSA (L.) Trin. An arctic Russian form of this species was subjected to a ten hour day (by covering except between 8 a.m. and 6 p.m.). Normal reproduction was suppressed owing to increased vegetative growth of the tuft and the formation of shortened viviparous panicles. Transitional forms were obtained, from normal floriferous spikelets through vegetative buds to normal vegetative shoots. It is concluded that vivipary is not a congenital and invariable autonomous property of certain genotypes, but a result of interaction of the hereditary material constitution of the organism with definite conditions of existence.—Schultz (1939).

829. LOLIUM MULTIFLORUM Lam. and L. SUBULATUM Vis. Plants were subjected to starvation conditions in a dark room at 16° C. and harvests made at intervals over a period of 15 days. Analyses were made of this material. It was found that protein sulphur decreased in amount in the leaves and was accompanied by a corresponding increase in sulphate sulphur. No ethereal sulphate could be detected and the amount of soluble organic sulphur did not alter appreciably. In the leaves protein nitrogen decreased, but was not accompanied by an increase of soluble nitrogen compounds. In the stems *plus* roots the amounts of protein sulphur, protein nitrogen and sulphate sulphur did not change appreciably during the experiment, but the soluble nitrogenous compounds increased in amount owing to translocation from the leaves.

The value of the ratio of protein nitrogen to protein sulphur did not alter appreciably in either leaves or stems *plus* roots.

It is concluded that during protein katabolism in leaves protein sulphur is oxidised, probably by way of cystine, to inorganic sulphate sulphur.—Wood and Barrien (1939).

841/1. PINUS SYLVESTRIS L. Pratt (1939) deals with the fertilisation.

844/2. EQUISETUM ARVENSE L. Taylor (1939) discusses the early cellular and axial organisation of the embryo, prothallial nutrition, the segmental organisation of the adult plant, and some features of the organisation of the sporophyte. *E. arvense* is considered to be one of the most primitive of the Pteridophyta.

844/8. EQUISETUM TRACHYODON Braun. Matthews (1940) records its occurrence in South Aberdeenshire near the Bridge of Potarch, Birse.

847/1. PTERIDIUM AQUILINUM (L.) Kuhn. The occurrence of Bracken in London is dealt with by Lousley (1939 B) and Ridley (1939), and in Bristol by Thompson (1939 A).

854/3. POLYSTICHUM ACULEATUM (L.) Roth. Alston (1940) discusses the correct application of the name and shows that it is the correct one for the plant known as *P. lobatum* (Huds.) Woynar. *P. angulare* (Kit. ex Willd.) Presl should be called *P. setiferum* (Forsk.) Woynar.

856/1. DRYOPTERIS FILIX-MAS (L.) Schott. Manton (1939) finds that the "type" of this species is a sexually reproducing tetraploid ($2n=160$); its var. *abbreviata* (which also reproduces sexually) is diploid in its sporophyte ($2n=80$) and haploid in the gametophyte ($n = 40$-41), while var. *paleacea* (which is apogamous) may be diploid, triploid or tetraploid. The author would regard the three groups named as distinct species.

856/5. DRYOPTERIS AEMULA (Ait.) Kuntze. The occurrence of this fern at Hackness in Yorkshire is dealt with by Rowlands (1939).

112. Ophioglossaceae. A monographic survey of the Ophioglossaceae of the world is made by Clausen (1938).

BIBLIOGRAPHY.

For Abbreviations of Titles of Periodicals see lists previously published in *B.E.C. 1935 Rep.*, 153-155 (1936), *B.E.C. 1936 Rep.*, 383 (1937), *B.E.C. 1937 Rep.*, 631 (1938), and *B.E.C. 1938 Rep.*, 168 (1939).

ADAM, ROBERT MOYLE; 1939: The Scottish Alpine Botanical Club Excursion, 1938; Trans. Bot. Soc. Edin., *32*, 560-564.

AKED-DAVIES, G. T.; 1939: Flower List [Topographical and Phenological Records]; Rep. Marlborough Coll. N.H. Soc., 1938, *87*, 27-35.

ALSTON, A. H. G.; 1940: The Correct Application of the Name *Polystichum aculeatum*; J.B., *78*, 160-164.

ANDERSON, EDGAR, and OWNBEY, R. P.; 1939: The Genetic Coefficients of Specific Difference; Ann. Missouri Bot. Gard., *26*, 325-345.

ANON.; 1939: Subspecies and Varieties; Nature, *143*, 252-253.

—— (O.C.); 1939: *Hedera Helix* var. *conglomerata*; Gard. Chron., Ser. 3, *106*, 116.

—— 1939: Remarks on the Flora of the Islands of the Barra Group; Vasc., *25*, No. 4, 120.

ARBER, A.; 1938: Studies in Flower Structure. IV. On the Gynaecium of *Papaver* and Related Genera; Ann. Bot., N.S., *2*, 649-664.

—— 1939: Studies in Flower Structure. V. On the Interpretation of the Petal and "Corona" in *Lychnis*; Ann. Bot., N.S., *3*, 337-346.

AUDUS, L. J.; 1939 A: Self-parasitism in *Cuscuta*; Ann. Bot., N.S., *3*, 761.

—— 1939 B: Mechanical Stimulation and Respiration in the Green Leaf. II. Investigations on a Number of Angiospermic Species; New Phyt., *38*, 284-288.

BAKER, H., and CLAPHAM, A. R.; 1939: Seasonal Variations in the Acidity of some Woodland Soils; J. Ecol., *27*, 114-125.

BATES, G. H.; 1939: Colchicine-induced Polyploidy in Nature; Nature, *143*, 643.

BERKELEY, COMYNS, J. A.; 1939: A Bifurcated Inflorescence of *Digitalis purpurea* L.; Ann. Bot., N.S., *3*, 699-718.

BLACKBURN, KATHLEEN B.; 1939: The *Limosella* Plants of Glamorgan. Part 2. Chromosomes and Species; J.B., *77*, 67-71.

—— 1939: The Crowberry; Vasc., *25*, No. 1, 12.

BOTEY, G. M.; 1939: An Ecological Survey of Dundry Down with Special Reference to the Open Down Association; Proc. Bristol N.S. Fourth Series, *8*, 479-496.

BOLTON, E.; 1940: Interesting Facts concerning our Wild Roses: Vasc. *26*, No. 1, 4.

BORGSTRÖM, G.; 1939: Formation of Cleistogamic and Chasmogamic Flowers in Wild Violets as a Photoperiodic Response; Nature, *144*, 514-515.

BRAIN, E. D.; 1939: Studies in the Effects of Prolonged Rotation of Plants on a Horizontal Klinostat. II. Anatomical Structure; New Phyt., *38*, 240-255.

BRENCHLEY, W. E.; 1939: The Vitality of Weed Seeds; Proc. Linn. Soc., 1938-39, 145-152.

BRITTON, C. E.; 1939: *Melampyrum pratense* L. Recent Determinations and Views of Dr G. Beauverd; J.B., *77*, 81-86.

BROOKE, B. J., and ROSE, FRANCIS; 1940: A New British species of *Epipactis*; J.B., *78*, 81-89.

BROWN, G. C.; 1939: Additional Records of Essex Plants; Essex Naturalist, *26*, 184-193, 248-255.

BURGES, ALAN; 1939: The Defensive Mechanism in Orchid Mycorrhiza; New Phyt., *38*, 273-282.

BURKILL, I. H.; 1939 A: The Trigger-Mechanism in the Germination of the Seed of *Tamus communis* L.; J.B., *77*, 44-50.

—— 1939 B: Growth and Tensions between the Nerves in the Leaf-blade of *Tamus communis* L., *l.c.*, 325-333.

—— 1940: The Distribution of Raphides in the Leaves of *Tamus communis* L.; J.B., *78*, 17-19.

BURTT, B. L.; 1939: Leaf-colour Forms in *Myrica Gale*; J.B., *77*, 91-93.

BURTT DAVY, J.; 1938: A New Variety of *Salix alba* L.; J.B., *76*, 141-143.

BUSH, EDITH A.; 1939: The Grasses, Sedges and Rushes of the Tile Hill Nature Reserve; Proc. Coventry N.H.S., *1*, 201-204.

CALDER, E. A.; 1939: Ecological Observations on Ryton Willows Pool; Vasc., *25*, No. 4, 128.

CAMPBELL, M. S.; 1939: Notes on Outer Hebrides Records; J.B., *77*, 63.

CARPENTER, J. R.; 1939: An Ecological Glossary (Rev.); Nature, *144*, 1030.

CHAPMAN, V. J.; 1939: Studies in Salt Marsh Ecology. V; J. Ecol., *27*, 160-201.

CLAPHAM, A. R. and B. N.; 1939: The Valley Fen at Cothill, Berkshire. Data for the Study of Post-Glacial History. II; New Phyt., *38*, 167-174.

CLARK, W. A.; 1939 A: Noteworthy Plants from N. Uist, Baleshare, Monach Islands, Harris, Taransay, Mingulay and Berneray; PU.Durham P.S., *10*, Pt. 2, 124-129.

—— 1939 B: The Occurrence of *Arenaria norvegica* Gunn. and *Thlaspi alpestre* Linn. on Rhum (v.-c. 104) and *Carex Halleri* Gunn. on North Uist (v.-c. 110); J.B., *77*, 4-5.

—— and HARRISON, J. HESLOP; 1940: New and Noteworthy Plants from Great and Little Bernera (Lewis), Pabbay and Berneray (Harris) and the Uig district of Lewis; PU.Durham P.S., *10*, Pt. 3, 214-221.

CLAUSEN, R. T.; 1938: A Monograph of the Ophioglossaceae; Mem. Torrey B.C., *19*, No. 2, 1-117.

CONWAY, V. M.; 1938: Studies in the Autecology of *Cladium Mariscus* R. Br.. IV. Growth Rates of the Leaves; New Phyt., *37*, 254-278. V. The Distribution of the Species; *l.c.*, 312-328.

COOPER, THOMAS B.; 1939: A Study of the Pericycle in the Caprifoliaceae; Trans. Bot. Soc. Edin., *32*, 548-555.

CRANE, M. B., and THOMAS, P. T.; 1939: Segregation in Asexual (Apomictic) Offspring of *Rubus*; Nature, *143*, 684.

DALLMAN, A. A.; 1939: Botany (of Shropshire); Caradoc and Severn Valley Field Club, Record of Bare Facts, No. *48*, 5-10.

D'AMATO, F.; 1939: Ricerche embriologiche e cariologiche sul genere *Euphorbia*; Nuovo Giornale Bot. Ital. (nuova serie), *46*, 470-509, ff. 1-126.

DANDY, J. E., and TAYLOR, G.; 1939: Studies of British Potamogetons. IV. The Identity of *Potamogeton Drucei*; J.B., *77*, 56-62. V. The Identity of *Potamogeton salignus*; *l.c.*, 97-101. VI. The Identity of *Potamogeton Babingtonii*; *l.c.*, 161-164. VII. Some New County Records; *l.c.*, 253-259. VIII. *Potamogeton Griffithii* and *P. Macvicarii*; *l.c.*, 277-282. IX. ×*Potamogeton Bennettii* and ×*P. Lintonii*; *l.c.*, 304-311. X. Another Record of ×*Potamogeton*

fluitans from South Hants.; *l.c.*, 342. XI. ×*Potamogeton decipiens* in South Wilts.; *l.c.*, 342-343.

—— 1940: Studies of British Potamogetons. XII. *Potamogeton pusillus* in Great Britain; J.B., *78*, 1-11. XIII. *Potamogeton Berchtoldii* in Great Britain; *l.c.*, 49-66. XIV. *Potamogetons* in the Hebrides (vice-county 110); *l.c.*, 139-147.

DARNELL, A. W.; 1939: Hardy Orchids; Gard. Chron., Ser. 3, *105*, 23; *106*, 151, 215 and 389.

DAVEY, V. McM., and LANG, J. M. S.; 1939: Experimental Taxonomy. III. Correlation of Characters within a Population; New Phyt., *38*, 32-61.

DAWKINS, C. J.; 1939: Tussock Formation by *Schoenus nigricans*: The Action of Fire and Water Erosion; J. Ecol., *27*, 78-88.

DIVER, C.; 1939: The Measurement of Ecological Factors of Use in Taxonomy; J. Ecol., *27*, 421-424.

EDEES, ERIC S.; 1939: Some Additions to the Flora of North Staffordshire; Trans. N. Staff. Field Club, *73*, 49-53.

—— 1940: *Orchis pardalina* Pugsl. in North Staffordshire; J.B., *78*, 269-270.

ERLANSON, E. W.; 1938: Phylogeny and Polyploidy in *Rosa*; New Phyt., *37*, 72-81.

FAIRHURST, H.; 1939: The Natural Vegetation of Scotland: its Character and Development; Scott. Geog. Mag., *55*, 193-212.

FENTON, E. W.; 1939 A: Bracken, Heather and Matgrass: an Ecological Triangle; Scott. Geog. Mag., *55*, 35-40.

—— 1939 B: The Vegetation of "Screes" in certain Hill Grazing Districts of Scotland; J. Ecol., *27*, 502-512.

FRITSCHÉ, EMMA; 1939: Ethologie du *Crocus* (Safran); Bull. Soc. Bot. Belgique, *71* (Ser. 2, *21*), 104-111.

GODWIN, H., and CONWAY, VERONA M.; 1939: The Ecology of a Raised Bog near Tregaron, Cardiganshire; J. Ecol., *27*, 313-359.

GOOCH, F. W.; 1939: *Acer campestre*; Gard. Chron., Ser. 3, *106*, 64.

GREGOR, J. W.; 1938: Experimental Taxonomy. II. Initial Population Differentiation in *Plantago maritima* L. of Britain; New Phyt., *37*, 15-49.

—— 1939: Experimental Taxonomy. IV. Population Differentiation in N. American and European Sea Plantains allied to *Plantago maritima* L.; New Phyt., *38*, 293-322.

GROSE, J. D.; 1939: Wiltshire Plant Notes; Wilts. A.M., *48*, 407-414.

GUNDERSEN, A.; 1939: The Classification of Dicotyledons; Torreya, *39*, 108-111.

HARDY, E. M.; 1939: Studies of the Post-Glacial History of British Vegetation. V. The Shropshire and Flint Maelor Mosses; New Phyt., *38*, 364-396.

HARDY, ERIC; 1940 A: *Petasites japonicus* Maxim. in Cheshire; J.B., *78*, 103-104.

—— 1940 B: *Siegesbeckia orientalis* in Lancashire; J.B., *78*, 271.

HARLEY, J. L.; 1939 A: The Early Growth of Beech Seedlings under Natural and Experimental Conditions; J. Ecol., *27*, 384-400.

—— 1939 B: Beech Mycorrhiza: Re-isolation and the Effect of Root Extracts upon *Mycelium radicis Fagi* (Chan.); New Phyt., *38*, 352-363.

HARRISON, J. W. HESLOP, and HELENA, COOK, R. B., and CLARK, W. A.; 1939: Plants New to, and Rare in, the Outer Hebrides (v.-c. 110). I. From South Uist, Eriskay, and Fuday; J.B., *77*, 1-5.

—— 1940: The Flora of the Isles of Coll, Tiree and Gunna; PU.Durham PS., *10*, Pt. 4, 274-308.

HARRISON, J. W. HESLOP; 1939 A: Gaps in our Knowledge of the Flora of Northumberland and Durham; Vasc., *25*, No. 1, 17.

—— 1939 B: Fauna and Flora of the Outer Hebrides; Nature, *143*, 1004-1007.

—— 1939 C: A Review of Recent Articles on the Flora of the Outer Hebrides; Vasc., *25*, No. 2, 52.

—— 1939 D: A Visit to the Isle of Coll; Vasc., *25*, No. 3, 77.

—— 1939 E: The Flora of the Islands of Rhum, Eigg, Canna, Sanday, Muck, Eileannan Each, Hyskeir, Soay, and Pabbay; PU.Durham PS., *10*, Pt. 2, 87-123.

—— 1940: A Preliminary Flora of the Outer Hebrides (edited by J.W.H.H.); PU.Durham PS., *10*, Pt. 4, 228-273.

—— and TEMPERLEY, G. W.; 1939: The Flora of the Three Northern Counties; Northumberland Press Ltd., South Shore Road, Gateshead-on-Tyne. Overprint from the "Three Northern Counties of England," p. 207-279.

HILARY, D.; 1939: The Seed of *Fraxinus excelsior*; Naturalist, 177-178.

HOPE-SIMPSON, J. F.; 1939: Reduction of the Androecium in *Plantago lanceolata* L.; J.B., *77*, 290-293.

HOWELL, T. J.; 1939: *Carduus* in California; Leaflets of Western Botany, *2*, 212-213.

HUXLEY, J. S.; 1939: Ecology and Taxonomic Differentiation; J. Ecol., *27*, 408-420.

HYDE, H. A., and WADE, A. E.; 1940: Welsh Ferns, a Descriptive Handbook; published by the National Museum of Wales, pp. x + 131, illustrated.

HYDE-PARKER, T.; 1939: Viability of Seeds; Naturalist, 311-312.

JACKSON, A. K.; 1939: *Cytisus scoparius* var. *prostrata* (Bailey) Hanb.; Gard. Chron., Ser. 3, *105*, 387.

KNOWLSON, H.; 1939: A Long Term Experiment on the Radial Growth of the Oak; Naturalist, 93-99.

KOSTOFF, DONTCHO; 1939: Induction of Polyploidy by Pulp and Disintegrating Tissues from *Colchicum* sp.; Nature, *143*, 287-288.

KOSTRIUKOVA, K., and BENETSKAIA, G.; 1939: Spermatogenesis in *Narcissus poeticus* L. Observations *in vivo*; Journ. Bot. U.R.S.S., *24*, 209-220.

LINNEAN SOCIETY; 1939: Discussion on "Subspecies" and "Varieties" arranged at the request of the Association for the Study of Systematics; Proc. Linn. Soc., 1938-39, 89-114.

LIVENS, H. M.; 1939: The Withering of Flowers; J.B., *77*, 211-216.

LOUSLEY, J. EDWARD; 1939 A: *Rumex aquaticus* L. as a British Plant; J.B., *77*, 149-152.

—— 1939 B: *Pteridium aquilinum* (L.) Kuhn in London; J.B., *77*, 181-182.

—— 1939 C: Notes on the Flora of the Isles of Scilly. I; J.B., *77*, 195-203.

—— 1940: Notes on the Flora of the Isles of Scilly. II; J.B., *78*, 153-160.

MAJUMDAR, G. P.; 1939: On the Occurrence of Multiperforate Plates in the Xylem Vessels of *Heracleum Sphondylium* L.; Proc. Leeds Phil. & Lit. Soc., *3*, 559-564.

MANN, H. H.; 1939: The Weed Herbage of a Slightly Acid Soil; J. Ecol., *27*, 89-113.

MANTON, I.; 1939: Cytology of the Common Male Fern in Britain; Nature, *144*, 291.

MARSDEN-JONES, E. M., and TURRILL, W. B.; 1939: Researches on *Silene maritima* and *S. vulgaris*. XXII. Further Research on the Genetics of Petal Size and Other Characters in *S. maritima*; Kew Bull., 294-297. XXIII. Genetics of Calyx-shape and Other Characters in *S. maritima*; *l.c.*, 298-304.

MARTIN, W. K., and FRASER, G. T. (editors); 1939: Flora of Devon; published at Arbroath (T. Buncle & Co. Ltd), pp. xv + 787, with 2 maps and 8 plates.

MATTHEWS, J. R.; 1940: *Equisetum trachyodon* A. Br. in Britain; J.B., *78*, 21.

MAUDE, PAMELA F.; 1939: The Merton Catalogue. A List of the Chromosome Numerals of Species of British Flowering Plants; New Phyt., *38*, 1-31.

MELVILLE, R.; 1939 A: Contributions to the Study of British Elms. II. The East Anglian Elm; J.B., *77*, 138-145.

—— 1939 B: Ambiguous Elm Names. I. *Ulmus sativa* Mill.; *l.c.*, 244-148. II. *Ulmus minor* Mill.; *l.c.*, 266-270.

—— 1939 C: The Application of Biometrical Methods to the Study of Elms; Proc. Linn. Soc., 1938-39, 152-159.

—— 1940: Contributions to the Study of British Elms. III. The Plot Elm, *Ulmus Plotii* Druce; J.B., *78*, 181-192.

METCALFE, C. R.; 1939: The Sexual Reproduction of *Ranunculus Ficaria*; Ann. Bot., N.S., *3*, 91-103.

METCALFE, GEORGE; 1939: Observations on the Anatomy of the Cricket-bat Willow (*Salix cærulea* Sm.); New Phyt., *38*, 150-158.

MILTON, W. E. J.; 1939: The Occurrence of Buried Viable Seeds in Soils at Different Elevations and on a Salt Marsh; J. Ecol., *27*, 149-159.

NELMES, E.; 1939: Notes on British Carices. I. A New British Species; J.B., *77*, 112-114. IV. *Carex vulpina* L. 1. Taxonomy; *l.c.*, 259-266. V. *Carex Oederi* Retz.; *l.c.*, 301-304.

—— and SPRAGUE, T. A.; 1939: Notes on British Carices. II. *Carex dioica*; J.B., *77*, 152-154. III. *Carex diversicolor*; *l.c.*, 179-181.

NORDHAGEN, ROLF; 1938: Studien über die monotypische Gattung *Calluna* Salisb. II; Bergens Museums Årbok, 1938, Naturvidenskapelig rekke Nr. 1, 70 pp.

PHILLIPS, E. MASSON; 1939: *Carduus pycnocephalus* L. on Plymouth Hoe; Rep. & Trans. Devon Assoc., *71*, 243-247.

POLUNIN, N.; 1939 A: Arctic Plants in the British Isles; Nature, *144*, 352-4.

—— 1939 B: Arctic Plants in the British Isles: Enumeration of the Species and Varieties; J.B., *77*, 270-274.

PRAEGER, R. LL.; 1939: The Relations of the Flora and Fauna of Ireland to those of other Countries; Proc. Linn. Soc., 1938-39, 192-213.

PRATT, JOAN; 1939: Fertilization in *Pinus sylvestris* L.; Naturalist, 285-288.

PUGSLEY, H. W.; 1939 A: Recent Work on Dactylorchids; J.B., *77*, 50-56.

—— 1939 B: Notes on Narcissi; J.B., *77*, 333-337.

—— 1940 A: Notes on British Euphrasias. V; J.B., *78*, 11-13. VI; *l.c.*, 89-92.

—— 1940 B: On *Hypericum quadrangulum* L.; J.B., *78*, 25-36.

—— 1940 C: An overlooked *Silene* in Devon; J.B., *78*, 94-96.

—— 1940 D: Notes on *Orobanche* L.; J.B., *78*, 105-116.

—— 1940 E: *Cotoneaster integerrimus* Med. in Britain; J.B., *78*, 175.

—— 1940 F: Further Notes on British Dactylorchids; J.B., *78*, 177-181.

RICHARDS, O. W.; 1939: The Use of Ecological Data in Ecology; J. Ecol., *27*, 406-408.

RIDLEY, H. N.; 1939: Brake Seedlings in London; J.B., *77*, 219.

RILSTONE, F.; 1940: A new *Rubus* from Cornwall; J.B., *78*, 13-14.

ROWLANDS, S. P.; 1939: *Dryopteris aemula* Kuntze in Yorkshire; N.W.Nat., *14*, 189-192.

SALISBURY, E. J.; 1939: The Ecologist Appreciates and Criticises the Taxonomist; J. Ecol., *27*, 402-405.

SANDWITH, CECIL I.; 1939: Bristol Botany in 1938; Proc. Bristol N.S., *8*, 389-393.

—— 1940: Bristol Botany in 1939; Proc. Bristol N.S., *9*, 21-26.

SAUNDERS, E. R.; 1939: The Neglect of Anatomical Evidence in the Current Solutions of Problems in Systematic Botany; New Phyt., *38*, 203-209.

SCHULTZ, G. E.; 1939: A Case of Experimental Vivipary in Grass; Journ. Bot. U.R.S.S., *24*, 197-208.

SHARMAN, B. C.; 1939: The Development of the Sinker of *Orchis mascula* L.; Proc. Linn. Soc., 1938-39, 5-6.

SKALINSKA, M.; 1940: The Problem of Indigeneity of a Scottish *Aquilegia*; J.B., *78*, 39-45.

SKELDING, A. D., and WINTERBOTHAM, JOYCE; 1939: The Structure and Development of Hydathodes of *Spartina Townsendii* Groves; New Phyt., *38*, 69-79.

SKENE, M.; 1939: A Survey of Steep Holm. III. Botany; Proc. Bristol N.S., Ser. 4, *8*, 452-459.

SLEDGE, W. A.; 1939: The Lizard Orchid in Yorkshire; Naturalist, 309-310.

SOUEGES, E.; 1939: Les lois du développement chez le *Polemonium caeruleum* L. Affinités des Polemoniacées; B.S.B.Fr., *86*, 289-297.

SPRAGUE, T. A.; 1939 A: *Sedum Rosea*; J.B., *77*, 126.

—— 1939 B: *Rorippa islandica* (Oeder) Borbás. J.B., *77*, 343-345.

—— 1939 C: Proposed Additions and Amendments to the International Rules of Botanical Nomenclature; Kew Bull., 317-330.

STEARN, W. T. et al.; 1939: *Paris quadrifolia* var. *quinquefolia*; Gard. Chron., Ser. 3, *106*, 182.

STEBBINS, G. L., Jr.; 1939: Notes on *Lactuca* in Western North America; Madroño, *5*, 123-126.

STILL, A. L.; 1939: *Mentha crispa* L. and *M. lacerata* Opiz; J.B., *77*, 316-318.

SUMMERHAYES, V. S., and TURRILL, W. B.; 1939: Ecology and Taxonomy: the Taxonomist's Viewpoint; J. Ecol., *27*, 424-428.

SWAN, G. A.; 1939: Notes on Some Plants of Cheviot and the College Valley; Vasc., *25*, No. 1, 15.

TANSLEY, A. G.; 1939 A: Introduction to Symposium on the Reciprocal Relationship of Ecology and Taxonomy; J. Ecol., *27*, 401-402.

—— 1939 B: British Ecology during the past quarter-century: the Plant Community and the Ecosystem; J. Ecol., *27*, 513-530.

TAYLOR, T. M. C.; 1939: Some Features of the Organisation of the Sporophyte of *Equisetum arvense* L.; New Phyt., *38*, 159-166.

TEMPERLEY, G. W.; 1939: Notes on Some Plants in Northumberland and Durham; Vasc., *25*, No. 4, 123.

THOMPSON, H. S.; 1939 A: Brake Fern on Bristol Walls, etc.; J.B., *77*, 218-219.

—— 1939 B: *Orobanche Hederae* in and about Bristol; *l.c.*, 248-249.

TUTIN, T. G.; 1938: The Autecology of *Zostera marina* in Relation to its Wasting Disease; New Phyt., *37*, 50-70.

TURNER, J. S., and WATT, A. S.; 1939: The Oakwoods (*Quercus sessiliflora*) of Killarney, Ireland; J. Ecol., *27*, 202-233.

VACHELL, E.; 1939: The *Limosella* Plants of Glamorgan. Part I. The History of their Discovery; J.B., *77*, 65-67.

VALENTINE, D. H.; 1939: Detailed Taxonomy and Autecology; J. Ecol., *27*, 420.

VIGNOLO-LUTATI, F.; 1939: Sulla sistematica di alcune *Ambrosiae*; Nuovo Giornale Bot. Ital. (nuova serie), *46*, 71-87, t. 3.

WALLACE, E. C.; 1940: *Carex Grahami* Boott in Argyllshire; J.B., *78*, 270-271.

WARBURG, E. F.; 1938: Taxonomy and Relationship in the Geraniales; New Phyt., *37*, 189-210.

WATSON, E. V.; 1939: Notes on the Flora of Barra, Outer Hebrides; J.B., *77*, 5-8.

WATSON, J. W.; 1939: Forest or Bog (Vegetation of . . . Districts . . . in Argyllshire); Scott. Geog. Mag., *55*, 148-161.

WHITE, H. L.; 1939: The Interaction of Factors in the Growth of *Lemna*. XIV. The Interaction of Potassium and Light Intensity in Relation to Growth and Assimilation; Ann. Bot., N.S., *3*, 619-648.

WILMOTT, A. J.; 1939 A: Annotationes Systematicae. III. *Leontodon Leysseri* (Wallr.), comb. nov.; J.B., *77*, 173.

—— 1939 B: Notes on a Short Visit to Barra; J.B., *77*, 189-195.

—— 1939 C: Annotationes Systematicae. IV. Typification of Some British Sorbi; J.B., *77*, 204-207.

—— 1939 D: Annotationes Systematicae. V. Nomenclature of Two British Alchemillas; *l.c.*, 249-250.

—— 1940: Some British Species of *Rhinanthus*; J.B., *78*, 201-213.

WOOD, J. A., and BARRIEN, B. S.; 1939: Studies on the Sulphur Metabolism of Plants. III. On Changes in Amounts of Protein Sulphur and Sulphate Sulphur during Starvation; New Phyt., *38*, 265-272.

WOOLLEY, R. V. G.; 1939: Variations in *Cytisus scoparius*; Gard. Chron., Ser. 3, *106*, 163.