

THE BOTANICAL SOCIETY
AND EXCHANGE CLUB
OF THE BRITISH ISLES.

VOL. XII. PART VI.

REPORT FOR 1943-44
(WITH BALANCE SHEETS FOR 1943 AND 1944).

BY

THE HONORARY EDITOR,
A. J. WILMOTT,

Natural History Museum, Crom-
well Road, London, S.W. 7.

(In the absence of E. C. Wallace
on Active Service.)

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(VOL. XII. PART VI).

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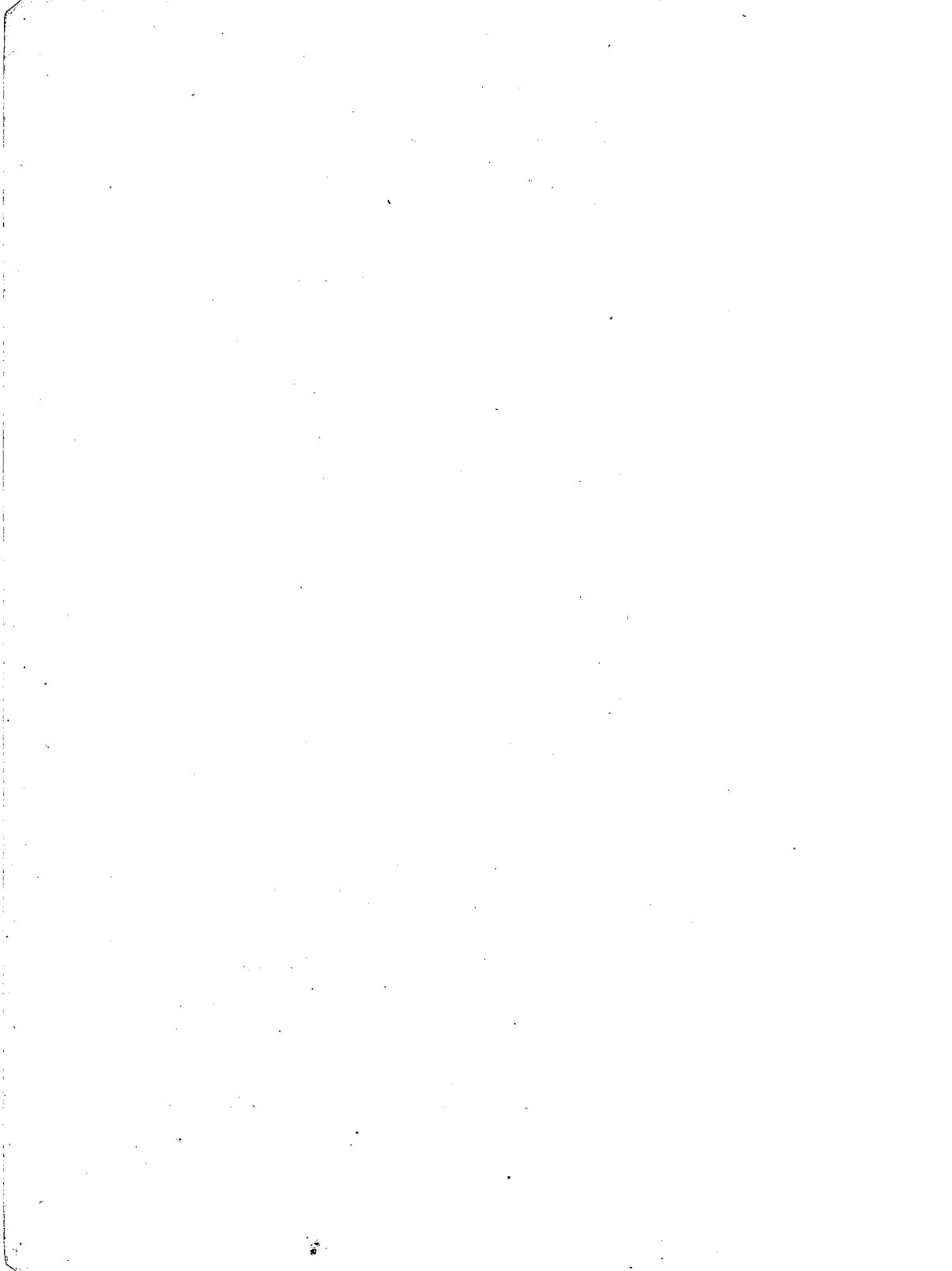
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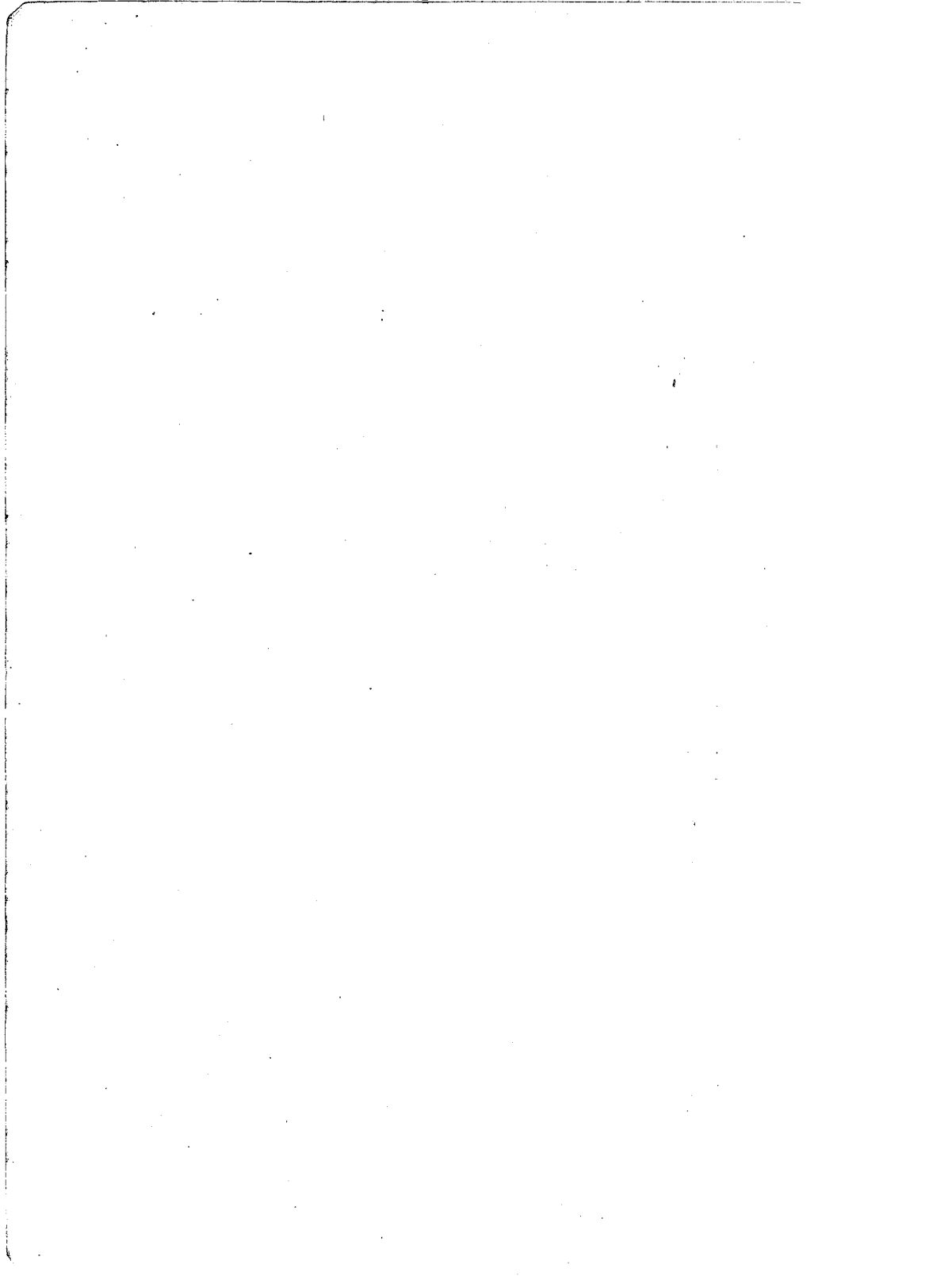
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April 1946.



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Ref †Nemes, E., Royal Botanic Gardens, Kew, Surrey.

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.
- Oslo, The Botanical Museum of the University of, c/o Royal Norwegian Ministry of Education, Kingston House, Princes Gate, London, S.W.7.
- Oxford University, Dept. of Botany, The Librarian, Oxford.
- Oxford University, Dept. of Forestry, The Librarian, Oxford.
- Paget, Lady, Achnashellach, Ross-shire.
- †Palmer, The Hon. W. J. L., The Old House, Wonston, Sutton Scotney, Hants.
- Park, K. J. F., Rydol Cottage, Station Road, Allendale, Northumberland.
- Parkin, J., M.A., F.L.S., Blaithwaite, Wigton, Cumberland.
- Partridge, Mrs Frances, Ham Spray House, near Marlborough, Wilts.
- 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.
- Pharmacie, Bibliotheque de la Faculté de, 4 Avenue de la Observatoire, Paris, France.
- Phelp, S., 43a Quinton Street, Earlsfield, S.W.18.
- Phelps, Mrs J. V., Woodbury, East Avenue, Bournemouth, Hants.
- †Phillips, Edwin Masson, 26 Cheltenham Place, Plymouth, Devon.
- Pickard, Miss Kathleen, Harveys, Glynde, Lewes, Sussex.
- Pigott, C. D., Clevedon, Harestone Hill, Caterham, Surrey.
- L Polunin, Nicholas, M.S. (Yale), M.A., D.Phil., D.Sc. (Oxon.), The Herbarium, Botanic Garden, Oxford.
- Alfred Pope, C. N., 256 Hythe Road, Ashford, Kent.
- †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.
- Ref Prime, C. T. M.A., F.L.S., 147 Upper Selsdon Road, Croydon, Surrey.
- †Pugsley, H. W., B.A., 81 Alexandra Road, Wimbledon, S.W.19.
- 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.
- †Raven, John E., The Master's Lodge, Christ's College, Cambridge.
- †Rawlins, Miss E., Oakfield, Winscombe, Somerset.
- 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, Dolgelly, N. Wales.
- Richards, Dr P. W., The Botany School, Cambridge.
- 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.
- Roberts, G. A., 53 Broadway, Fulford, Yorks.
- Roche, The Lady, Cadlington, Oxford.
- *Rose, Mrs Eric, Leweston Manor, Sherborne, Dorset.
- †Rose, Francis, B.Sc. Boxtree House, East Malling, Kent.
- Russell, Lady Victoria, The Ridgeway, Sheré, 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, E. Arthur, M.A., M.B., F.R.C.P., The Lawn, Barcombe Mills, Nr. Lewes, Sussex.

Saunders, Miss E. F., Ortlor, 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.

†Sladen, W. J. L., 28 Grove Way, Esher, Surrey.

*†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.

Sowler, F. A., Ashtead, 9 North Avenue, Leicester.

Stationery Office, H.M., Princes Street, Westminster, S.W.1.

Stephenson, Rev. Dr T., D.D., The Museum, Torquay, Devon.

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.

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.

Pots. 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.

Townsend, C. C., Tolgarrick House, Tuckingmill, Camborne, Cornwall.

†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.

†Verdcourt, B., 86 Claremont Road, Luton, Beds.

- Victoria, The Public Library of, Melbourne, c/o Henry Sotheran Ltd., 2 Sackville Street, Piccadilly, W.1.
 Vivian, Miss C., 37 Wilton Crescent, London, S.W.1.
- †Wade, A. E., F.L.S., Dept. of Botany, National Museum of Wales, Cardiff.
 Waddy, 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.
 †Walters, S. M., Webb's Land, Wickham, Fareham, Hants.
 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.
- †West, C., "The Cowl House," Holt Wood, Aylesford, Kent.
 Weyer, Major B. G. Van de, South Marston Manor, Swindon, Wilts.
 Weyer, Major William Van de, Clyffe, Dorchester, Dorset.
- †Whellan, J. A., Lieut., 42 Stamford Street, Liverpool 7.
 Whiting, Miss M. M., Rosemary Cottage, Blythburgh, Suffolk.
 Whyte, James S., 31 Hayswell Road, Arbroath, Angus.
 Wilkinson, J. S., 26 Golder's Rise, Hendon, N.W.14.
 Willan, Mrs Hugh, Bridges, Teffont, Salisbury.
 Williams, E. G., M.A., F.R.I.C., 61 Earlsway, Curzon Park, Chester.
 Williams, Mrs F. R., 234 Highland Avenue, Winchester, Mass., U.S.A.
 Williams, John E. Miles, 28 Spencer Road, St Marks, Cheltenham.
 Williams, I. A., West Hall, Kew Gardens, Surrey.
 Williams, M. L., Layton Villa, Linden Road, Bognor, Sussex.
- Ref. †Wilmott, A. J., M.A., F.L.S., F.R.G.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.
- na (K) 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.
 Young, Donald P., B.Sc., Ph.D., A.R.I.C., "Craigmores," 307 Burton Rd., Derby.
- 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 recent 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.
 Genève, Switzerland, Le Directeur du Conservatoire et du Jardin botanique de la Ville de.

LIST OF MEMBERS, 1945.

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.

 SUMMARY OF THE ABOVE MEMBERSHIP LIST.
Non-Subscribing Members.

Honorary Members	18
Corresponding Members	4
			— 22

Subscribing Members.

Ordinary Members	322
Life Ordinary Members	13
Exchange Members	20
			— 355

Total Membership	377
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ACCOUNTS FOR THE YEAR 1943.

GENERAL FUND.

To Balance from 1942 ... £376 0 1 „ Subscriptions received during the year ... 190 3 6 „ Sale of Reports and Reprints ... 18 19 7 <hr style="width: 100%;"/> £515 3 2 <hr style="width: 100%;"/>	By Printing (other than Report) and Stationery ... £8 15 5 „ Fire Insurance on Books, etc., at Yardley Lodge ... 0 10 0 „ Honorarium to Caretaker at Yardley Lodge ... 1 11 6 „ Postages and Petty Expenses :— Treasurer ... £5 0 0 Acting Secretary ... 2 13 6 Joint Editor ... 0 15 0 Caretaker at Yardley Lodge ... 3 0 0 <hr style="width: 100%;"/> 11 8 6 „ Purchase of back Reports ... 5 10 3 „ Advertisement in Wild Flower Magazine, 1942-3 ... 1 0 0 „ Balance ... 486 7 6 <hr style="width: 100%;"/> £515 3 2 <hr style="width: 100%;"/>
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PUBLICATIONS FUND.

To Balance from 1942 ... £164 14 6 „ Sales of Fl. Northants ... 3 0 0 „ Sales of Comital Flora and Plant List ... 19 15 0 <hr style="width: 100%;"/> £187 9 6 <hr style="width: 100%;"/>	By Balance ... £187 9 6 <hr style="width: 100%;"/> £187 9 6 <hr style="width: 100%;"/>
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LIFE MEMBERS' FUND.

To Balance from 1942 ... £149 8 11 „ Subscriptions compounded during the year ... 14 0 0 <hr style="width: 100%;"/> £163 8 11 <hr style="width: 100%;"/>	By Balance ... £163 8 11 <hr style="width: 100%;"/> £163 8 11 <hr style="width: 100%;"/>
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MISS TROWER'S FUND.

To Balance from 1942 ... £16 7 11 <hr style="width: 100%;"/> £16 7 11 <hr style="width: 100%;"/>	By Balance ... £16 7 11 <hr style="width: 100%;"/> £16 7 11 <hr style="width: 100%;"/>
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BENEVOLENT FUND.

To Balance from 1942 ... £41 3 6 <hr style="width: 100%;"/> £41 3 6 <hr style="width: 100%;"/>	By Balance ... £41 3 6 <hr style="width: 100%;"/> £41 3 6 <hr style="width: 100%;"/>
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SUMMARY OF PROCEEDINGS OF MEETINGS.

A meeting of the Committee was held on 29th October 1943 in the rooms of the Linnean Society of London, the Chairman and five other members being present. It was agreed that the subscriptions of the Bergen Museum and Oslo University should be treated as paid up to the end of the year, "as a small sign of our appreciation of the work of Norway." The back numbers of Reports had been sent to the Norwegian Ministry. It was decided that very scarce numbers of our Reports should no longer be sold at their face prices, and that the prices to be asked should be settled by the Acting Secretary in consultation with the Treasurer. The Acting Secretary reported that he had visited Oxford and had put the Society's property there into better order. After a complete set of Reports had been set aside as the Society's own set, the best possible fifteen runs had been made up. Most of the reprints had been rearranged so that orders could be carried out more easily, and two copies of each, when available, had been put aside as the Society's own sets, for ultimate arrangement by both subject and author. Further copies of the *Comital Flora* had been bound up.

A meeting of the Committee was held on 24th March 1944 in the same rooms, the Chairman and eight other members being present. The Acting Secretary reported that it had so far not been possible to obtain suitable cupboards in which to store the Society's property at Oxford. It was agreed that a suitable Application Form for membership should be printed, and that a leaflet setting out the aims and work of the Society, together with a short history of its activities, should be prepared. It was considered that a suggested scheme for tax-free subscriptions, designed to increase the Society's income, was not practicable.

At the Annual General Meeting which followed in the afternoon the Chairman and eighteen other members were present. The report of the Acting Secretary, circulated with the notice calling the meeting, was adopted. In his report, which was adopted, the Treasurer said that as a result of the publication of Reports, our income this year might be exceeded by our expenditure, and an increase in membership was very desirable after the war if the scope of the Reports was to be maintained. In their report the Joint Editors invited members to send them any views they may have for the improvement of the Annual Reports, as the Publications Sub-Committee hope to review the whole subject of the contents and lay-out of the Report before the next volume was begun. Work towards a second edition of the *Comital Flora* had been begun and the Editors would be glad to receive information of any errors based on publications available before the appearance of the work in 1932, as well as any unpublished corrections. Mr H. W. Pugsley was again elected Auditor, the thanks of the Society being given to him

and also to the Linnean Society for their generous loan of rooms for our meetings.

Owing to the renewed attack on London during last summer no meeting of the Committee was held in October, but, instead, the Committee was circularised and in this way it was decided that instead of the proposed Report for 1943 a Report for 1943-44 should be prepared, and also that if possible the Exchange Section should be restarted with a Distribution in the winter of 1945-46.

A meeting of the Committee was held on 25th March 1945 in the same rooms, the Chairman and nine other members being present. Mr J. S. L. Gilmour was elected to the Editorial Sub-committee in place of Mr N. Y. Sandwith, who had been too busy to attend the meetings. It was decided that no minimum age should be fixed for membership, but that any very youthful candidate should be sponsored by an adult member, individual cases to be considered by the Committee. The five vacancies on the Committee due to three deaths and two transfers to offices were filled, in accordance with the special powers given to the Committee in 1940, as follows: Mr G. M. Ash, Mr P. J. M. Brenan, Miss M. S. Campbell, Dr J. E. Dony, and Mr J. S. L. Gilmour. Only three offers of participation in an Exchange Distribution next winter had been received so far, and decision on the matter was deferred until the autumn. Mr J. E. Lousley and Miss E. Vachell, with power to obtain the assistance of others, were asked to enquire on behalf of the Committee concerning the policy and prospects of restarting excursions. Mrs Foggitt was asked to explore the possibility of holding a *Conversazione* next November.

At the annual General Meeting which followed in the afternoon the Chairman and twenty-two other members were present. The Reports of the Acting Honorary Secretary, Honorary Treasurer, and Honorary Editor were adopted. To these Reports the Acting Secretary added a request for assistance for Bedford College for Women in the rebuilding of their herbarium destroyed by enemy action in 1940. The Treasurer added that although the assets were at present high and the membership gradually increasing, more members were needed if the present standard of the Reports was to be maintained at the present rate of subscription. The Editor drew attention to the difficulties which arose in dealing with Plant Records for which no voucher specimen had been sent (see his Report). Mr Pugsley was again elected auditor and was thanked for his services. The account of arrangements made by the Committee towards resumption of suspended activities at the conclusion of general hostilities in Europe was introduced by the Chairman, who thought that conditions would not permit return to normal activities for some time after the cessation of hostilities. As the meeting, although surprisingly large, was not fully representative, the Committee had decided to ask the meeting to confirm it in office until March 1946, and on the proposition of Miss C. Longfield, seconded by Mr Gilmour, this was agreed. In order to return to the regular practice of electing four

members of Committee to replace the four retiring each year by seniority of service, the following Resolution was proposed: "That the period from March 1939 to March 1946 be deemed to be a single year for purposes of elections of Committee." It was pointed out that as due notice had not been given of this Resolution which, being an emergency measure, is contrary to the Rules, it will need confirmation at the next Annual General Meeting. In response to some suggestions made by the Acting Secretary for dealing with the irregularity, Dr Lawn voiced the view that the irregularities had been required by the emergency and that the A.G.M. would prefer not only to accept them but to express their thanks to the Committee and Officers for serving continuously without respite for so long, and by their labours bringing the Society so satisfactorily through these difficult years, and his remarks were received with acclamation. The Chairman asked for the formal moving of the Resolution, and on the proposal of Miss Vivian, seconded by Miss Campbell, it was adopted and on behalf of the Committee and Officers the Chairman responded to the vote of thanks. The additions made to the Committee, in order to strengthen itself for the tasks of reconstruction, were notified and also the arrangements made concerning Exchange Distribution, Excursions, and Conversazione. The Chairman expressed the thanks of the Society to the Linnean Society for their continued kindness in giving their rooms for our meetings and the meeting expressed its approval. Mr Gilmour drew the attention of the Society to the existence of two maps of the Counties and Vice-Counties of the British Isles, prepared for the *New Naturalist*, obtainable from Adprint Limited, 6 Newman Street, London, W.1, on condition that if used in publications due acknowledgment be made to the *New Naturalist*: two forms are obtainable, one with the vice-county boundaries in black and the other with them in blue so that they will not show in reproduction.

HONORARY ACTING SECRETARY'S REPORT FOR 1943.

The past year has been quiet and uneventful as regards the Society's affairs. A few members have sent in specimens for identification, but most of us have had little opportunity for field work.

Sales of Reports and Reprints have continued, and the list of those available, given on the back cover of the Report now in the press, has been changed to include the more important of those found and set in order during my visit to Oxford last April. Some delay in dealing with orders is inevitable owing to my separation from the stock at Oxford, but Mr Whiting, caretaker at Yardley Lodge, has again dealt with orders most efficiently, and without his help this service could not be extended to members.

The publication of the 1941/42 Report, which will not be long delayed, will clear off the arrears in our publications, and if the Report for 1943 can be produced before the end of the present year, we can hope that conditions will be such that the beginning of the next volume will coincide with the beginning of more normal activities for the Society. I would take this opportunity of thanking all members who have given me assistance during the year.

HONORARY ACTING SECRETARY'S REPORT FOR 1944.

The past year, stirring though it has been in other fields, has for the most part been quiet botanically. Travelling is difficult, the obtaining of accommodation often more so. Plant Records sent in are from comparatively few sources. Probably few members have had much opportunity of botanising away from their well-known immediate neighbourhoods. But we may hope that before another year has passed conditions will have improved and a return to more normal working of the Society have begun.

The Committee has agreed that the Exchange Section should be recommenced as soon as possible, and those interested are asked to collect suitable material when they have the opportunity. For the benefit of new members it is emphasised that the main function of this section is the distribution of critical plants for the study and elucidation of the native (or sometimes alien) flora. Mr J. D. Grose, 18 Regent Street, Swindon, Wilts., has agreed to act as Distributor if the necessary material is available. Members who expect to be able to contribute are asked to notify Mr Grose as early as possible in order that he may make the necessary arrangements if a sufficient response is forthcoming. It is hoped that the Society's Referees will also assist when possible by contributing dried material of interesting forms of the groups in which they specialise.

The restarting of Excursions may be difficult until travel and accommodation become easier, but any suggestions which might facilitate an early resumption would be welcomed.

During the summer the Society was circularised by Dr G. E. Blackman who asked for information concerning the distribution and local abundance of *Evonymus europaeus*, an alternative host of the Black Aphid of Broad Beans: my correspondence indicated that some members were more concerned for the protection of the Spindle Tree than for that of the Broad Beans.

Again I would thank all those who have given me assistance during the year.

A. J. WILMOTT.

December 31st, 1944.

HONORARY TREASURER'S REPORT ON FINANCE AND MEMBERSHIP, 1943.

The year 1943 has seen some further improvement in the affairs of the Society although no publications have been issued. It had been expected that the 1941/42 Report would have been circulated before the end of the year, and if that had been possible the publications would have been brought up to date, and the Balance-sheet would have given a true picture of the financial position. Owing to unforeseen difficulties this Report will not be in members' hands until early in 1944 and its cost, which will be about £150, must be allowed for in considering the present figures.

Subscriptions received during the year amounted to £120 3s 6d which, in view of the fact that the temporary reduction in the rate was still in force, must be regarded as very satisfactory. About £20 of this, however, was paid in the last ten days of December following the circulation of a printed postcard advising members of reversion to the full rate, and this £20 must be regarded as belonging to 1944. On the last day of the year a total of £85 3s 9d stood to the credit of members' subscription accounts in our books, of which £20 was made up of the 1944 payments referred to above. Of the balance only £23 will remain after debiting the 1944 subscriptions, so members may rest assured that there is no hidden liability in this connection.

It is pleasing to notice that the proceeds of the sale of Reprints and Reports remains at a high figure, and for this we are indebted to Mr Wilmott's work in handling the orders and to Mr Whiting at Yardley Lodge for making up and despatching the parcels. There is no doubt that the opportunity of purchasing these back publications is a service of great value to members.

The finances of the Society are largely dependent on the size of the membership, and it is very gratifying to record that here there is further increase in spite of difficult war-time conditions. During 1943 we have been pleased to welcome the following as new members:—Sir Murdoch McLeod, Bt., Rev. A. B. Abell, Rev. W. H. O. Moss, Messrs John Brown, F. R. Browning, John Gurney, R. H. Hall, E. J. Libbey, C. Norman Pope, John E. Raven, G. A. Roberts, C. C. Townsend, B. Verdcourt, C. West, and J. E. Williams; Mesdames A. Bridley, M. S. Campbell (rejoined), D. A. C. Long, M. C. Morgan, and N. M. Whiting. With the addition of two members who were not contacted during the period of reconstruction but who have now been re-instated in the list, this makes a gain of 22 new members during the year. In the same period our losses through death have been rather less numerous than of late but we have received notice of the loss of three Honorary Members, Prof. R. Chodat, Prof. Hans Schinz and Prof. K. H. Zahn; of two Corresponding Members, Messrs George Goode and J. F. Pickard; of two Life Members, Miss A. M. Geldart and Dr A. H. Evans; and of one Ordinary Member, Mrs D. K. Lang. We have received 5 resig-

nations, thus making a total of 13 losses, leaving a net gain of 11 additional members and a total of 352 at the close of the year.

A communication has been received from the Royal Norwegian Ministry of Education with reference to the subscriptions of the Bergen Museum and University of Oslo, and the Committee confirmed my action in replying that we were very pleased to regard these as fully paid up to date. That a Government placed in such difficult circumstances is prepared to interest itself in the botanical work of its people must fill us with the deepest admiration. Members wishing to make enquiries about Norwegian botanists will receive every courtesy if they write to the Royal Norwegian Ministry of Education at Kingston House, Princes Gate, London, S.W.7.

It is extremely gratifying to record the improvement in our membership, which is doubtless largely due to the favourable reception which the 1939/40 Report received in December 1942. The present figure, however, leaves no room for complacency as it must be remembered that after the war it will only be possible to resume full activities on the pre-war scale if the number of members is again raised to the old level. It is therefore to be hoped that everyone will co-operate in drawing their friends' attention to the advantages of membership of the B.E.C., which offers services to amateur botanists of a kind not elsewhere available.

J. E. LOUSLEY, Hon. Treasurer.

December 31st, 1943.

HONORARY TREASURER'S REPORT ON FINANCE AND MEMBERSHIP, 1944.

By the publication of the 1941-2 Report in April 1944 we have been able to reduce the arrears in the issue of the Society's publication by a year, and the fact that this has proved possible with a reduction of less than £20 in the balance of the General Fund must be regarded as satisfactory. The amount of subscriptions received during the year is slightly less than in 1943 in spite of the reversion to the normal rate and at first sight this might appear to be a cause for alarm. The explanation, however, is that a large number of members paid their subscriptions for 1944 out of balances already standing to their credit in the Society's books and this is evidenced by the decrease in such balances of subscriptions paid in advance from £85 3s 9d at the end of 1943 to £24 6s at the end of 1944. Taking this into account there is a very close approximation to the standard subscription revenue which might be expected from the total of subscribing members. Now that the balances resulting from the former reduced rate of subscription have mostly been worked off we may expect to receive a regular income of some £160-£170 a year from this source.

In spite of all economies the present high postage rates remain a heavy charge on the income of the Society and it is hoped that members will assist in saving the Club expense and the Officer's time by always enclosing a stamped addressed envelope when making enquiries which require a reply.

The balance of the General Fund is available for the production of the 1943-4 Report which is now in active preparation and it is hoped that in spite of the increased cost of printing that this Report will be somewhat larger than recent issues.

It is gratifying to be able to report a further increase in our membership to 358. During the year Dr N. Polunin, Dr E. Arthur Saunders, Rev. W. R. Megaw, Lt.-Col. C. R. Congreve, Messrs G. O. Allen (re-joined), W. G. Graddon, D. H. Kent, K. J. F. Park, S. Phelps, Francis Rose, S. M. Walters, the Leeds Central Library, Mrs H. R. Davies and Mesdames J. Lambert and Beryl M. C. Morgan have joined the Society. During the same period we have heard with deep regret of the death of six of our members—Mrs M. Corstorphine and Messrs D. B. Bradshaw, C. E. Britton, H. H. Knight, A. L. Still and J. R. Wallis. The loss is the greater as all these members were contributors to our own or to bryological publications. In addition there have been three resignations, so we show a net gain of six in total membership, after allowing for the loss of two Corresponding Members, Messrs G. Goode and J. F. Pickard, of which we were advised too late for inclusion in the figures given in the last Report.

J. E. LOUSLEY, Hon. Treasurer.

December 31st, 1944.

REPORT OF THE HONORARY JOINT EDITORS FOR 1943.

It was expected that the 1941/2 Report would have been in members' hands before the date of the Annual General Meeting, but shortage of binding staff has delayed matters. We hope that its reception will be favourable. Work has been started on the production of the 1943 Report, which will complete volume xii. The Publications Sub-committee intend to review all matters concerning our Reports—both contents and lay-out—before volume xiii is begun, and it invites all members who have any definite views concerning the improvement of the Reports to communicate them to the Joint Editors, in order that all points of view can be considered. Mr Pearsall continued Dr Druce's methods with some personal modifications, and Mr Hall made further modifications and great improvements. The commencement of a new volume—after the war, we hope—seems to be a good time to make such alterations as may seem desirable in order that the most useful information may be included and presented in the best manner.

Work has been begun towards the preparation of a second edition of the *Comital Flora*, and although very many corrections and additions are already in the annotated copy bequeathed to the Society by Mr Hall, the Joint Editors will be glad to receive information of any errors, based on information available before the publication of the book in 1932, as well as any unpublished corrections. Local lists would be of great assistance in checking the records of many common plants in vice-counties not covered by a modern County Flora, and members could also help by checking *Comital Flora* (and perhaps *Topographical Botany* also) with their local Floras and reporting on any discrepancies. The revision of the Plant List cannot be seriously undertaken at the present time, as so many necessary books and specimens are not at present available for consultation.

It is suggested that exchange members still able to carry out some field work should make gatherings suitable for distribution and hold them till next year, when it is hoped that some distribution will be arranged. This, the original, section of the Society's activities, will need to be given a good start as soon as possible after the war, and the accumulation of material ready for the first exchange would help towards this end.

HONORARY EDITOR'S REPORT FOR 1944.

A year ago it was hoped that a Report for 1943 would be produced and published before last Christmas, but the renewed attack on London caused disruption of plans as well as of buildings. When the worst of the onslaught was past and conditions (and people) were more normal, it was evident that it would be almost as easy to produce a Report for 1943-44 and bring ourselves up to date as to carry on with the original plan. During the whole of the year Mr Wallace was very fully occupied with his duties in the R.A.F, and the work devolved on me while I was still recovering from illness. In December he was posted to India. But the printing will begin shortly, and it is hoped that no unforeseen delays will hold up publication. I would thank all those who have assisted me, not least contributors who carried out the requests made in the last Report. [31st December 1944.]

With so much material, both books and specimens, still not available for consultation, it has frequently proved impossible to determine points of nomenclature. If readers note discrepancies between the *British Plant List* and names used in this Report, these may be due to the fact that investigation has shown that the name in the *B.P.L.* is (or may be) wrong, but has failed to show what correction should be made. In such cases, the names used by contributors have sometimes been accepted for the time being, but they are not put in heavy type as requiring a correction to *B.P.L.* The number used, or a synonym cited, will be sufficient to relate the plant concerned to *B.P.L.*

There appears to be a certain difference of opinion concerning the desirability of collecting all additions and corrections to *B.P.L.* into one section of the Report. I had this year thought of limiting that section to changes which required some explanation, but find that some prefer the amount of duplication involved so long as all corrections are brought together. The views of those holding strong opinions on this and similar matters concerning the lay-out and contents of the Reports will be welcomed, as the present Report completes vol. xii, and the Editorial Subcommittee intends to review the whole subject before vol. xiii is commenced. It has been suggested that all matter concerning the plants themselves, which is placed in systematic order—Plant Notes, Plant Records, Abstracts also perhaps—should be put together into one series, even if the different parts were in separate paragraphs preceded by "P.N.," "P.R.," "Abs.," etc. The views on such matters appear to depend partly on the personal interests and methods of work. As already mentioned, any strongly held views will be welcomed, but before sending them, editorial difficulties should be considered, as it would, for instance, be impossible without great labour of recopying, to incorporate 5" x 3" Record cards with 8" x 5" Plant Notes and MS. of Abstracts.

The section on the Weather and its Results has been prepared these last years by Mr Wallace, and I have kept no notes on the subject. The receipt of some records of unusual flowering times of certain species—information lost if not printed and buried if placed in Plant Records or Plant Notes—has suggested the desirability of placing such phenological observations in a section following the account of the weather. Will members having botanical comments to make on the weather send it for editorial consideration, please?

PLANT RECORDS AND VOUCHERS.—The last Editor, Mr P. M. Hall, was concerned about the necessity of obtaining and preserving vouchers for Plant Records. His comments were printed in the Reports for 1937 and 1938. This is really an important matter. Future botanists may wish to verify the accuracy of our printed Records, and they *should* be able to find the material. I have this year, because I was suspicious, asked for specimens and have prevented really serious errors. One record of *Petasites albus*, already printed (in *Trans. Devonshire Ass. for the Adv. of Science*) proved to be *P. japonicus*, and another of a hybrid Tormentil proved to be an alien *Potentilla* of the *P. inclinata* affinity not in the least like the plant supposed to be recorded. It really is necessary to prevent this sort of error, but how?—unless vouchers are automatically sent. I have expressed the willingness—even the wish—of the British Museum to preserve material of printed records concerning British Plants. I find that vouchers sent by Miss Rawlins to Dr Praeger of her Irish records are often not preserved by him, so that no voucher specimen may now exist. The drying of a specimen is so easy that it is not unreasonable for the Editor to ask those sending Records to send a specimen also.

A. J. WILMOTT.

OBITUARIES.

CHARLES EDWARD BRITTON, A.L.S., was born at Lambeth on 2nd December 1872 and died in hospital at Redhill, Surrey, on 23rd March 1944, after a painful illness. By his death critical botany in Britain has been deprived of one of its most single-minded amateur devotees and a wide circle of correspondents will miss the help which he so freely gave.

The early days of Britton's life were spent in Camberwell—a district which would not appear conducive to the stimulation of an interest in botany. He is known to have attended botanical classes at the Working Men's College, where he later lectured in an honorary capacity, but his knowledge of natural history was largely obtained by self-education. Soon after attaining his majority he contributed his first scientific notes to Carrington's *Science Gossip*, a popular and attractive periodical which appealed to a wide circle of readers from 1894 to 1902.

By 1904 Britton had become a member of this Society, which was then known as *The Botanical Exchange Club of the British Isles*. In that year he contributed 41 sheets to the Distribution conducted by James Groves and the inclusion of highly critical violets and a recently described *Rubus* showed the direction his interests were taking at the age of 32. In May 1904 his first substantial paper entitled "Floral Variations among Surrey Violets" appeared in the *Journal of Botany*, to which he was a regular contributor until his death. He married in 1905 and after living for two years at Raynes Park moved to New Malden, which was convenient for access to his favourite hunting grounds in Surrey. Near his home material was then still obtainable for the purposes of two special collections of the plants of Raynes Park and district, and of the valley of the Beverley Brook, which are of especial value as providing evidence of the flora of much ground which is now built over. Many gatherings bearing the special printed labels of these two series are now in the herbarium of the South London Botanical Institute.

In the succeeding years Britton searched the country in the vicinity of London with diligence and ever-increasing critical acumen. Of the plants of the northern part of Surrey he had an unrivalled knowledge and his notes and published records were widely drawn on by Salmon for his Flora of the county. Unfortunately, many of the localities were recorded in a manner unfamiliar to contemporary Surrey botanists owing to the recorder's puckish delight in using obscure place-names which are not marked on the maps in common use or by a perfectly accurate interpretation of parish boundaries, assigning habitats to parishes to which few botanists would suspect they belonged. In the case of rarities these handicaps to rediscovery may well have been in-

tentional and laudable, but for critical plants a more straightforward and detailed method of describing localities would have proved a boon to others. The editors of future Floras of Middlesex, Essex and Kent will have many of Britton's discoveries to quote—his help with the *Flora of Buckinghamshire* has already been acknowledged by G. C. Druce.

Britton preferred to botanise alone and it was characteristic of his method that he chose to go over the same ground repeatedly year after year, making an ever deepening critical study of the vegetation. In his favourite haunts nothing escaped him as too trivial or too difficult for study, and every bush of *Rosa* or *Rubus* would be examined not once but many times. Occasionally I have met him by chance on his solitary rambles by the station for some favourite critical plant and then a fund of unpublished information would be revealed with a wealth of detail, and often a change of name would be suggested. On such occasions Britton would open his mind to a fellow botanist freely and frankly. Yet the general tendency developed by this solitary botanising was introspective, a tendency to go deeper and deeper into critical botany until he could sometimes see differences which others could not follow, and a failure to share in the knowledge and experience of fellow students in the field.

His main interest was always the flora of the Home Counties and most of his holidays from home, as at Llandudno, Littlehampton, Eastbourne and in Merioneth, were not notable for botanical discoveries, though a holiday at Clacton in 1912 resulted in a useful paper (*Essex Nat.*, 17, 248-255, 1914). Neither did Britton attempt to utilise the lessons of the modern studies of ecology and genetics in his work—his genius was the observation of differences and not their interpretation.

C. E. Britton first became well known amongst British botanists for his work on *Centaurea* which was published in papers in our *Reports* for 1920, 1921, 1922 and 1926. The following year he produced a paper on the variants of *Veronica Anagallis* and *V. aquatica*, and our 1931 *Report* contained an account of the alien *Asters* with some of which he had become familiar in his Thames-side rambling. His attention was then more especially directed to *Polygonum*, *Galium*, *Solanum nigrum* varieties, *Melampyrum* and finally *Ornithogalum*, on all of which he published valuable papers. In addition he worked critically at *Capsella* at the time when Druce and Almquist were studying the variations of the Shepherd's Purse in Britain, and more recently at *Sedum Telephium* auct. angl. and at other minor groups. His very numerous gatherings of *Rosa* and *Rubus* have proved of great value to Rhodologists and Batologists.

Britton was employed at the G.P.O. on duties which until near the end of his service entailed night shifts, and fairly long hours. On his retirement about 1932 he moved from New Malden to Warlingham to live near his friend A. Beadell in a beautiful part of Surrey which was then little spoiled by speculative building and which he had known since his earliest days as a naturalist. The move to a smaller house

involved the disposal of most of his herbarium and some of the plants went to Kew and others to the South London Botanical Institute. Some of the material of the groups in which he was specially interested was retained at that time for use in further study. Britton directed that at his death his specimens of *Galium*, *Melampyrum* and *Polygonum*, together with his manuscript of these groups prepared for the projected *New Students' British Flora*, should be sent to the Royal Botanic Gardens, Edinburgh, where they have now been deposited. He also directed that his material of *Rosa* should be offered to the Royal Botanic Gardens, Kew, and the Director of this establishment has now accepted the offer. The remainder of his herbarium, including the series of *Hieracia*, together with most of his books, has been received by Mr F. C. Wallace.

The work of the deceased on critical groups is commemorated in *Rosa tomentosa* Sm. var. *Brittoni* Wolley-Dod, *Capsella Brittonii* (F. Almquist) Wilmott and *Rubus Brittonii* Barton and Riddelsdell, which were named for him. The highest honour normally available for amateur naturalists was bestowed on him when he was elected an Associate of the Linnean Society on 5th May 1938. Although Britton was justly proud of the honour his retiring nature and the difficulties of war-time travel would appear to have prevented him from taking an active part in the discussions at the meetings of the Society.

The writer's first meeting with C. E. Britton was at a field meeting of the South London Botanical Institute in 1922 and his helpful and encouraging conversation with a young botanist throughout the long 'bus ride home which followed the meeting will long be remembered with gratitude. Britton also attended meetings of the Battersea Field Club and other associations of amateur naturalists and was always kindly and helpful to those who knew less than himself, though he rarely took any prominent part in corporate activities.

Throughout his life he was an excellent walker and even during the last summer of his life he was able to join in quite a lengthy walk and show no sign of fatigue. Although his health had by then become less good, very few people would have supposed that he had attained three score years and ten. His interests were many and included a good knowledge of general Natural History, and particularly Ornithology, of English literature, of American history and a working knowledge of several languages. Throughout life he was handicapped by lack of opportunity but nevertheless through sheer enthusiasm he was able to build up a wonderful critical knowledge of the plants of a limited area and to become recognised as the leading authority on several groups in Britain. As one of the last representatives of the old school of field botanists who devoted their lives to the discovery of minor variants, C. E. Britton will be mourned by a wide circle of amateur naturalists.

He leaves a widow and a son, Mr G. Britton, to whom with his friend Mr Walter Johnson I am greatly indebted for various facts used in the preparation of this appreciation.

J. E. LOUSLEY.

MARGARET CORSTORPHINE (née BUNCLE) (1863-1944). The death of Mrs Corstorphine, which occurred at Arbroath on 17th September 1944, deprives the Society of one of the ablest of British women botanists whose modesty and charm too effectively concealed a remarkable talent. Scotland, and Angus in particular, can ill afford the loss of one who had devoted many years of patient and intensive study to gain an unrivalled knowledge of the flora of her native county. She was born in Arbroath on 2nd April 1863, the youngest daughter of the late Thomas Buncle, who was for many years proprietor of *The Arbroath Guide* and who formed the publishing company which now bears his name. Her early education was received at Arbroath High School and later, in encouragement of her natural tendencies, she was given private tuition in sketching and painting. It was her intention to embark on an artistic career but, apart from a few sketches and water-colours and some illustrations which appeared in *The Queen*, she did not pursue this calling. She felt that she must accept more practical work and readily agreed to assist in the management of a girls' school in Trinidad. On the death of her father, however, she assumed ownership, jointly with a sister, of T. Buncle and Co. and thereafter exercised an able controlling influence in the affairs of the firm. In 1902 she married Robert Henry Corstorphine, who later became managing director. They were a most devoted and happy couple, sharing the responsibilities of conducting a provincial newspaper and the management of a busy publishing firm. The high standard of workmanship owes much to the efforts of Mrs Corstorphine. Their leisure time was almost entirely employed in investigating the vegetation of Angus. Many members of the B.E.C., of which they were enthusiastic members for many years, have to thank them for acquaintance with the floral treasures of the glens and hills around Clova where, in their beautiful Highland home at Inchdowrie, botanists were assured of a ready welcome and kindly hospitality.

With her husband she formed a fairly extensive general collection of British plants and these were presented to the Department of Botany, University of St Andrews, shortly after Mr Corstorphine's death. Their representative herbarium of British mosses and hepatics will be divided. The Angus specimens will go with the fine Angus Herbarium to the University College, Dundee, the remainder are bequeathed to the Royal Botanic Garden, Edinburgh. But Mrs Corstorphine's botanical work was not confined to these islands. Smaller collections, which she made and identified during her travels on 'the Continent' and to the West Indies, will be preserved in the British Museum.

During her life Mrs Corstorphine published a single botanical paper entitled "The Roses of Angus" in *B.E.C. 1933 Rep.* She was, however, a keen student of other critical groups found in Angus though, like many others, she despaired of naming her collections of *Rubi* and *Hieracia*. She kept abreast of the latest taxonomic researches in the British flora and applied them, where possible, to her work on the Angus flora. This is evident from the MS. of the unfinished Flora

which is written entirely in her own hand and is certainly, to a very large extent, her own work. At the beginning of the war the MS. was laid aside but, on the death of her husband in March 1942, she was persuaded to resume her work. Though clearly in failing health, she courageously overcame her physical handicaps and frequent lapses in memory to complete a revision of the existing MS. Her great anxiety was to ensure recognition for her husband's work. It was characteristic of her manner that she should seek to belittle her own substantial share. As now left, the MS. comprises, with the exception of most of the Gramineae, the Gynospermae, and the Pteridophyta, an enumeration of the plant records of the county which they were able to trace. These require to be arranged under the sub-county divisions which we decided upon and will almost certainly be augmented by further bibliographical research and examination of herbaria. Mrs Corstorphine realized the amount of work in the field, library and herbarium remaining to be done before the Flora could be finally prepared for publication. In the MS. she has indicated many points requiring elucidation, areas which should be further explored, and deficiencies in the Angus Herbarium. We discussed the final form of the book and had agreed the scope of the unwritten chapters. She was delighted when a specimen page was printed for her. She had some regrets in contemplating the leisurely, though painstaking, way in which she and her husband had applied themselves to their work. Sometime before his death Mr Corstorphine, when asked when the work would be finished, replied, "If we continue as carefully as now it will take 84 years." She told me herself that they were oblivious to the passage of years and felt that they would ultimately complete their task. Unfortunately, this hope was not to be realized, and some years must yet elapse before a worthy memorial volume will appear.

G. TAYLOR.

HUGH NEVILLE DIXON (1861-1944) was born at Wickhams Bishop, Essex, on 20th April 1861 and died at Northampton on 9th May 1944. After taking a 1st class degree in classics at Cambridge in 1883, he became assistant to the Rev. Thomas Arnold, who had a school for the deaf at Northampton, and when Mr Arnold retired in 1884 he succeeded him until he retired in 1914. One of the now rare breed of true naturalists, he was Secretary of the Northamptonshire Naturalists' Society and Field Club from 1886 to 1931. He published his first paper on mosses in 1884, and in 1896 produced *The Student's Handbook of British Mosses* (illustrated by Jameson, who also made the keys), which with editions in 1904 and 1924 remains a standard work. When the Moss Exchange Club, of which he was an original member, was converted into the British Bryological Society, he was elected the first President. He became an authority on the mosses of the world. He had a sound knowledge of the flowering plants of Britain and some parts of the Continent. He was elected vice-president of the Linnean Society in 1928.

A man of wide learning and many interests, he was quiet and unassuming. He was a prominent Congregationalist and a director of the London Missionary Society. He believed in keeping fit, playing hockey until over fifty years of age, and climbing Skiddaw on his 80th birthday. He had walked 55 miles in a day, climbed Snowdon three times on one day, and skated from Northampton nearly to Peterborough (with three submersions on the way). He left his British collections to Kew and his foreign ones to the British Museum.

A. J. WILMOTT.

THOMAS ALFRED DYMES, who died at his home in Letchworth on 29th October 1944 at the age of 78, was a careful amateur experimental botanist. He was the author of a small book, *The Nature-Study of Plants*, published in 1920, which described the experimental field available to amateur botanists who had only limited ground and the simplest apparatus at their disposal, and in this he chose *Geranium Robertianum* as the plant to illustrate his notes on life-history. Dymes grew many of our native British plants from seed and his knowledge of methods of inducing germination was extensive. He published a number of short papers on various aspects of the life-history of native species and his *Notes on the Seeds of the British Dactylorchids (B.E.C. 1921 Rep., 432-441, 1922)* was an attempt to utilise his methods for the purposes of critical taxonomy. Dymes was a member of this Society from 1918 until 1939, when he resigned owing to increasing lung trouble.

J. E. LOUSLEY.

ARTHUR HUMBLE EVANS (1855-1943). By the death of Dr Evans on 28th March 1943 at the age of 88, a notable figure has been removed from natural history circles in this country. Evans was born on 23rd February 1855 at Scremerston, Northumberland, where his father was vicar. His boyhood wanderings along the coast and into the border hills fostered an interest in birds and plants which he maintained throughout his life. In these early days he was fortunate in his association with the well-informed local naturalists and, at school in Durham, in receiving encouragement from Canon Tristram, the eminent ornithologist. Although he had his home in Cambridge for nearly 50 years—later removing to Crowthorne, Berks., where he died—he retained a deep affection for his native borderland and each year returned there to continue his natural history studies. He became a member of the Berwickshire Natural History Club in September 1875 and in 1900 was elected to the office of President. At his death he had retained unbroken membership of the Club for 68 years and since 1929 had been the oldest member. In the Club's history for 1875 appeared his first published paper, a brief list of Border plants, to which he added later lists in 1885 and 1916.

While Evans was one of the foremost British ornithologists of his day, it is for his notable contributions to our knowledge of the British

Flora that he will be remembered in our Society. He had a wide knowledge of our native plants and had seen most of the rarer species growing in their natural habitats. It is sad that his rich fund of information regarding the localities of plants is no longer available.

During his long residence in Cambridge Evans naturally gained a thorough knowledge of the plants of the county and he published (in *Proc. Camb. Philos. Soc.*, 16, pt. iii (1911)) *A Short Flora of Cambridgeshire*, which he revised and expanded, with the assistance of specialists, and issued in 1939 (when he was 84) as *A Flora of Cambridgeshire*. To Evans probably must most credit be given for the preservation of Wicken Fen. Between 1890 and 1900 when persistent rumours suggested that the Fen was to be drained, he took a prominent part in preventing interference with its natural features, and when the National Trust acquired ownership, Evans was appointed as Secretary of the local Committee charged with management of the property. Later, when adjoining areas of equal importance were offered for sale, Evans took the initiative in buying them on his own account for preservation and recovered the money afterwards. As a result the National Trust now hold the whole of Wicken Sedge Fen and a considerable part of Burwell Fen. Evans knew these fens intimately and loved their people, plants and animals.

It is not surprising that he formed a close friendship with Alfred Fryer and often accompanied him in exploring the fen dykes and drains for pondweeds. When Fryer died in 1911 only part of his monograph on *The Potamogetons of the British Isles* had been published though his notes (except for the fine-leaved species) only required editing prior to publication of the remaining parts. Evans prepared the MS. of parts x, xi, and xii for the press.

The genus *Arctium* engaged his attention and he published several notes on the elucidation of the British representatives. He had also a very sound working knowledge of the *Rubi* but he did not record any observations on this troublesome group.

Up to a few days before his death he was preparing a list of plants of the Tweed Area which, it was hoped, would ultimately appear as a companion volume to his *Fauna of the Tweed Area*. This project, in which the writer of this tribute was collaborating, had not proceeded very far and, apart from a few introductory chapters adapted from this *Fauna*, consists of a list of plant records—by no means complete—culled from various sources. Without the wide knowledge of the senior author, who had a thorough acquaintance with the area and its vegetation (though he did not preserve specimens), it is doubtful whether the work will be completed. The Tweed basin embraces a large area in a number of counties and there are few enthusiastic field-workers in the remaining local societies. It has been impossible to trace many collections of older botanists who explored the district and a thorough investigation of the Tweed valley and its tributaries would be necessary to confirm old records and prepare an account of the vegetation.

To accomplish this requires the co-operation of resident botanists who would be prepared to examine the botanical resources of Tweed from its source to the sea, to explore the tributary valleys, and to search the high ground of the surrounding hills.

In his later years, owing to an infection which developed on a visit overseas, Evans' power of movement was seriously impaired. This infirmity, however, did not deter him from long expeditions in search of plants and he would hobble along on the arm of a companion and with the aid of a stick. He was most determined to reach the object of his quest and could not easily be diverted by any hazard. His later expeditions—I remember in particular one to Ben-y-Vrackie—were not, at least for him, devoid of danger and hardship but he willingly accepted tumbles and hard knocks as part of the price to be paid for his indulgence.

With his first-hand knowledge of our rarer plants, Evans was a valuable member of the Wild Plant Conservation Board. He was a Fellow of the Royal Society of Edinburgh, a Fellow of the Botanical Society of Edinburgh and a member of its offshoot the Scottish Alpine Botanical Club, at whose annual meetings his store of plant lore was freely drawn upon.

A fuller notice appeared in *The North Western Naturalist*, 18, 244, plate 4 (1944).

G. TAYLOR.

GEORGE GOODE (1858-1943). Born at Cambridge on 26th October 1858 of Cambridge people, he died there on 21st January 1943. After taking his degree at Cambridge he spent his life in the service of the University, and was curator and indeed creator of the music and map departments in its new library building. His main contribution to botanical work was as Secretary and Editor of the Watson Botanical Exchange Club from 1905 to 1920 inclusive. He then relinquished the Secretaryship and became Treasurer, a post he held until the death of the Club in 1934. He also acted as Distributor for 1931 and 1932. In recognition of these labours he was elected a Corresponding Member of our Society. He was a lover of beautiful specimens (see *Watson B.E.C. 1910/11 Rep.*, 303 (1911), where Salmon, Bucknall, and Marshall all use that adjective to describe one of his contributions). His herbarium, with the exception of a representative collection left to his son, the Rev. R. H. Goode, was given to Nottingham University, a result of his friendship with Prof. Carr, who was an old school friend. Perhaps I may be permitted to take this opportunity of expressing my debt to him for my first instruction in forming a herbarium when I was at school. I still remember his insistence on obtaining good specimens and drying them well, a doctrine I have endeavoured to pass on in my turn. Quiet and reserved, somewhat of a recluse, he made a permanent contribution to British botanical effort.

A. J. WILMOTT.

HENRY HERBERT KNIGHT (1862-1944) was one of the oldest of our members, but as his chief interests were in cryptogams his name may be less familiar to some than those of others of lesser rank as naturalists. For Knight was one of the old breed of naturalist that becomes less numerous as specialisation increases. He was a mathematician, 7th wrangler, fellow of Clare College, Cambridge, and then mathematics master at Llandoverly School. Many Carmarthenshire plants were first found by him. When he retired, in 1907, he went to live with his mother at Cheltenham. In 1909 he joined the Cotteswold Naturalists' Field Club and became one of the original collaborators in the work on the Flora of Gloucestershire, then just resuscitated. He contributed annual lists and undertook a detailed investigation of one of the districts, dealing not only with the Phanerogams but also with mosses, liverworts, and lichens. He first wrote up the collections of earlier botanists—Thwaites, W. Joshua, Holmes, Reader, and Ley, and for twenty years worked throughout the county. In 1932 he became a member of the Club's Botanical Sub-Committee and in 1936 handed over his MS. of the cryptogams to the Club for inclusion in the County Flora. He was one of the original members of the British Bryological Society, a referee in Hepatics for over 20 years, and its President in 1933 and 1934. He was a member of the Moss Exchange Club for 16 years and its Distributor for two years. As a member of the British Mycological Society he attended many of their forays and wrote accounts of the lichens collected on twelve of them between 1923 and 1935. Most of his collections have found a home in the National Museum of Wales at Cardiff. The memory of his encouragement and assistance, and happy companionship, will persist with his friends; it is impossible to overestimate the effect of such a life on the growth of interest in Natural History. I am indebted for information to Dr W. Watson and Mr W. R. Price, who have contributed fuller accounts of Knight to the British Bryological Society's and Cotteswold Club's journals respectively.

A. J. WILMOTT.

LESTER VALLIS LESTER-GARLAND—formerly L. V. LESTER (1860-1944). L. V. Lester was born at Swanage, Dorset, on 17th July 1860. His father, who was Rector of Langton Matravers, was one of a little group of enthusiastic naturalists interested in the treasures of the Isle of Purbeck, and his son received an early introduction to the study of botany, which was to be his hobby throughout a long life. He was educated at Sherborne and Magdalen College, Oxford, and after a few years on the staff of St Edward's School, Oxford, and 10 years as Fellow and lecturer at St John's College, became Principal of Victoria College, Jersey, from 1896 to 1911. In 1906 he changed his name to Lester-Garland on the death of his uncle. He died at his home at Bathford House, near Bath, on 23rd March 1944.

Lester joined our Society in 1895 and remained a member until about 1930. For many years he contributed specimens to the Exchange Club,

and amongst the earliest of these was *Bromus interruptus*, which he discovered independently and brought to the notice of G. C. Druce. In 1903 he published *A Flora of the Island of Jersey* which, although not one of the largest of our local Floras, deservedly enjoys a high reputation. The arrangement of the work is that of Engler's *Die Natürlichen Pflanzenfamilien*—an innovation which must have required considerable courage at the time, and which is well defended in the Introduction. As a consequence several "new combinations" had to be made. A specially valuable feature of the *Flora of Jersey* is the study of the relation of the flora to that of Europe in general. Lester-Garland published little other botanical work though his study of the variations of *Matricaria inodora* (*Journ. Bot.*, 59, 170, 1921) deserves special mention. He was a Fellow of the Linnean Society from 1899 to 1912, and from 1918 until his death.

Lester-Garland had a deep knowledge of the classics, of history, and of philosophy, but his interests were even wider—religion (he was a member of the Church Assembly), politics, education, social welfare and the physical world. His herbarium, which occupies 5 large cabinets and 2 smaller cases, is to go to Kew when conditions permit, with the proviso that any duplicate European material shall be sent to the herbarium of Bristol University.

To his widow, Mrs Maud Lester-Garland, I am greatly indebted for information which is incorporated in this appreciation. Further details will be found in Lord Justice du Parc's note in the *Times* of 12th April 1944, from which other facts have been obtained.

J. E. LOUSLEY.

CECIL VICTOR BOLEY MARQUAND (1897-1942) was born at Richmond, Surrey, on 7th June 1897, and was the only child of E. D. Marquand, author of *The Flora of Guernsey*. He was educated in Guernsey, at Paris, and at Bedford School before proceeding to Cambridge, where he took his B.A. degree in 1919 (M.A. in 1922). During the 1914-18 war he held a commission in the Royal Tank Corps.

For several years after leaving Cambridge he worked as research assistant at the Welsh Plant Breeding Station, Aberystwyth, where he studied the varieties of cultivated oats and published a useful bulletin on the subject. During his stay at Aberystwyth he was interested in the rich bryophytic flora of the Welsh mountains and wrote a paper on the Bryophyta of the arctic-alpine associations in Wales. In 1923 he was appointed to the staff of the Herbarium, Royal Botanic Gardens, Kew. It was intended that he should concentrate on the grasses but after a short period he was placed in charge of the Chinese collections and devoted most of his time to revisions of Eastern Asiatic genera or sections of genera, including *Cyananthus*, *Buddleia*, *Gentiana*, and several others. He also investigated the genus *Cotoneaster* with special reference to the species in cultivation. In addition to the Chinese section he was responsible for the Bryophyta at Kew, a group of which

he had an extensive knowledge, much of which had been gained in field work.

Marquand was a keen mountaineer. Though his colleagues sometimes tired of descriptions of his exploits, there is no doubt that he felt happy and well at higher altitudes and in atmospheres more rarefied than that at Kew. He retired in 1939 on grounds of ill-health and went to live in the Isle of Skye. His death occurred, as a result of a boating accident, on or about 1st July 1942. One is glad to think that the last few years of his life were spent in pursuits entirely to his own liking. He never seemed to be entirely fitted for the work of a herbarium botanist though it is difficult to say how much of his frequently expressed discontent was due to inborn temperament and how much to ill-health. Marquand was a past-master in the art of conversation and freely expressed opinions on a diversified range of subjects. An excursion with him was usually enjoyable and stimulating so long as time and route were not considered of major importance.

W. B. TURRILL.

I recently learned more about the tragedy from my friend W. G. Greaves, of Ledbury, whose (then retiring) doctor's wife was with Marquand, and who sent me an extract kindly made by the editor from *The Ledbury Reporter* (of 17th July 1943). Dr Trotter intended to devote his retirement to the study of mosses and Marquand had been searching for a suitable house for the doctor in the West of Scotland. He had written to say that he thought he had found one, and Mrs Trotter, having to visit Glasgow on another matter, went to inspect it. The day before she was to return home, Marquand suggested going out in a motor launch to see the position of the house from the sea. They were seen to be in difficulties some distance from shore and were lost sight of in heavy mist. Remains of the tragedy were subsequently discovered on Priest's Island in the Summer Isles.

A. J. WILMOTT.

JOSEPH FRY PICKARD (1876-1943) was born at Silverdale, Lancashire, and died at Leeds on 18th February 1943. His parents were Leeds people and his father had a draper's and hosier's business in the city. They removed to Leeds when he was about two years old. Pickard's parents were Quakers and he was educated at a Quaker School at Wigton. His interests in natural history in general and birds and flowers in particular were aroused at an early age and had ample opportunities for development during his adolescence when the family went to live for a few years in the country close to Newton-in-Bowland near Clitheroe. This interesting district is one that found scarcely any mention in Lees' *Flora of West Yorkshire* which had recently been published, and its botanical exploration owes much to Pickard's enthusiastic investigations started at this time, and continued as opportunity offered in later years. One of the best of his many discoveries in the area was *Wahlenbergia hederacea* near Dunsop Bridge.

Pickard was sent to Stafford for a year to learn nursery gardening, which he was then contemplating taking up as an occupation, but the project was abandoned, and he returned to Leeds in 1895 to enter his father's business and lived there for the rest of his life. Very soon after his return he made the acquaintance of Dr F. A. Lees and J. G. Wilkinson, the remarkable blind botanist, with both of whom a friendship grew up which lasted throughout their lives. His associations with Dr Lees were close; they made many excursions together and he always acknowledged how greatly he profited from the guidance of his older and more experienced friend. He assisted Lees in putting his herbarium in order prior to its sale to the Cartwright Hall, Bradford, in 1905, and he acted as botanical executor to Lees after his death.

Pickard was a keen collector. His herbarium, which was added to for the remainder of his life (and which was purchased by Leeds University after his death) dates from 1892, when he spent a botanical holiday with friends in Scotland with Blair Atholl as headquarters. The party included Allan B. Hall of Thirsk, a botanist with a good knowledge of the north country and Scottish alpine floras, who was very helpful to Pickard in his early botanical work. During this holiday excursions were made to the Sow of Atholl and to Ben Lawers, where he collected many alpine. He visited Scotland again in July 1900 and met Prof. Bailey Balfour and F. C. Crawford whilst staying at the Clova Hotel. Other holidays were spent in the Lake District, amongst the Welsh hills, in Cornwall; active field work in West Yorkshire, and especially the Bowland area, was kept up for many years until circumstances curtailed his ability to indulge his hobby.

His knowledge of flowers and ferns was almost wholly gained from living plants in the field and dried specimens obtained by exchange from his circle of correspondents, which included many of the best known systematists of his day. The fascinations of diagnosis did not attract him and he was content to rely on Dr Lees or his correspondents for his identifications. Nevertheless, he had a good eye for a plant and the number of records standing to his credit in the *Supplement to the Yorkshire Floras* is some indication of his keenness and success as a field botanist. He was particularly interested in ferns and saw *Lastrea cristata* at Askham Bog in 1893. There is no later record of its having been seen there.

When our member Mr Albert Wilson was busy preparing his *Flora of Westmorland*, Pickard was most assiduous and enthusiastic in collecting records for the work and his assistance receives special mention by the author. In recognition of the help he had so readily given to fellow-botanists he was made a Corresponding Member of this Society in 1942. Active field work had had to be given up many years ago but he retained all his enthusiasm to the end and the acquisition of a specimen to fill a gap in his collection always remained a source of great delight. To his widow we extend our sincere sympathies.

W. A. SLEDGE.

WILLIAM TILL BOYDON RIDGE, B.Sc. (1872-1943), who was a member of the B.E.C. from 1915 to 1936, was the leading Staffordshire botanist of his day. He lived all his life in Stoke-on-Trent, where he was born on 18th February 1872, and died on 2nd February 1943. He was a schoolmaster by profession and taught biology at the Hanley High School. He was a prominent member of the North Staffordshire Field Club, of which he was twice president. His chief work, "The Flora of North Staffordshire," was published in eight parts as an appendix to the *Transactions of the North Staffordshire Field Club* from 1922-1929. Ridge was not a critical botanist and his work makes no claim to be a standard county Flora, but Druce thought it worthy of a full review in *B.E.C. 1931 Rep.*, 582-3 (1932). It is indeed a useful guide to the botanical riches of North Staffordshire. Ridge made no extensive collection of plants. Fifty of his specimens are preserved in the writer's herbarium and there are some others in the Druce herbarium at Oxford. Manuscript lists of the plants he found in North Staffordshire are in the writer's possession. Ridge was president of the North Western Naturalists' Union for two years. He succeeded Prof. F. E. Weiss in 1931 and was re-elected to the chair in 1932. Obituary notices were published in *Trans. North Staffs Field Club*, 77, 26-28, 1943, and with a bibliography in *North West. Nat.*, 19, Nos. 1 and 2, 73-74, 1944.

E. S. EDDES.

ARTHUR LANGFORD STILL, B.A. (1872-1944). Members will hear with very deep regret of the death of Mr A. L. Still, our popular authority on the genus *Mentha* in Britain. He was born at Addington House near Croydon, Surrey, on 3rd April 1872 and educated at Clewer House School, Windsor, Tonbridge School and Christ Church, Oxford, where he gained a First in Botany. In the course of his professional life as an analytical chemist he conducted useful research bearing on the manufacture of cheese in the West Country. Early in the present war he evacuated from his home at Wallington, and after return for a short spell in 1940 he finally left for Cove near Tiverton, Devon, where he made his home until the end. While there he suffered the sad loss of his wife (née Elizabeth Smith). He died rather suddenly on 21st June 1944 after complaining for some time of increasing breathlessness and heart-trouble.

Although apparently interested in field botany throughout his life, it was not until about 1933 when he joined this Society that Still became well known to London botanists. He was elected to our Committee in March 1936 and served until his death. His main interest was in the genera *Mentha* and *Carex*. He published papers on the first named group in the *Journal of Botany* for 1936, 1937, 1938 and 1939, and had undertaken, with Mr E. Metcalfe, to write the account for the *New Students' Flora*; Still's portion was, I understand, completed before his death. Many of the Mints in which he was especially interested were grown for a number of years in his garden at Wallington, where he care-

fully observed the changes which occurred in cultivation. The account of the genus in the new *Flora of Devon* owes much to his work, and he contributed many notes to our own *Reports*. In his later years he refers repeatedly to the paper by Topitz, "Beiträge zur Kenntnis der Menthenflora von Mitteleuropa" (*B.B.C.*, 30 (1913), Abt. 2, 138-264), of which he had a separate copy and to which he was perhaps inclined to attach undue importance.

No one who knew Still could fail to be impressed by his intense interest in almost everything connected with country life. Horticulture in nearly all its branches was always in his mind, and his well-kept garden at Wallington was evidence of a practical as well as a theoretical interest. The theory and practice of farming was a frequent topic of conversation; he greatly enjoyed shooting and was an excellent shot with gun and rifle. Doubtless the experience thus gained led to the development of an exceptionally keen eye which served him well in his herborisings. Wherever he botanised, whether in Surrey near his home or farther afield at the Lizard, in South Wales or the Wye Valley, Still always found plants of interest in places where they had not previously been noticed. He threw himself into all his pursuits with an enthusiasm which was not ordinarily restrained by any physical discomfort. A good example of this occurred on one occasion when he joined me for a few strenuous days in Breckland. On the night before we started there was an exceptionally severe late frost which threatened to destroy the fruit crop and despite the prospect before him Still spent the whole night at the unpleasant task of hosing down his trees with cold water in an effort to save the fruit. A younger man might well have avoided the task but Still made the effort, turned up to time next morning, and insisted on carrying out the whole of the projected programme.

Botanists who are familiar with Still's work would be astonished to see with how few books and how little apparatus he carried it out. He preferred to collect his knowledge direct from nature rather than from printed works, and an excellent memory enabled him to dispense with much that others would regard as essential. His method was to collect and study material and then to dry it and distribute it amongst his friends. He therefore never amassed a large general herbarium though about 500 sheets of mints were collected and presented by him to the British Museum (Natural History) in October 1940, and I remember a box of mounted *Carices* the disposition of which is not known. By the kindness of his brother his botanical press containing recent Devon gatherings was handed to me after his death and the contents have been distributed to Mr Wallace and others who knew the collector. During the last year or so of his life he took up the study of Fungi, at first with a view of getting to know the better edible species, and then with a wider interest. Although greatly handicapped by separation from his microscopes and by lack of text-books and boxes in which to send away material to Kew, A. A. Pearson and other mycologists to

whom he referred doubtful specimens, his knowledge of the group was apparently improving rapidly at the time of his death.

In A. L. Still many friends have lost a versatile and kindly companion, and an excellent correspondent. To his brother, Mr W. H. Still, who has supplied various facts incorporated in this notice, we would offer our deepest sympathy in his loss.

J. E. LOUSLEY.

CHARLES BAYNARD TAHOURDIN, well known as an enthusiastic student of British Orchids, died at his home at Wallington, Surrey, on 5th July 1942. The son of a barrister-at-law, he practised as a solicitor and his legal training was apparent in all his botanical writings and especially in those dealing with Wild Plant Conservation and in the periphrastic terms in which he deliberately described localities for the rarer plants.

Although he had long been interested in painting wild orchids, it was not until he retired that Tahourdin was able to broaden his interest in these plants which culminated in his *magnus opus*, *Native Orchids of Britain*, published privately in 1925. This book written, as the preface announces, "by an amateur for amateurs," is of value for the series of photographs by the author, and has served to develop the interest of many people in these fascinating plants. Its preparation brought him into contact with a wide circle of botanists, amongst whom he circulated printed annual notes on British Orchids summarising the occurrences of the various species in each year. Some of his best work appeared in *The Orchid Review* for 1927 and 1928. A life-long bachelor, Tahourdin took a great interest in young people and many youthful botanists will remember his hospitality and encouragement with gratitude. His interest in Wild Plant Conservation was very real, practical, and logical, and led to his association with the late Sir Maurice Abbot-Anderson in the founding of "Flora's League."

His collections of water-colour sketches, photographs and manuscripts relating to British Orchids have been bequeathed to Mr S. G. Riche, while it is characteristic of the interests of this most kindly man that the National Trust and the Society for Promotion of Nature Reserves will benefit from his estate after the cesser of certain life interests.

J. E. LOUSLEY.

JIM VINCENT. Many members of this Society will hear with deep regret of the death of Jim Vincent, who died at Norwich on 4th November 1944. Vincent was warden for the Whiteslea Estate bird sanctuary owned by Lord Desborough on Hickling Broad and although his main interest was ornithology he had a good knowledge of the flora of the district, which was freely placed at the disposal of many visiting botanists. There is no doubt that many plants recorded on other autho-

riety from Hickling and district were detected first by the keen eye of Jim Vincent.

J. E. LOUSLEY.

JOHN RICHARD WALLIS (1917-1944). The Society is the poorer by the passing of J. R. Wallis on 23rd November 1944 after a long illness cheerfully borne. He had been a member some six years and showed great promise as a critical botanist still in his twenties. The flora of his home district of Lamberhurst, Kent, had been carefully studied and he was enthusiastically taking up a survey of Kent as a whole, while not neglecting the bordering counties. He was beginning a careful study, too, of the genus *Callitriche*, which points to his capabilities. His companionship in the field will be greatly missed by the writer and his friends in Kent, Surrey, and Sussex.

E. C. WALLACE.

I should like to add a brief tribute to the memory of John Wallis, whose death in his twenty-eighth year cut short a most promising botanical life. He was born on 26th March 1917 at Lamberhurst, Kent, and, his strength proving unequal to the rigours of school life, was educated at home. About a year before the present war he was articled to a firm of accountants in the City of London and afterwards lived in lodgings at Cheam, returning home to Lamberhurst most week-ends. This arrangement afforded him the opportunity of studying the Surrey flora as well as that around his home and also of having access to London libraries and friends. He never complained of his health though it must have been a severe handicap. His temperament in botanical matters was cautious, critical and careful and he was painstaking to a degree unusual in a man of his age. His herbarium has been kindly presented by his parents to the South London Botanical Institute, and his card index of Kentish records is being handed to Mr Francis Rose for use in connection with the projected new Flora of the county. A note compiled from his records of experiments with *Callitriche* will be found elsewhere in this *Report*.

J. E. LOUSLEY.

BIOGRAPHICAL NOTES.

BROMFIELD, WILLIAM ARNOLD (1801-51). The search for the type specimen of Bromfield's *Stellaria Holostea* L. var. *laciniata* in connection with a paper which appears elsewhere in this *Report* indicates the desirability of a statement as to the present whereabouts of his herbarium. His foreign plants, and especially the North American and Egyptian collections, are known to be at Kew but the British plants including the fine series from the Isle of Wight were presented by Miss Bromfield to the Isle of Wight Philosophical and Scientific Society at Ryde. According to Townsend (*Fl. Hants.*, ed. 2, 27, 1904) these were in the charge of Dr Barrow, late Mayor of Ryde, early in the present century. Stratton in his *Guide to the Natural History of the Isle of Wight*, 1908, states that Bromfield's Herbarium was at the School of Art at Ryde. He goes on to say that "a duplicate collection is in the Royal Herbarium at Kew," which is not strictly true although, of course, some of his distributed British specimens are to be found there. Mr J. W. Long has most kindly made enquiries about the plants which remained in the Isle of Wight and informs me that they passed to the Education Officer and finally, after most of the rarities had apparently been lost, into the charge of Miss G. Bullock of "Glen Alva," Arnold Road, Binstead, near Ryde. Miss Bullock has most kindly searched for the required type without success. If any member can throw any light on the present whereabouts of the plants which have been abstracted from this collection the information should be put on record: in the meanwhile we are grateful to Mr Long and Miss Bullock for supplying information about the specimens that remain.

J. E. LOUSLEY.

DILLWYN, LEWIS WESTON (1778-1855). The name of this botanist will be familiar to members as joint author with Dawson Turner of the famous *Botanist's Guide through England and Wales*, the publication of which in 1805 laid the foundations of the general study of topographical botany in this country. He issued two works containing useful lists of the plants growing in the Swansea district and various publications on seaweeds, shells and insects. It was therefore with considerable interest that I learned recently in the course of business that there was a Dillwyn Road in Swansea and, thinking that there must be some connection with the well-known botanist, I wrote to Mrs Foggitt asking if she could ascertain if the road was actually named after him. Her reply contains so much interesting information about the Dillwyn family that it is felt that the following extract should be put on permanent record for the benefit of botanists.

" . . . The connection of the Dillwyns with Swansea goes back to 1778, when William Dillwyn came to Swansea and with a man named

Haynes founded the famous Swansea Potteries. The Dillwyns originally came from Breconshire but some of them emigrated to England and also the United States. Lewis Weston Dillwyn (the botanist) was born in 1778, and died in 1855. He married in 1807 the daughter of Colonel John Llewelyn of Penllergaer; the house is still there. L. W. Dillwyn followed his father's lead as regards the potteries, but brought about great improvements in the designs, and insisted that the artists should take as their models the works of Curtis the botanist, and to copy the flowers as faithfully as possible. It is stated that in consequence no other pottery had such a reputation for fidelity to nature. L.W.D. lived at the Willows, Mount Pleasant, Penllergaer, and also Sketty Hall. His son, Lewis Llewelyn Dillwyn, represented Swansea in the Liberal interest for 37 years and died in about 1892 or 1893. A branch of the family is that headed by Sir Charles Leyshon Dillwyn Llewelyn of Llysdinam, Radnorshire, and a Miss Dillwyn, who was a grand-daughter of the famous L.W.D., died about 12 years ago at a great age. . . . So you can see that the Dillwyns have cut a great swathe in the life of Swansea. L.W.D. himself at the end, I think, lived at the family mansion, Hendrefoilan, which is not far from where I live. The Dillwyns after his days lived there for many years."

Mrs Foggitt informs me that there are at least two streets or roads in Swansea named after the Dillwyn family. It is clear that there are many sources likely to provide further information about this enthusiastic botanist in addition to those cited in the *Biographical Index*, and Swansea Pottery designs will acquire an additional interest to many of us.

J. E. LOUSLEY.

PERSONALIA.

THE RT. HON. H. T. BAKER, P.C.

We feel sure that all members will wish to join in congratulating our Chairman on his election as an Honorary Fellow of New College, Oxford. The occasion was the quincentenary in July 1944 of the *amicabilis concordia* between New College, Winchester College, Eton College and King's College, Cambridge.

R. B. ULLMAN'S HERBARIUM.

Our member Lt. Col. R. B. Ullman generously presented his herbarium to the South London Botanical Institute in February 1944, and it has now been incorporated in the British collection there. Many of the specimens were gathered in the company of the late Patrick M. Hall or received from him by exchange, and the genera *Orchis* and *Viola* are especially well represented. Ullman collected a great deal of useful material, especially in the counties of Cornwall, Hants., and Cambridgeshire, and students of the local floras of those counties should take the

opportunity of referring to the collection. Dr E. Drabble had named a specimen of *Viola cantiana* Drabble and as the type in Drabble's herbarium was lost before his death, Ullman's sheet has been deposited with his consent on loan at the British Museum (Natural History) until the specimen of the same gathering in Herb. P. M. Hall, which was bequeathed to the Museum, is available for consultation.

J. E. LOUSLEY.

HERBARIUM AND MUSEUM OF BEDFORD COLLEGE FOR WOMEN.

The herbarium and museum of the Bedford College for Women was completely destroyed during the London "blitz" in 1941, and efforts are being made to obtain the material needed to build up a new herbarium and museum. Almost any kind of contribution would be welcomed, and any members who could send duplicates or collect new specimens are asked to address them to Mrs D. V. Harrison-Church, B.Sc., Department of Botany, Bedford College for Women, Regent's Park, London, N.W.1. Cryptogams as well as Phanerogams are required, and pickled as well as dried material when useful for teaching purposes. If everybody lends a hand we should be able to give them a good start.

A BIBLIOGRAPHY OF THE BRITISH FLORA.

With a view to eventual publication, it is proposed to compile a Bibliography of the British Flora. One section of this, on local botany, would comprise all publications, which it is possible to trace, dealing wholly or partly with the flora of any area within the British Isles. This section would include local floras and works on topographical botany, and all publications, such as local and county histories, guide books, periodicals, and newspapers, etc., in which plant lists of particular areas have appeared; manuscripts of sufficient importance and authenticity would also be listed. Where, however, only incidental mention is made of plant localities, as in many of the standard floras of Britain and in monographs, these would be omitted from this section.

The compilation will entail a large amount of research and will only be possible with the willing co-operation of helpers who have the requisite local knowledge of the literature of their areas.

We should be grateful if those willing to help would communicate with Mr N. Douglas Simpson, Maesbury, 3 Cavendish Road, Bourne-mouth, Hants, indicating (i) when they can begin work, and (ii) in what areas they are interested and to what libraries and periodicals they have access.

When we see what response is received to this appeal, detailed plans for carrying out the work can be drawn up.

J. S. L. GILMOUR. A. E. WADE. H. S. MARSHALL.
N. DOUGLAS SIMPSON. G. TAYLOR.

FLORA OF ESSEX.

Miss M. S. Campbell, Layer Marney Hall, Kelvedon, Essex, Local Secretary for the County (see *B.E.C. 1933 Report*, 467), is still collecting materials towards a new or revised Flora of Essex, and would be glad to receive and file suitable information.

FLORA OF KENT.

Will members possessing specimens, records, or notes of Kentish plants please notify Mr F. Rose, B.Sc., F.L.S., Boxtree House, East Malling, Kent, who is gathering all data relating to the Flora of Kent? It is hoped, after the course of several years, to publish a new Flora of the county, as Hanbury and Marshall's excellent book (1899) has now become very much out of date; and, owing to lack of information, did not fully refer to all areas of the county. It is proposed to give the new work an ecological bias, so the co-operation of all ecological workers in Kent and surrounding counties would be welcomed. The help of experts on the critical genera would also be much appreciated.

It is thought that the imminent end of the war in Europe makes this, perhaps, a more suitable time for this announcement than before, although work has been in progress on the new Flora for nearly three years.

FLORA OF MIDDLESEX.

Mr D. H. Kent, of 75 Adelaide Road, West Ealing, London, W.13, is collecting material for a new *Flora of Middlesex*, and would be glad to hear from any member who has notes or specimens of Middlesex plants.

FLORA OF THE OUTER HEBRIDES.

Miss M. S. Campbell, c/o Department of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7, now freed from war duties, is resuming her work on the Flora of the Outer Hebrides (see *Journal of Botany*, 75, 88; *B.E.C. 1936 Report*, 217, and *1937 Report*, 440). She would be glad to receive records, notes, and the loan of specimens, especially those collected since 1939, from any of the Outer Isles. She would also be glad if any naturalists planning visits to the Islands would communicate with her as early as possible.

VALERIANA.

Dr Skalinska, at present working at Kew, is anxious to obtain living material of *Valeriana officinalis*, sensu lato, for cultivation and cytological study. She would also be glad of the loan of dried specimens.

CUSCUTA EUROPAEA.

Mr B. Verdcourt is studying *Cuscuta europaea* L. and would be glad to have any interesting facts which other members can give about this plant. Information is particularly needed on the following points: (1) host plants, (2) whether the habitat is usually near water, (3) whether there has in the past four years been any noticeable increase of the plants in old habitats or sudden appearance in new ones.

CHAROPHYTA REQUIRED IN FLUID.

Mr G. O. Allen, of St Oswald's, Enton Green, Godalming, Surrey, hopes to mount some sets of Charophyte slides and would much appreciate material of any species in fluid (very weak formalin). Those species specially wanted are *Nitella capillaris*, *N. tenuissima*, *Tolypella intricata*, *Lamprothamnium papulosum*, *Chara Braunii*, *C. denudata*, *C. rudis*, *C. tomentosa*, and *C. connivens*.

PERIODICALS IN THE DEPARTMENT OF BOTANY, OXFORD UNIVERSITY.

A printed list of the periodicals in the library of the Department of Botany has been prepared for the use of readers. Although the list is not available for sale, it is understood that it is being circulated to a number of institutions outside Oxford and that the authorities are prepared to make volumes available for consultation by responsible persons through the recognised channels. As the library includes many rare periodicals, some of which may not be readily obtainable elsewhere, the privilege is a valuable one and should be brought to the notice of all those undertaking research which is likely to necessitate the consultation of such works. The list includes the titles of the periodicals, volumes available, places and dates of publication and some additional particulars where desirable, and it is to be hoped that other large libraries may follow this example and publish similar lists in an equally convenient form.

J. E. LOUSLEY.

CONTINENTAL BOTANY.

Since 1940 very little botanical news has been available from the Continent and there have been considerable misgivings about the progress of the science, especially in the occupied countries. The liberation of part of Europe in 1944 has made available some information about European botanists and the following facts gleaned from a copy of the *Bulletin de la Société Royale de Belgique*, t. 76, sér. 2, t. 26, fasc. 1 and 2, published in 1944, are reassuring.

The *Bulletin* contains a most valuable illustrated paper by J. Langhe on the species of the group *Carex muricata* L., and another on the exact Belgian distribution of *Himantoglossum hircinum* which may be compared with the work of Hall & Pearsall for Britain (*B.E.C. 1933 Rep.*, 670, 1934). P. Duvigneaud gives a classification of the ecological units of bogs in part of the country, while a reference to a *Premier aperçu sur les groupements végétaux en Belgique* by Louis & Lebrun, published in the *Bulletin de l'Institut agronomique et des Stations de recherches de Gembloux* (t. 11, 1942, pp. 3-36) strengthens the impression that ecological classification of habitats has made much recent progress. There is also a report on the most excellent "I.F.B." system of recording plant distribution by means of a grid system similar to that with which we are familiar in Dutch periodicals. At the time of going to press 214 squares representing one ninth of the total area of Belgium had been catalogued in a short time.

A second edition of Goffard's *Nouveau manuel de la flore de Belgique* was published in Liège in 1941. It appears that a new Dutch flora was published by Heinsius, Thysse and Kloos in 1942 and that Dr R. Mansfeld has published a new list of German plants (*Ber. d. deutsch. bot. Ges.*, Bd. 8a, 1940).

J. E. LOUSLEY.

NOMENCLATURE AND CORRECTIONS TO BRITISH PLANT LIST.

A. J. WILMOTT.

As in the last Report, this section contains alterations which have been made in the course of preparing the present Report. Some other alterations discovered at the same time to be required have been included.

Again as in the last Report, a few names have been used contrary to *B.P.L.* when it has been impossible in present circumstances to make the full investigation required to determine the valid name, but the *B.P.L.* number will also indicate the plant concerned.

A few other corrections required in *B.P.L.* (indicated as usual by the use of heavy type), which need no explanation, have been made throughout the Report. They are not repeated here and should be sought for by those who seek to keep their *Plant List* in accord with the corrected copy used by the Editors.

So long as alternative nomenclature is, or is believed by the author to be, in accordance with the International Rules of Nomenclature, it will be permitted in papers printed in these Reports, for unfortunately there are still many plants whose specific or other taxonomic rank is still a matter of personal opinion, or for which the valid name is still a subject for debate. But for *Plant Notes*, *Plant Records*, and other matter prepared editorially, the nomenclature of the Society's corrected copy of *B.P.L.* will be adopted.

It should have been clearly stated in the last Report that the names in *B.P.L.* distinguished within the species after "a, b, c," etc., are considered to designate *varieties*, and authorities are added correct for the rank of variety. As before, earlier authorities to replace any "comb. nov. ?" will be welcomed for insertion in the next Report.

54 BRASSICA.

14 **Kaber** (DC.) Wheeler—misprinted in *1938 Rep.*, 23, as "*haber*": correct also in *1941-42 Rep.*, 516.

60 CORONOPUS Boehm. in Ludwig Def. Gen. Pl., ed. 3, 32 (1760); *nomen conservandum propositum* 1935.

1 **didymus** (L.) Sm.

2 **procumbens** Gilib.—*vice* tautonym.

88 VIOLA.

1 **stagnina** Kit. sec. Rehb. (*V. persicifolia* auct., ? Roth).—The identity of the plant described by Kitaibel (in Schultes 1814: *Oesterr. Fl.*, ed. 2, 426) has been considered doubtful, but Reichenbach (1839: *Icon. Fl. Germ.*, 3, t. 4507, 4) figures one of Kitaibel's specimens, which appears to be certainly the species often called *V. persicifolia* Roth (1789: *Tent. Fl. Germ.*, 2, 271). Roth's plant, however, is considered "valde

ambiguum" by Rouy and Foucaud (1896: *Fl. Fr.*, 3, 9) and others, and until it has been properly typified, *V. persicifolia* Roth must be treated as *nomen dubium*.

100 CERASTIUM.

- 4 **arcticum** Lange—1889: *Fl. Dan.*, fasc. 50, 7; also 1880-1: in *Overs. dansk Vid.-Selsk., Forh. pro ann. 1880*, nr. 119. *C. Edmondstonii* (Wats.) Murb. & Ostenf. ex Murb. (1898: *Bot. Not.*, 246) is a *nomen illegitimum (superfluum)*, for Murbeck cites *C. arcticum* Lange as a synonym.

185 RUBUS.

- [123 b. *nomen nudum*: delete: =131 b.]
 129(2) **adenolobus** W. Watson.—1935: *Lond. Nat. for 1934*, 61) vice 129 b.
 131 **apricus** Wimm.
 b. **sparsipilius** W. Watson.—(1935: *Lond. Nat. for 1934*, 61.)

187 GEUM.

- 2 **rivale**
 b. **pallidum** (Fisch. & Mey.) Blytt.—See Brenan (p.). No basis for the "C. A. Mey." of *B.P.L.* can be found by him.

- 194 ROSA.** The list in *B.P.L.* needs thorough revision, and until this can be done the nomenclature of Wolley-Dod's "Revision of British Roses" (1931: *Journ. Bot. Suppl.*) is accepted, with the necessary corrections to *B.P.L.* listed in *1932 Rep.*, 160-162. The varieties of species 7, 8, and 9 are treated as further varieties of *V. canina* L., and those of species 11 as further varieties of *R. dumetorum* Thuill.

- 12 **Afzeliana** Fr.
 e(3) **rupicola** (Harrison) ? comb. nov.—(See Harrison *et al.* 1944: *Vasc.*, 29, 10.) Delete 7r (see *1941-2 Rep.*, 517).
 21 **villosa.**
 g. **relicta** (Harrison) ? comb. nov.—*R. mollis* var. *relicta* Harrison 1943: *Vasc.*, 28, 16.—*R. mollis* var. *fallax* Harrison (1932: *Vasc.*, 18, 25—non A. Blytt).

227 BLUMENBACHIA.

- 1 **Hieronymi** Urban—vice *B. insignis* of *B.P.L.*, see Brenan, p. 789.

252 FALCARIA.

- *1 **vulgaris** Bernh.—Vice tautonym.

258 CHAEROPHYLLUM.

- 2 **temulum** L.—This, and not *temulentum*, is the original spelling in the *Species Plantarum* (1753: 258).

299 **CRUCIANELLA.**

- 3 *stylosa* Trin.—See 1939-40 *Rep.*, 356: delete 298/6—*Asperula ciliata* Rochel.

352(2) **COSMOS.** Cav., *Icon.*, 1, 9, tt. 14, 79, 1791.

- 1 *bipinnatus* Cav. Centr. and Trop. Am.—See *Plant Notes*.

353 **BIDENS.**

2 *tripartita*

- d. *radians* (Beck) comb. nov. ?—*Bidens tripartita* f. *radians* Beck; Hegi 1918: *Ill. Fl. M.-Eur.*, 6 (1), 518. See 1939-40 *Rep.*, 253-4. I have not yet traced the reference to Beck.

380 **PETASITES.**

- 1 *hybridus* (L.) G.; M. & S. emend Fritsch—1898: *Verh. Z.B.G. Wien*, 48, 269-270. *Tussilago hybridus* L. 1753: *Sp. Pl.* 866, emend. (incl. *T. Petasites* L. l.c.).

383 **SENEGIO.**

10 *vulgaris*

e. *radiatus* Koch.

- f. *lanifera*, nom. nov. *S. lanuginosus* Trow. “*S. vulgaris* var. *lanuginosus* (Trow),” *B.P.L.*, ed. 2, *nomen illegitimum*: Druce should have adopted the name var. *radiatus* Koch which he cited, albeit incorrectly, as a synonym. This misuse makes it impossible to use Trow’s epithet for the variety, as to do so would create an illegitimate homonym of Druce’s illegitimate combination.

396 **CIRSIUM.**

1 *eriphorum* (L.) Scop.

- × *vulgare* (Savi) Airy-Shaw (× *C. Gerhardi* Schultz Bip.) 1849: *Fbora*, 32, 547. See Brenan, p. 792.

400 **GALACTITES.**—Delete *Lupsia* Neck.: Necker’s names were not names of “genera.”

- 1 *tomentosa* Moench.—*vice* tautonym.

427 **SONCHUS.**

2 *arvensis*

- b. *glabrescens* G., G. & W.—See Brenan (p. 793). The abbreviation G., G. & W. should be added to p. xxxv of *B.P.L.*

463 **LYSIMACHIA.**

- 7 *terrestris* (L.) Britt. St. & Pogg.—1888: *Prelim. Cat. New York*, 34. *Viscum terrestre* L. (1753: *Sp. Pl.* 1023). cf. Britton and Brown (1913: *Ill. Fl. N. Unit. St.*, 2, 712), “The plant sometimes produces no flowers, but bears bulbils freely in the axils in the autumn, and in this condition was mistaken

by Linnaeus for a terrestrial mistletoe." *L. stricta* Ait. (1789: *Hort. Kew.*, 1, 199).

467 ANAGALLIS.

2 *arvensis*

f. *azurea* Wilmott—ut ssp. *phoenicea* (Scop.) Schinz & Kell. sed floribus caeruleis; nec *A. caerulea* Schreb. This is referred to as "f. *caerulea* Lüdi" in Hegi (1927: *Ill. Fl. M.-Eur.*, 5(8), 1870), but the oldest use of "var. *caerulea*" is uncertain and probably refers to *A. caerulea* Schreb., i.e. to *A. foemina* Mill. and not to the blue-flowered variant of ssp. *phoenicea*, for which a different epithet is clearly desirable.

478 CENTAURIUM.

7 *capitatum* (Willd. ex Cham.) Britt. & Rend.—See Druce 1908: *B.P.L.*, ed. 1, nr. 1758, where *Centauryon* Adanson is treated as an orthographic variant of *Centauryum* Hill, which view was also taken by *Gilmour*, see 1937 *Rep.*, 453.

482 NYMPHOIDES.

1 *pellatum* (Gmel.) Britt. & Rend.—(1907: *List. Br. Seed-Pl. and Ferns*, 20). Prof. M. L. Fernald points out that Gmelin gave the name *Limnanthemum pellatum* to what he believed to be a new species from Asia, and therefore was under no obligation to adopt any previous name: the epithet *pellatum* is therefore valid.

493 LAPPULA.

2 *echinata* Gilib.—*vice* tautonym.

506 MYOSOTIS—See Wade 1944; and 1930: in *B.E.C. 1929 Rep.*, 157→.

1 *scorpioides* L. emend. Hill.—Lectotype in the Clifford Herbarium, British Museum.

a. *memor* (Kittel) Wade, comb. nov. (in litt.).

b. *hirsuta* (H. Braun in Asch.) Wade.

c. *nemorosa* (Bess.) Wade.

c(2) *Reichenbachiana* (Dum.) Wade 1930: 163.

d. *strigulosa* (Rchb.) Schinz & Kell.

e. *laxiflora* (Rchb.) Wade.

f. *serotina* (Hülphers) Wade, comb. nov. (in litt.).

3 *secunda* A. Murray.—*M. repens* G. Don [MS., see Hooker 1821: *Fl. Scot.*, 67] ex Borr. 1834: in *E.B. Suppl.*, 2, t. 2703, and *M. repens* G. & D. Don 1837: *Gen. Syst.*, 4, 344, are later homonyms of the illegitimate "*M. repens* Donn. *Cat. Hort. Cantab. Suppl.*" ex Rchb. in Sturm 1822: *Deutsch. Fl.*, Heft. 42.

522 **DATURA.**

1 *Stramonium*

- b. *Tatula* (L.) Torrey (1824: *Fl. N. and Mid. United States*, 232); see Fernald (1938: *Rhodora*, 40, 184). The reference given in the last Report for var. *chalybea* Koch should be (1837: *Syn. Fl. Germ.* [ed. 1] 510).

543 **VERONICA.**

- *18 *persica* Poir.—See Lacaita (1917: *J.B.*, 55, 271-276; also 1918: *J.B.*, 56, 55); *V. Tournefortii* C. C. Gmel. is a *nomen confusum*.

- 20 *polita* Fr.—*V. didyma* Tenore is an older name but was (according to Mr C. C. Lacaita) originally given to *V. agrestis* L., at a time when Tenore thought that *V. polita* Fr. was *V. agrestis* L. When Tenore discovered his error his descriptions became changed and he then described *V. polita* under the name *V. didyma*.

578 **GALEOPSIS.**

2 *Tetrahit*

- c. *nigricans* Bréb.—not "*nigrescens*."

615 **POLYGONUM.**

4 *viviparum*

- c. *Roessleri* (G. Beck) Harrison *et al.*—(1941: *J.B.*, 79, 167).
32 *cuspidatum* Sieb. & Zucc.—Prof. M. L. Fernald has referred me to the paper by Steward (1930: *Rhodora*, 32, 223-225), who points out that *P. cuspidatum* Willd. was only a herbarium name published by Sprengel (1826: *Syst.*, 2, 256) as a synonym of *P. acuminatum* Kunth. It was therefore not validly published before *P. cuspidatum* Sieb. & Zucc. (1844-46), which in consequence is not to be rejected as a "later homonym."

616 **FAGOPYRUM.**

- 1 *sagittatum* Gilib.—*vice* tautonym.

628 **EUPHORBIA.**

- 16 *Lathyrus* L.—This, and not *Lathyris*, is the original spelling in the *Species Plantarum* (1753: 457).

84(2). **PLATANACEAE.**

Lindley, *Nat. Syst. Bot.*, ed. 2, 187, 1836.

640(2) **PLATANUS** L.

- 1 *acerifolia* (Ait.) Willd.—See *Plant Notes*.

90 **HYDROCHARITACEAE.**—Revised by J. E. Dandy. As in *B.P.L.* except:—

655 STRATIOTES L.

- 1 *aloides* L.—(N.B., asterisk is omitted: no initial capital).

658 HYDRILLA Rich.

- 1 [*verticillata* (L.f.) Royle. Asia].
 b. *pomeranica* (Rchb.) Druce.—No reason to doubt its being native.

669 ORCHIS.

- 11(2) *hebridensis*

× (7) *latifolia* L. sec. Pugsl.—See Harrison (1941C: 298).

- × (10) *ericetorum* (Linton) E. S. Marshall.—See Harrison (1941B: 259).

669(3) HIMANTOGLOSSUM Koch: Syn. Fl. Germ., 689, 841, 1837—
See 1933 Rep., 671.

- 1 *hircinum* (L.) Koch.

674(1) GYMNADENIA R. Br. apud Ait. Hort. Kew., ed. 2, 5, 191,
1813.

- 1 *conopsea* (L.) R. Br.

b. *densiflora* (Wahl.) Rchb.—t. 424, f. 1-11.

c. *borealis* (Druce) Godfrey.—*Monogr. Brit. Orchid.*, 143.

- × *Orchis hebridensis*.—See Harrison (1941C: 298).

[2 *odoratissima* (L.) Rich.]—See 1916 Rep., 428.

674(2) LEUCORCHIS E. Mey., Preuss. Pflanzeng., 50, 1839.

- 1 *albida* (L.) E. Mey. ex Schur—*Sert.* 72, n. 2703; *Enum. Pl. Transsilv.*, 645.

674(3) COELOGLOSSUM Hartm., Handb. Skand. Fl., 329, 1820.

- 1 *viride* (L.) Hartm.—*loc. cit.*

674(4) NEOTINEA Rchb. f., De poll. Orch., 29, 1852.

- 1 *intacta* (Link) Rchb. f.—*Orchis intacta* Link, in *Schrad., Journ. Bot.*, 322, 1799.

674(5) PLATANThERA Rich. 1818: in *Mém. Mus. Par.*, 4, 48, 57.

- 1 *chlorantha* (Custer) Rchb.—1828: apud Mössl. *Handb.*, 2, 1565.
Orchis chlorantha Custer, *Neue Alp.*, 2, 401.

2 *bifolia* (L.) Rich. emend. Rchb.—*Fl. excurs.*, 120.

692 MAIANTHEMUM.

- 1 *bifolium* (L.) Schmidt.—*Convallaria bifolia* L. (1753: *Sp. Pl.*, 316), spelt by Linnaeus with a small b. There is an old genus *Bifolium*, but Linnaeus in his *Index Synonym.* refers this only to p. 946, where *Bifolium minimum* Bauh., *Hist.*, 3, 534, is cited under *Ophrys cordata* L.

718 JUNCUS.

- 1 **maritimus** Lam. Mr N. Douglas Simpson informs me that the plant of Egypt and Arabia which was indicated by Forskål as *J. spinosus* is distinct from the British plant, being the var. *arabicus* Asch. et Buch. ex Boiss. ("1884": *Fl. Or.*, 5, 354), which has been treated as a distinct species by Adamson (1935: *J.L.S.*, 50, 10). It is therefore preferable to use Lamarck's name for the British plant.
- b. **atlanticus** J. W. White.
- c. **congestus** L. B. Hall.

102 **ALISMATACEAE**.—Revised by J. E. Dandy.—As in *B.P.L.* except:—

729 ALISMA L.

- 1 **Plantago-aquatica** L.
[b=2]
× 730/1 = × **Glueckii** Druce.
- 2 **lanceolatum** With.

730 BALDELLIA Parl.

- 1 **Ranunculoides** (L.) Parl.—(*Echinodorus Ranunculoides* (L.) Engelm.).

731 LURONIUM Raf.—1840: *Autik. Bot.*, 63. (*Elisma* Buchen. 1869).

- 1 **natans** (L.) Raf.—(*Elisma natans* (L.) Buchen.).

732 SAGITTARIA L.

- *2 **rigida** Pursh—(*S. heterophylla* var. *iscana* Hiern).—Martin & Fras. 1939: *Fl. Devon*, 637.

733 DAMASONIUM Mill.

- 1 **Alisma** Mill. (*D. stellatum* Pers.; *Actinocarpus Damasonium* (L.) Sm.; *D. Damasonium* (L.) Aschers. & Graebn.).

737 POTAMOGETON L. Revision of nomenclature from Dandy and Taylor (Studies of British Potamogetons; *J.B.*, 1938→). Statements for which no reference is given are from unpublished studies by these authors, who regard the numerous varieties listed in the *B.P.L.* as mere states or developmental phases, not as distinct taxonomic groups. This revision covers also the list published by Pearsall (1931: *B.E.C. 1930 Rep.*, 413-415), and has been passed by J. E. Dandy and G. Taylor.

- 1 **natans** L. (*P. hibernicus* (Hagstr.) Druce).
[*d. terrestris* Gray = 2.]
[× 2. Error. *P. hibernicus* (Hagstr.) Druce = 1.]
× 9 = × **P. sparganifolius** Laestad. ex Fr. (*P. Kirkii* Syme).
× 13 = × **P. fluitans** Roth (*P. crassifolius* Fryer; *P. sterilis* Hagstr.).

- 2 **polygonifolius** Pourr. (*P. oblongus* Viv.).
[× 15. Error. *P. Macvicarii* A. Benn. = 5 × 15.]
- 3 **nodosus** Poir. (*P. Drucei* Fryer).—D. & T. 1939: 62.
- 4 **coloratus** Hornem.
× 9 = × **P. Billupsii** Fryer.
× 23 = × **P. lanceolatus** Sm. (*P. perpygmaeus* Hagstr. ex Druce).
- 5 **alpinus** Balb. (*P. rufescens* Schrad.; *P. Palmeri* Druce).
[× 1. Error: a former interpretation of *P. Drucei* = 3.]
[× 2. Error. The Channel Is. plant = 2.]
× 9 = × **P. nericius** Hagstr.
× 15 = × **P. Griffithii** A. Benn. (*P. Macvicarii* A. Benn.; *P. nerviger* auct. brit., non Wolfg.).—D. & T. 1939: 282.
[*P. Palmeri* Druce = 5.]
× 16 = × **P. prussicus** Hagstr. (*P. Johannis* Harrison).—D. & T. 1941: 100.
× 17 = × **P. olivaceus** Baagöe ex G. Fisch. (*P. venustus* Baagöe ex A. Benn.).—D. & T. 1943: 119.
[× 23. Error: a former interpretation of *P. lanceolatus* = 4 × 23.]
[6 = 5 × 15.]
[7 = 4 × 23.]
[8 = 1 × 9.]
- 9 **gramineus** L. (*P. varians* Morong ex Fryer; *P. falcatus* Fryer).
[b. *falcatus* (Fryer) Druce = 9. Not a hybrid.]
[× 1. See 1 × 9.]
[× 2. Error. The Kerry plant = 9.]
× 13 = × **P. Zizii** Koch ex Roth (*P. angustifolius* auct. mult., an Bercht. & Presl?; *P. coriaceus* (Mert. & Koch) A. Benn.; *P. Babingtonii* A. Benn.).—D. & T. 1939: 164.
[× 13 × 1. Error: a former interpretation of *P. crassifolius* = 1 × 13.]
× 16 = × **P. nitens** Weber.
[× 16 × 23 = × *P. Heslop-harrisonii* Clark. No material seen.]
- [10 = 9. The synonym “? *spathiformis*” belongs to a North American hybrid.]
[11 = 9 × 16.]
[12 = 9 × 13.]
[× 1. Error. *P. crassifolius* Fryer = 1 × 13. D. & T. in A. H. Evans 1939: *Fl. Cambr.*, 166.]
[× 9. Error. *P. coriaceus* (Mert. & Koch) A. Benn. = 9 × 13.]
- 13 **lucens** L.
[× 1. See 1 × 13.]
[× 15. Error. *P. Babingtonii* A. Benn. = 9 × 13.]
× 16 = × **P. decipiens** Nolte ex Koch (*P. salignus* Fryer; *P. Kupfferii* A. Benn.).—D. & T. 1939: 100.
[14 = 13 × 16.]

- 15 **praelongus** Wulf.
 × 16 = × **P. cognatus** Aschers. & Graebn.—Taylor & Sledge
 in *The Naturalist* 1944: 121.
 × 17 = × **P. undulatus** Wolfg.—D. & T. 1943: 118.
- 16 **perfoliatus** L.
 × 17 = × **P. Cooperi** (Fryer) Fryer.
- 17 **crispus** L.
 [×15. See 15 × 17. The records from Stirling and Armagh
 are errors.]
 [×16. See 16 × 17.]
 ×22 = × **P. Lintonii** Fryer.—D. & T. 1939: 310.
 [×23. Error. ×*P. Bennettii* Fryer = 17 × 27.]
 ×27 = × **P. Bennettii** Fryer.—D. & T. 1939: 309.
- 18 **compressus** L. (*P. zosteræfolius* Schumach.).
- 19 **acutifolius** Link.
 [×23. Error. The Sussex plant = 25. D. & T. 1940: 2.]
- 20 **obtusifolius** Mert. & Koch.
 × 25 = × **P. Sturrockii** (A. Benn.) A. Benn.—This is the in-
 terpretation of Hagstr. 1916: *Crit. Res.*, 117. Restricted
 to Marlee Loch, E. Perth.
- [21 = 23.]
- 22 **Friesii** Rupr. (*P. mucronatus* Schrad. ex Sond.).
 [×20. Error. The Surrey and Perth plants both = 20.]
 [×23. Error. The Salop plant = 23; the Stirling plants =
 23 and 25. D. & T. 1940: 2, 50.]
- 23 **Berchtoldii** Fieb. (*P. pusillus* auct. mult., non L.; *P. lacustris*
 (Pearsall & Pearsall f.) Druce; *P. Millardii* Harrison).—
 D. & T. 1938: 92; 1940: 51; 1944: 121).
 [c. *pusillus* var. *similis* A. Benn. = 25. D. & T. 1940: 5.]
 [×27. Error. The plants from Northampton, N. Hants, E.
 Suffolk, Bucks, and W. Kent all = 23. D. & T. 1940: 49.]
- 24 **rutilus** Wolfg.—D. & T. 1938: 239. [The records from Angle-
 sey and Orkney are errors.]
- 25 **pusillus** L. (*P. panormitanus* Biv.).—D. & T. 1938: 92; 1940: 3.
 [×23. Error. The York and Salop plants both = 23; the
 Berks plant = 25. D. & T. 1940: 2, 49.]
 [×27. Error. The Cardigan plant = 23; the Norfolk plant =
 25. D. & T. 1940: 2, 50.]
- [26 = 20 × 25, *vide* Hagstr.]
- 27 **trichoides** Cham. & Schlecht.—D. & T. 1938: 166.
- 28 **pectinatus** L. (*P. interruptus* Kit.; *P. flabellatus* Bab.).
 × 30 = × **P. suecicus** Richt.—D. & T. 1940: 145.
- [29 = 28.]
- 30 **filiformis** Pers. (*P. marinus* auct. mult., non L.).
 [×28. See 28 × 30. The records from Zetland and Orkney
 ("Scot. 2" of *B.P.L.*) and from Oxford are errors; the
 plants = 28.]

- 31 **densus** L.
- *32 [*epihydrys* Raf. N. Am.]
 b. *ramosus* (Peck) House (*P. Nuttallii* Cham. & Schlecht.; *P. pensylvanicus* Willd. ex Cham. & Schlecht.). N. Am.—Sledge 1941: *Suppl. York. Fl.*, 111.
- [33 Error. The British plant (from S. Devon) = 20. D. & T. in Martin & Fras. 1939: *Fl. Devon*, 644.]
- 738 **RUPPIA** L.—Revised by J. E. Dandy and G. Taylor. Dandy & Taylor in Martin & Fras. 1939: *Fl. Devon*, 646.
 1 **spiralis** L. ex Dumort.—(*R. maritima* auct. mult., non L.).
 2 **maritima** L. (*R. rostellata* Koch).
- 742 **APONOGETON** L. f.—Revised by J. E. Dandy.
 *1 *distachyos* L. f. S. Afr.
- 750 **GLADIUM** P. Browne, Hist. Jamaic. 114 (1756).
 1 **Mariscus** (L.) R. Br.—1810: *Prodr. Fl. Nov. Holl.*, 236. *Schoenus Mariscus* L.; 1753: *Sp. Pl.*, 42.
- 753 **CAREX**.
- 13 **helodes** Link—This name was used in place of *C. laevigata* Sm. (1800) by Kükenthal in his Monograph (1909: *Pflanzenr.* 4(20), 655) because he supposed it to have been published in 1799, the date given on the title page. But Mr Nelmes has evidence that it was not published until 1800. It seems probable that *C. laevigata* Sm. will prove to be the valid name, but until that name has been proved to be the earlier it is undesirable to alter *B.P.L.*, especially as *C. helodes* is used in the standard monograph of the genus.
- 20(2) **tumidicarpa** Anderss.—1849: *Bot. Not.*, 6. This is 20c, "*C. flava* var. *minor* Townsend," which Mr Nelmes considers to be a different species from *C. flava* L. It probably includes 20b, *C. flava* var. *argillacea* Towns., and perhaps 20d.—From E. NELMES. It has also been referred to as *C. demissa* Hornem. apud Spreng. (1826: *Syst.*, 3, 822).
- 22 **serotina** Mérat—Mr Nelmes prefers this name because it certainly refers to the British plant, whereas Mackenzie, Fernald, and Kreczetowicz are all of the opinion that *C. viridula* Michx. is somewhat different. Until the group is better known it is desirable to use the name which undoubtedly refers to the British plant.
- 37 **paupercula** Michx.—1803: *Fl. Bor. Amer.*, 2, 172. *C. irrigua* (Wahlenb.) Smith ex Hoppe 1826: *Caric. german.*, 72. *C. limosa* var. *irrigua* Wahlenb. 1812: *Fl. lapp.*, 243, t. xv, f. 2.—*C. magellanica* Lam. appears to be specifically distinct from the plant of the northern hemisphere.—From E. NELMES.

- 44 **recta** Boott apud Hook.—1840: *Fl. Bor. Amer.*, 2, 220, t. 222. *C. kattegatensis* Fries 1857: *Ind. Sem. Hort. Upsal.*, nomen nudum. *C. salina* var. *kattegatensis* Alm. 1891: *Bot. Not.*, 126. *C. salina* Wahlenb. is now considered to be *C. aquatilis* × *subspathacea* (not British).—From E. NELMES.
- 51 **rigida** Good.—This name has been used in this Report in accordance with my note (1925: *J.B.*, 63, 341), based on acceptance of the view that the earlier use by Schrank (1789: *Baier. Fl.*, 1, 290) was as a variety. Schrank's remarks in the preface (p. 38) appear to have been misread (cf. the *, see pp. 693 & 694). *C. Bigelowii* Torr. ex Schwein. must stand.
- 56 **echinata** Murray—1770: *Prodr. Stirp. Gött.*, 76. This name was based on a reference to Haller's *Historia* (1768: n. 1566) and a figure in *Fl. Dan.* (t. 284). Both description and figure represent *C. stellulata* Good. That the specimen in Murray's herbarium is not *C. stellulata* Good. does not affect the application of Murray's name, as Mr Nelmès agrees.
- 61(2) **polyphylla** Kar. & Kir.—1841: in *Bull. Soc. Nat. Mosc.*, 14, 859. Mr Nelmès states that type material seen by him is conspecific with *C. Leersii* F. Schultz (1870: *Flora*, 53, 459) non Willd. (1787: *Fl. Berol. Prodr.*, 28; = *C. echinata* Murr. = *C. stellulata* Good.).—It was the only species of the group which was observed on Flat Holm when I visited that island with the Cardiff Naturalists' Society, and in the same year I observed it in thousands on a high roadside embankment near Bristol. It seems certainly a distinct species.
- 64 **appropinquata** Schumacher—1801: *Pl. Saell.*, 267. *C. paradoxa* [non J. F. Gmel. 1791: *Syst.*, 142, nomen dubium sec. Kükenthal 1909: *Pflanzenr.*, 4(20), 762] Willd. 1794: in *Sitzb. Ges. naturf. Freunde*, 39, t. I, f. 1.—This change is adopted by Mr Nelmès from the Russian caricologist Kreczetowicz.

§26 **FESTUCA.**

- 4 **elatior** L.
 b. **pratensis** (Huds.).
- 7 **rubra**.—See Howarth in Martin and Fraser 1939: *Fl. Devon* 715.
 c. **dumetorum** (L.) Howarth.
 e. **pruinosa** (Hack.) Howarth.
 e(2) **glaucescens** (Heget. & Heer) Richt.
 h. **planifolia** Hack.—1882: *Mon. Festuc.*, 140.
- 7(2) **prolifera** (Piper) Fernald.—See Harrison, J. W. H. (1941B: 269).

- 10(2) **vivipara** (L.) Sm.—Turesson has described a considerable number of distinct apomict forms which are for the time being best classified under the above name. Some of them have been recognised in, or described from, the British Isles (cf. Harrison, J. W. H. 1941B: 269):—
- b. **scotica** (Turess.) comb. nov.
 - c. **norvegica** (Turess.) comb. nov.
 - d. **faeroensis** (Turess.) comb. nov.
 - e. **killinensis** (Turess.) comb. nov.
- 14 **glauca** Lam.
- b. **hebridensis** (Harrison) Harrison *et al.*—1941C: 305. *F. glauca* apm. *hebridensis* Harrison *et al.* 1941B: 269 (nomina nuda).
- 16 **ambigua** Le Gall—1852: *Fl. Morb.*, 731. If this plant is regarded as a glabrous form of "*F. ciliata* Danth.," that plant must be given a varietal name, as *F. ciliata* had been used twice previously. *F. Danthonii* Asch. & Graebn. (1901: *Syn.* 2(1), 550) is an illegitimate name as *F. ambigua* should have been adopted in an emended sense.

827 BROMUS.*16 **secalinus**

- *b. **hirtus** (F. Schultz) Hegi—1908: *Ill. Fl. Mitteleur.*, 1, 363. *B. mutabilis* var. *hirtus* F. Schultz 1849: *Flora*, 32, 233. *B. secalinus* subvar. *hirtus* (F. Schultz) Asch. & Graebn. 1901: *Syn. Mitteleur. Fl.* 2(1), 604. Druce's "*subhirtus*" appears to have been a *lapsus calami*, as no such variety has so far been noted by Mr Hubbard.

830 AGROPYRON. Corrections from Hubbard (1939: in Martin & Fraser; *Fl. Devon*, 727-731).

- 4 **repens** (L.) Beauv.
- a. **obtusum** Syme.—Similar to the next, but pales obtuse with a minute apiculus.
 - a(2). **arvense** Rehb.—Awnless: pales mucronate.
 - b. **dumetorum** (Schreb. ex Schweigg. & Koerte) Roem. & Schult.—Robust short-awned form.
 - c. **aristatum** Baumg.—*T. Leersianum* Roem. & Schult. Both glumes and pales attenuated into a long awn twice the length of the glume.
 - d. **Vaillantianum** (Wulf. ex Schweigg. & Koerte) Roem. & Schult.—Similar to the last but awns much shorter.
 - j. **subulatum** (Schreb. ex Schweigg. & Koerte) Roem. & Schult.—Form with long tapering glumes.

850 × 851 ASPLENOPHYLLITIS Alston (1940: 139).

- 1×2 **confluens** (T. Moore) Alston—(1940: 139). *Asplenium Trichomanes* var. *confluens* T. Moore ex Lowe 1867: *Our Native Ferns*, 2, 207, f. 560.

- 1×4 **microdon** T. Moore) Alston—(1940: 140). *Asplenium marinum* var. *microdon* T. Moore 1855: *Ferns Gr. Brit.*, sub. t. 38.—Delete 4c.
- b. **Sinelii** (J. F. Robinson) comb. nov. ?—*Asplenium lanceolatum* var. *Sinelii* J. F. Robinson 1880: *Hardwicke's Science Gossip*, 148. "Said to be intermediate between *obovatum* and *microdon*."—Delete 4d.

851 ASPLENIUM.—See Alston (1940).

- [1×5 Doubtfully hybrid: = 1d; possibly = 5.]
- 2×3? cf. Stansfield 1919: *Brit. Fern. Gaz.*, 4, 3.—Westmorland ("evidence insufficient").
- 2×? **refractum** (T. Moore) Lowe—1858: *Ferns Brit. & Exotic*, 5, 103, t. 35; T. Moore 1859: *Nature Printed Br. Ferns* (octavo ed.), 2, 65. *A. fontanum* var. *refractum* (T. Moore) Hook. 1860: *Spec. Filic.*, 3, 193. *A. ebeneum* var. *refractum* T. Moore ex Lowe 1867: *Native Ferns*, 170.—Cultivated. ? also Scotland.
- c. **Claphami** (T. Moore ex Lowe) comb. nov. *Asplenium lanceolatum* var. *Claphami* T. Moore ex Lowe 1867: *Our Native Ferns*, 155. × *Asplenophyllitis Claphami* Alston 1940, 141—"intermediate between [×] *A. microdon* and *Phyllitis Scolopendrium*." b. and c. possibly back-crosses with *Phyllitis Scolopendrium*.
- 1×5 **Jacksoni** Alston—(1940: 142). *A. Adiantum-nigrum* var. *microdon* T. Moore 1860: *Brit. Ferns* (Octavo ed. 2), 76, 89. ? *A. Adiantum-nigrum* var. *subconfluens* Stansfield ex Lowe 1867: *Our Nat. Ferns*, 2, 181, f. 525.
- 2×9 **Breynii** Retz.—1774: Obs. i. 32 = × *A. germanicum* Weis. 1770 pro parte.
- b. **acutidentatum** (T. Moore) comb. nov.—*A. germanicum* var. *acutidentatum* T. Moore 1859: *Nature Printed Br. Ferns* (octavo ed.), 2, 129, t. 80B—? × *A. Breynii* × *septentrionale*.
- 7×9 **Murbeckii** Dörf.—1895: *O.B.Z.*, 45, 223. *A. Rutamuraria* var. *cuneatum* T. Moore 1855. *A. Ruta-muraria* var. *pseudo-germanicum* (? Heubl.) Syme 1866, pro parte.—Delete 7c.

PLANT NOTES.

[In the case of direct contributions the name of the author of the note is printed in small capitals. When the note is an abstract, the author's name is followed by the reference, either in full or by date referring to the Bibliography. The abstractor is indicated as under "Abstracts from Literature."

Note to Contributors. Will those sending in Plant Notes please keep to the form adopted in the recent Reports. If the note comes from a publication, and more than one note is extracted from a single paper, first set down the "reference" in the same form as is adopted in the published "References" in the Reports, i.e., author's surname, comma, initials, semicolon, date of publication, colon, title of work, (and if from a serial publication) semicolon, followed by the name (abbreviated) of the serial, the volume, and pages (first and last). The Plant Note itself starts with the *B.P.L.* number and name of the genus or species concerned. If the note concerns one vice-county only, start the note with this information as is done with Plant Records. It would be a great convenience if all notes were prepared by different contributors on slips of the same size, that preferred being 8 inches by 5 inches, the long edge to be treated as the top of the page.—Ed.]

2. *THALICTRUM*. B. Boivin (1944: *Rhodora*, 46, 339-376) has given an account of "American *Thalictra* and their Old World Allies." The author finds that "whether . . . in flower or in fruit, accurate descriptions of pubescence always apply and can easily be checked no matter how fragmentary the specimen may be," although "many normally pubescent species do, however, occasionally present glabrous specimens and mature foliage often loses its pubescence." Six types of hair are recognised. The leaf-division is widely variable, and "although each species, when well known, may usually be recognised by the contour of the leaflets" . . . "these differences are not constant and not very easily put into words." Fruits vary but little, and characteristic features are: shape; length and breadth; thickness; length of stipe; number and design of nerves and ridges; number, direction and pubescence of the fruits; thickness of the fruit-wall.

T. minus L. from Greenland (Giesecke) is no doubt an error.

T. alpinum L. is subdivided into varieties.

"Var. *typicum*" [an illegitimate name as several earlier varietal names are cited in synonymy, the earliest being var. *pallidum* Norman (1883: "Arch. Math. Naturvid.", 3, 4)], referred to as "the early stage of the plant when the leaflets are strongly glaucous beneath"—Ed.] is described as with more or less elongate horizontal stolons, rarely caespitose; roots few, usually scattered; leaflets bright green above,

generally very shining not glaucous; ovary usually obovate or subglobose, sessile or subsessile; mature carpels with stalk 5 mm. or shorter or lacking: various British localities are cited. [As the British plant normally has the leaves glaucous beneath, the name var. *pallidum* Norman should be adopted.]

The var. *hebetum* Boivin is used to include seven species distinguished by Greene. The plant is a little stoloniferous, rarely caespitose, with elongate or ascending stolons; roots few, close aggregated; leaflets dull or rarely a little shining above, usually more or less glaucous, sometimes somewhat green; ovaries obovate or oblanceolate, sessile or subsessile; mature carpels with stalk as in "var. *typicum*": localities from Austria, Switzerland, the French Alps and the Pyrenees are cited, but none from the British Isles.

The var. *stipitatum* Yabe with fruit-stalk .5-2.5 mm. long occurs in India and China.

6. *RANUNCULUS*—sect. *Batrachium*. An account of the "Diversity of the reaction to submergence in the Batrachian Ranunculi" is given by R. W. Butcher (1940: *P.L.S. Sess.*, 152, 180-189). Plants were transferred from mud to submerged conditions and vice versa, and the results are described with some illustrations. Some species such as *R. peltatus* elongate on submergence, to reach the surface of the water, forma *elongatus* Hiern being such a state and not a variety. Other species shown to elongate in this way are *R. sphaerospermus*, *R. Baudotii* and *R. circinatus*. Species not elongating thus are *R. trichophyllus*, *R. Drouetii* and *R. fluitans*. In the experiments described *R. fluitans*, *R. pseudo-fluitans* and *R. trichophyllus* never produced a trace of a floating leaf in three years, but *R. radians* and *R. heterophyllus* always produced them. "*Radians*" and "*Godroni*" would be better placed as "*R. aquatilis* (= *heterophyllus*) var. *radians* and var. *Godroni*."—[Wi.]

36/3. *BARBAREA VULGARIS* (L.) R. Br. Fernald (1943: *Rhodora*, 45, 304) considers that there are "four well defined varieties" naturalised in North America, which he separates as follows:—

Pedicels ascending to appressed or erect; siliques erect or strongly ascending, closely overlapping, the racemes dense.

Siliques (excluding beak) 1.5-3 cm. long. *B. vulgaris* (typical).

Siliques (excluding beak) 0.8-1.5 cm. long. Var. *sylvestris*.

Pedicels spreading; siliques arcuate ascending to horizontally divergent, not imbricated, the raceme lax and open.

Siliques (excluding beak) mostly 2-3 cm. long. Var. *arcuata*.

Siliques (excluding beak) mostly 0.7-1.5 cm. long. Var. *brachycarpa*.

He also recognises var. *arcuata* forma *hirsuta* (Weihe) Fernald with the basal leaves, including petioles, copiously villous-hirsute, and also a forma *plena* Fernald with very many petals and petaloid stamens.—[Wi.]

116/5(2). **Lavatera punctata** All. This species, listed by Dr Burges among aliens found at Burton-on-Trent (p. 818), belongs, like *L. thuringiaca* L. to the sect. *Olbia*, distinguished by solitary axillary peduncles and exserted (conical or hemispherical) carpophore. Its most important characters are its hastate-trifid or tripartite leaves and accrescent calyx with lanceolate-acuminate segments.

Its distribution is from S. France through Italy and the Balkans to Asia Minor and Palestine; also Tunis.

127/4d. GERANIUM PRATENSE L. var. **eboracense** Lees; 1941: *Suppl. Yorks. Floras*, 18. Petals lavender-white with fine darker veins as prominent as in *G. striatum*; leaves neater, hairier, less complexly cut. A parallel to the var. *lancastricense* of *G. sanguineum*. 64, M.W. Yorks.; wayside at Brearton near Knaresborough, 1943, with normal *G. pratense*, E. C. Wallace.

141/1. AESCLUSUS HIPPOCASTANUM L. "At the end of July the blast from one of these missiles [flying bombs] stripped a chestnut tree in Camberwell of almost all its leaves. Within a very short time a spring-like growth of foliage began to appear, accompanied by 'spikes'; now the tree is in full bloom." [Joyce R. Embury in the *Times*, September 1944].

153/34(2). **Medicago Blancheana** Boiss. See Dr Burges' paper on Burton aliens. Like *M. rotata* Boiss. it has "horizontal triangular-complanate spines" on the fruit, but the fruit is larger, 10 mm. broad, and with the spirals membranaceous, not thick, the face smoothish and the margin lacking a concentric nerve on both sides (see Boissier, 1872: *Fl. Orient.*, 2, 97). It is a Syrian species.—A. J. WILMOTT.

177. LENS Miller. Two species of Lentil are listed in the second edition of the Plant List as follows:—

1. *L. Lens* (L.) Huth. (*culinare* Med., *esculenta* Moench).
2. *L. nigricans* Gren.

Ascherson and Graebner (*Synopsis*, 6/2, 996, 1909) use a similar arrangement, but it seems preferable to adopt that of Hegi (*Illus. Fl. Mittel-Eur.*, 4/3, 1502, 1923) as follows [inverting the order of the two subspecies to agree with *B.P.L.*—Ed.] :—

177/1. **Lens culinaris** Medikus (*Ervum Lens* L., *Lens esculenta* Moench, *L. Lens* Huth).

A. subsp. **esculenta** (Moench) Briquet (*Lens esculenta* Moench and *Ervum Lens* L. s.str., *Vicia Lens* var. *typica* Fiori & Paol.). Usually about 2-4 (to almost 5) dm. tall, usually weakly hairy. Upper leaves usually with simple or branched tendrils and about 4-7 pairs of about 1-2 cm. long and 3-8 mm. broad leaflets. Inflorescence with rather thick stem, at most as long as the subtending stem-leaf. Legumes about 12-15 mm. long and 6-8 mm. broad, 1-3 seeded. Seeds about 3½-7 (3-8½ mm.) broad and 2-3 mm. thick, greyish-brown, yellowish, reddish or black.

B. subsp. **nigricans** (M.B.) Thellung (*L. nigricans* Godr., *L. Biebersteinii* Lamotte, *Ervum Soloniense* L., *E. nigricans* Bieb., *E. lentoides* Ten., *E. himalayense* Al. Braun. & Bouche, *Lathyrus nigricans* Lamotte, *Vicia lentoides* Coss. & Germ., *V. nigricans* Janka, *V. Marshallii* Arcang., *V. Lens* Huth var. *Marshallii* Fiori & Paol.).

Stem usually about 1½ to 3 dm. tall, like the stem-leaves with short spreading hairs. Usually all stem-leaves without tendrils, rarely the upper with tendrils, the lower with 2-3, the upper with 4-5 pairs of c. 1 cm. long and 2 mm. broad, linear-lanceolate, scarcely pointed leaflets. Stipules usually toothed. Inflorescence axis longer than the subtending leaf, with long bristles. Flowers about 5 mm. long. Legume about 1 cm. long and 4 mm. broad, usually 2-seeded. Seed 2-3 mm. broad, blackish-brown, marbled with grey.

Not certainly native anywhere, but frequently naturalised in the Mediterranean Region and Western Asia.

It will be noticed that ssp. *esculenta* differs from ssp. *nigricans* chiefly in being less hairy, in the greater development of tendrils, in the shorter peduncles and in the larger legumes and seeds.

Both subspecies have been recorded several times as adventives in Britain—there is a record of ssp. *esculentus* from v.-c. 16, W. Kent; Beckenham Park Place, where it was collected on October 10, 1934, by E. J. Bunnett, later in this Report.

Enthusiasts for adventives should look out for *L. Lenticula* (Schreber) Alefeld, a native of the Mediterranean Region which may be known from the plants described above by the blue (not bluish-white) flowers and by usually hairy fruits, etc.—J. E. LOUSLEY.

178/8. **LATHYRUS NISSOLIA** L. In the *Wild Flower Magazine* (No. 272, p. 49) the Editor notes that 1943 was a good year for the flowering of this plant. Nearly every other W.F.S. Diary sent in seemed to record it, and it is emphasised that the flower may colour an area one year and be completely absent the next.

216/4. **Muriophyllum heterophyllum** Michx. 63, S.W. Yorks.; in the Halifax end of the canal branch extending up from Salthebble, 1941-1943, H. Walsh (1944: *Naturalist*, 144). This is a North American species bearing flowers in long ("sometimes 18 inches long" according to Britton and Brown, *Ill. Fl. N. Amer.*, 2, 616) emersed spikes, the bracts oval, elliptic ("linear ovate or lanceolate") serrate ("rarely entire"), much longer than the flowers. Stamens 4, rarely 6. Carpels with sides usually slightly scabrous. The plants are robust with thick stems and crowded leaves, pectinate-pinnatifid with capillary divisions in 6-10 pairs. [Wi.]

217. **CALLITRICHE**. About a year before his premature death the late J. R. Wallis had commenced to make a special study of this difficult genus and had begun a series of experiments with a view to obtaining more information about their life-histories and investigating

the effect of environment on morphology. His parents have placed his note-books at my disposal and although the time available before the onslaught of the illness which caused his death had not permitted the completion of any of the experiments the first had proceeded sufficiently far to provide results which are worthy of permanent record.

On 17th October 1943 Wallis gathered 12 fully-grown fruits from plants of *Callitriche stagnalis* growing on mud on the south side of Bayham Lake, East Sussex, v.-c. 14, and placed them in a jar of tap-water. The jar was placed for six days on a window sill exposed to full sun and then transferred to a window ledge indoors. Two of the fruits sank immediately, the remainder became darker in colour (probably due to over-ripening) and floated for a time—all sinking to the bottom of the jar by 23rd January 1944. By this date two carpels had germinated, and a further 15 germinated between then and 20th February, and another five by 23rd April. He noted that the seedlings floated.

Thus of the 48 carpels placed in the jar, 22 had germinated by the time the notes ceased. The germination of *Callitriche* has not often been recorded, and while conclusions should not be drawn from a single experiment under somewhat artificial conditions, these notes are suggestive of a fruitful subject for future research.—J. E. LOUSLEY.

265/4. *OENANTHE PIMPINELLOIDES* L. 16, W. Kent; in quantity on a disused golf-course between Bickley and Petts Wood, where it was discovered by R. W. Hale in 1943. This discovery has provided not only an important N.C.R. but also a useful opportunity of making observations on the life-history of the plant. Mr Hale was able to visit the locality at frequent intervals during the year, and he kindly took me to see the *Oenanthe* on 29th July and 26th August 1944. Before this he sent me flowering specimens and tubers which I noticed were smaller than some other tubers I had seen. As the plant grew in large scattered clumps it was possible to examine the roots without harm, and I therefore asked Mr Hale to send me specimens of the tubers later in the year, which he did. From these it appears that although the tubers are formed in June they gradually increase in size until they reach their maximum development towards the end of October. The fruits ripen very slowly and cannot be regarded as mature until September. A piece of root was planted in my garden and to my surprise put up fresh radical leaves of usual outline in November and these have continued fresh and apparently functional until the present date (29th December) although there have been several very severe frosts. At the time of flowering these radical leaves are usually withered and difficult to find in fresh condition.—J. E. LOUSLEY.

287/2e. *SAMBUCUS NIGRA* L. var. *viridis* Ait. The fruit of this plant starts green, the skin being distinctly green, the sap lighter green and the young seeds ochre: the skin and sap hide the ochre and the fruit looks green (=var. *viridis*). Later the skin and the sap gradu-

ally lose their green colour, and the enlarging ochre seeds begin to affect the general appearance. Finally the skin is only a *very* pale green, the sap faintly greenish, and the large ochre seeds show through the translucent surroundings, when it becomes the "var. *leucocarpa*."—A. J. WILMOTT.

308/4. *SCABIOSA SUCCISA* L. A. Dunston reports that in the neighbourhood of Corfe Castle, Dorset, about 1 in 100 plants have the flowers lilac, and about 1 in 10,000 have them white.—A. J. WILMOTT.

308/5. *SCABIOSA ARVENSIS* L. 6, N. Somerset; a single plant of a very remarkable "sport" or monstrosity in a hedge-bank above Easton, July 1944, J. P. M. BRENNAN and J. N. MILLS.

The following description, for the most part drawn up while the plant was fresh, should convey an idea of its salient peculiarities:—Plant several-stemmed from the base; stems erect; cauline leaves pinatifid, large, from the axils of the median and upper ones lateral branches arising bearing at their apices each a single, terminal, \pm irregular, lilac-blue flower which is sessile or subsessile and subtended by a pair of reduced, entire or coarsely serrate leaves, from the axil of each of which a shorter secondary branch arises, again ending in a single flower and a pair of reduced leaves, which may in turn subtend one or occasionally two tertiary branches. Above the uppermost pair of large cauline leaves the main stem is continued and ends in a similar way, except that, instead of a single terminal flower, there is a cluster of a few (about 2-4) flowers. Each flower on the plant is surrounded by a minute, green, cupular involucre and sometimes by some very small foliage leaves (in addition to the main subtending pair). It can be seen that the normal capitula, at least in so far as the lateral ones are concerned, are replaced by lax, simple dichasia, the latter term being used in the sense defined by Rickett on p. 216 of his interesting and instructive review of the classification of inflorescences in *Bot. Rev.*, 10, 1944. The appearance of the plant in the field was extraordinary, not at all suggesting the familiar scabious.

An examination of the material in Herb. Druce resulted in finding one sheet of a similar "sport," collected, according to a letter accompanying the specimen, about half-way between Harrogate and York for a school wild flower competition, whence it was sent by R. Stockdale to the late Dr Druce for determination. On the continent this "sport" appears to be well-known. Penzig, in *Pflanzen-teratologie*, 2, 45, 1894 (under *Trichera arvensis* Schrad.), has a note on plants that appear to be very similar to that which we have described above, and gives various further references; he comments on the way in which the normal appearance of the plant is entirely altered, and remarks that this monstrosity appears to be especially prone to occur in plants decapitated by summer mowing.

The repeated occurrence of such plants encourages speculation about the phylogeny of the capitulum in Dipsacaceae. It is tempting to see

in them a dissolution, so to speak, of the capitulum into a more primitive condition, and such a possibility does not appear unreasonable. Whether we see in the present capitulum a contracted and modified compound dichasium, or whether it is possible to postulate a contraction of a simple dichasium to a few flowered capitulum, to which supernumerary flowers have been added, possibly without reference to the original dichasial condition, are interesting possibilities, but questions which it would be rash to answer hastily. It is pertinent, however, that Höck, in Engl. and Prantl, *Nat. Pflanzenf.*, 4 (4), 184, 1891, suggests that the capitula of most Dipsacaceae may have been derived from dichotomous inflorescences, but maintains that they cannot have been truly dichasial owing to the absence of a central flower. It may be suggested, however, that the central flower might well have lost its original identity during the evolution of such a modified and specialised inflorescence as the capitulum. Rickett, in the paper previously referred to, regards the dichasium as probably the most primitive form of inflorescence, and derives various other inflorescence types from it, including "many of the 'umbellate' and 'capitate' clusters characteristic of Liliaceous and Cornaceous genera" (p. 217); he also notes the unreliability of evidence derived from order of flowering, which is perhaps significant when considering Höck's contention mentioned above. In considering all this, it is certainly true that phylogenetical evidence derived from monstrosities must be accepted with much caution, but it seems likewise reasonable that it should not be ignored, especially when it is repeated and also gives support to theories based on other grounds.—J. P. M. BREMAN and J. N. MILLS.

352(2)/1. *Cosmos bipinnatus* Cav. "Ic., 1, 10, t. 14, 1791." A native of central and tropical America and widely cultivated. See Sherff, "Revision of the Genus *Cosmos*," *Field Mus. Nat. Hist. Bot.*, ser. 8, 401-447, 1932. Two annual species of this genus are in cultivation and may be distinguished as follows:—

- C. bipinnatus* Cav. Leaf segments filiform or linear filiform. Ligules pink, crimson or white, 2-4 cm. long.
- C. sulphureus* Cav. Leaf segments broad, elliptic, lanceolate or linear. Ligules orange-yellow, 2-3 cm. long.

Both natives of the same regions, they are known to gardeners as *Cosmea* or Mexican Asters.—J. E. LOUSLEY.

354/2. *GALINSOGA QUADRIRADIATA* Ruiz. & Pav. var. *HISPIDA* (DC.) Thell. It is clear from the following records that this plant is either increasing in the London district or else that it has been more often overlooked than formerly seemed probable. 17, Surrey; near Claygate, where it was found on an unofficial ramble of the South London Botanical Institute in the autumn of 1943 and identified from material collected by W. R. Sherrin which is now in *Hb. Mus. Brit.* There was some doubt about the exact locality but from details supplied by Miss M. B.

Whitaker it was found in great quantity by J. E. Lousley and J. E. Woodhead on 2nd September 1944, and material collected on that occasion has been confirmed by J. P. M. Brennan. The plant occurred over several fields and appeared to thrive equally well in cultivations of corn and potatoes, though in the former it had been cut off by the reaper and only the shorter plants were intact. In the autumn of 1944 the plant was brought in by a visitor to the Institute from John Peed's Nursery at Tulse Hill, and a specimen is preserved in the herbarium. 21, Middlesex; Friar's Place, Acton, October 1909, E. Pierce, ex-herb. C. B. Green, *Hb. Sth. Ldn. Bot. Inst.* This specimen, identified by A. Bruce Jackson, appears to be the earliest evidence of the occurrence of the plant in Britain.: Caledonian Road, undated—probably 1944, Dr J. H. Patterson, *Hb. Sth. Ldn. Bot. Inst.*—J. E. LOUSLEY.

It was collected in the garden bed outside the Royal Geographical Society's rooms in Kensington by A. H. G. Alston, 1943, and by me in a window box deposited in a concrete yard, surrounded by high houses, at the back of Margaretta Terrace, Chelsea, 1943. Mr Alston says it is now common in Mayfair.—A. J. WILMOTT.

378/16. ARTEMISIA BIENNIS Willd. 4, N. Devon; farmyard at Combe Martin, 1944, H. W. PUGSLEY, det. A. H. G. ALSTON, A. B. JACKSON, and A. J. WILMOTT. This is the same plant as that distributed through the Watson Exchange Club in 1907 (*1907-8 Report*, p. 147, as *A. Tournefortiana* Rehb.) by S. H. Bickham from Ledbury, where it has been noticed for years. The two species are superficially rather alike, but the capitula of *A. Tournefortiana* are much smaller and the flowers are pink, not yellow. Both are weeds in various parts of the world. It is *A. hispanica* Jacq. 1786 non. Lam. 1783.

†383/7. SENECIO SQUALIDUS L. In the middle of the southern division of Cadogan Place gardens, London, are two hard tennis-courts covered with a red composition—*en tout cas*—which comes from Syston in Leicestershire. At the beginning of the war both these courts, which lie side by side and are each enclosed by wire, were kept in order and played upon so that there was not the faintest sign of a weed of any kind to be seen upon their surfaces.

On 27th September 1940 a small bomb fell in the eastern court and scattered earth on it in places. For this reason it was left exactly as it was and no play was allowed on it. Moss soon appeared on it and in the course of time a few seedling Buddleias, Laburnums, and one or two Acacias also, from seeds blown on to the court from plants and trees in the immediate neighbourhood. In the spring of 1941 a few plants of *Senecio squalidus* appeared on it and during the war have continued to grow all over it until they were so thick that the gardener sometimes scythed them down. He had never seen a *Senecio* other than a groundsel in the garden. He was eventually stopped from mowing them down at the request of lady members of the garden, who said they made such a brilliant show.

There are a few *Senecio squalidus* in the garden at the present time (1944) as parts of it have been given up to the cultivation of vegetables, but these were evidently self-sown from the court.

It is very interesting to see the one hard court (played on regularly) in perfect order and no suspicion of a weed and the other a dense mass of *Senecio squalidus*.—PERCY R. LOWE, comm. A. J. WILMOTT.

333/7×10. ×*SENECIO BAXTERII* Druce. The spread of *S. squalidus* during the war has resulted in the appearance of plants taken to represent this hybrid in at least three widely separated localities. In May 1943 two specimens were sent as the hybrid by Mr H. J. Howard from Norwich to the Linnean Society's Anniversary Meeting, for exhibition. They were forwarded to me for confirmation but arrived in such withered condition that no satisfactory comparison with *S. vulgaris* could be made, and the same fate attended further material. The specimens superficially resembled *S. vulgaris*, and I could not find any character to separate them with any certainty from that very variable species. Unfortunately they were recorded in the *Proceedings (P.L.S. sess. 155, 175)* as "two plants of *S. vulgaris* with intermediate characters," instead of as "two plants with characters intermediate between it [*S. squalidus*] and *S. vulgaris*." In January 1944, Mr N. D. Simpson showed me in his herbarium specimens which he had gathered near Bournemouth and at the time taken to be the hybrid. Having tabulated the characters of the two species, he was unable to find any definite evidence of hybridity and labelled his strong specimens *S. squalidus*. About the same time Mr E. M. Phillips sent me a typescript copy of his paper (to appear in *Trans. Plymouth Inst.*) "The Natural History of the Plymouth Rubble Heaps," in which the (possible) hybrid is mentioned. That the plants, or at least the Norwich ones, are probably hybrids, has been demonstrated by Mr Lindquist, from a study of the cytology, see E. A. Ellis (1944: *Trans. Norf. and Norw. Nat. Soc.*, 15, 424-5), who states also that the plants are completely sterile and of stronger habit than *S. vulgaris* var. *radiatus* Koch.—A. J. WILMOTT.

396/4×2. ×*Cirsium sabaudum* Löhr (*C. acaule* × *vulgare* = *lanceolatum*). 34, W. Glos.; pasture near Marshfield, 1935, J. P. M. BRENNAN.

This was recorded in *B.E.C. 1935 Rep.*, 32, 1936. The specimen has since been seen and the identification confirmed by Dr W. A. Sledge.

The Marshfield plant has a stem about 35 cm. high. The leaves are large, up to about 29 cm. long and 7 cm. wide; their lobation resembles that of *C. vulgare* and not that of *C. acaule*, but their indumentum, lacking spinulose hairs on the upper surface, resembles that of the last-named species. The leaves are decurrent on the stem with narrow spinulose-margined wings which in the lower leaves extend downwards for a distance of a little over 2 cm. below the leaf-insertion, while in the upper leaves the distance is shorter; in *C. acaule* var. *caulescens* (Pers.) DC.

the cauline leaves lack such wings. The stem bears six capitula, five of which are borne on short leafy peduncles about 2.5-4 cm. long arising from the median and upper axils, while the sixth is terminal and supported on a peduncle about 5 cm. long. The capitula are thus borne in a racemose fashion and appear to expand in basipetal succession; they are 2.8-3.3 cm. long and 1.3-1.7 cm. wide, the pericline narrowing upwards from a broad base. The ends of the phyllaries for a distance of about 3 mm. are divergent at an acute angle from the pericline, differing thus from the totally appressed phyllaries of *C. acaule*. In the latter species too the outermost and lowermost phyllaries are tipped with a minute spinulose point about 0.75-1 mm. long or less; in the median phyllaries the tips rapidly become even shorter until they are represented merely by diminutive horny apiculi scarcely visible without a lens. In the Marshfield hybrid all the outer and median phyllaries have distinct spinulose tips 1-1.5 mm. long, and those on the median are somewhat longer than those on the outer. The florets of the Marshfield plant had the colour of *C. acaule* and nearly all the achenes appear to be shrivelled and sterile.

Owing to the fact that this hybrid is unmentioned in *B.P.L.*, ed. 2, it was assumed that it had not been previously observed in Britain. However, an earlier record from Coombe Hill, Bruton, on the authority of W. Watson, will be found in E. S. Marshall, *Suppl. Fl. Somerset*, 105, 1914.

A description of a thistle from Chambéry in Savoy said to have the same parentage is given by Naegeli in his *Dispositio Specierum Generis Cirsii*, p. 997, published as an appendix to Koch, *Syn. Fl. Germ. Helv.*, ed. 2, 1844. However, it does not appear to possess quite the same combination of characters as the Marshfield plant, as the leaves are said to be sparsely spinulose above and, except for a slight decurrence, to resemble those of *C. acaule*, while the capitula are said to resemble those of *C. vulgare* but with the phyllaries shorter-spined. Such a reshuffling of characters in the products of different crossings between the same parent species is, of course, not surprising.—J. P. M. BRENNAN.

472/1c. *LIGUSTRUM VULGARE* L. var. *auriflorum* Höfker (1912: *Mitteilungen d. deutschen dendrologischen Gesellschaft*, 20 (1911), 224). This variety was published by Höfker with a brief description in German: flowers yellow, leaves often rounded. It was based on specimens obtained from a nurseryman at Harburg, who had raised it from seed in 1892. Four bushes had been in existence for fifteen years in a hedge in the churchyard at Harburg. The variety had been propagated both by cuttings and from seed. The colour of the flowers was stated to be canary yellow but as the colour of the fruit was not mentioned it is presumably black. Although varieties with yellow and green fruits are known, it is not clear whether these fruit colours can occur in yellow as well as in white flowered plants.—R. MELVILLE. See *Plant Records*: [and *J.B.*, 69, 312 (1931) for a previous record of this variety in Britain, J. E. LOUSLEY].

517/19. *Solanum chenopodioides* Lam. ("Ill. Gen., nr. 2340"). In 1930 Mr I. A. Williams collected in Jersey, growing alongside *S. nigrum* L., an allied plant which we were unable to name satisfactorily. In 1943, in the course of a visit with the Haslemere Natural History Society to Frensham Great Pond, he observed it again as he was hurrying back to the bus. We returned later in the year to determine whether the fruit turned red or black, a point that had not been settled for the plant collected in Jersey. As in Jersey, it was growing in association with *S. nigrum*, and together we compared the two plants thoroughly and set down their differences. The peculiar plant was subsequently identified by J. E. Dandy as the Chilean species *S. chenopodioides* Lam.

As this group of *Solanum* is very critical, it seems worth setting down in tabular form the differences between the two species occurring on the east side of the road opposite the eastern end of Frensham Great Pond. The most important difference lies in the greatly accrescent calyx, the calyx in *S. nigrum* and its allies (*S. humile*, *miniatum*, etc.) being only slightly accrescent, but the leaves are more definitely sinuate-toothed, and the whole plant is more pubescent, and the fruit never turns black or red.

<i>S. chenopodioides.</i>	<i>S. nigrum.</i>
Plant light green, without anthocyan.	Plant medium or dark green, with more or less anthocyan on stems and peduncles.
Stem less stiff, more flexible, densely glandular - pubescent with scattered spreading pilae, often swollen-based on the decurrent leaf ribs.	Plant stiff, woody, glabrous except for short hairs on the decurrent leaf ribs.
Leaves softly villous and glandular, many of the pilae crook-tipped.	Leaves with scattered tiny appressed hairs.
Calyx tube about three-fifths the length of the calyx, with dense spreading pilae (eglandular) often crooked at the tip, and some shorter glandular hairs.	Calyx tube two-fifths the length of the calyx, with short subappressed (or distally slightly spreading) pubescence.
In ripening fruit the tube of the strongly accrescent calyx is still more than half the length of the calyx, but is hemispherical, with strictly ascending teeth.	In ripening fruit the tube is still two-fifths the length of the calyx, but with spreading teeth although there is some accrescence (to 3-10 mm. diam.).
Calyx light green; teeth never spreading horizontally at the base of the young fruit, becoming triangular (a little narrower than an equilateral triangle), sinus between teeth about 100° with rounded base.	Calyx dark (anthocyanin darkened) green; teeth in old flower spreading almost horizontally at base of the young fruit (about 4 mm. spread), three-quarter elliptical: in ripening fruit narrowly four-fifths elliptical (about twice as long as broad), slightly triangular-elliptic at apex, angle of sinus between the teeth variable, acute to rounded, sometimes with a small membranous area.

- Corolla variable in diameter, cut to almost three-fifths, white, tissue-papery in consistence; teeth deltoid, acute, separated by very obtuse (more than 135°) sinus; at first patent to arrect, later recurved right back.
- Filaments at least two-thirds the length of the chrome anthers, only half the diameter of the (narrower) anthers.
- Fruit about 7 × 7 mm., subspherical, dark green, shining and areolate-ly veined with pale green (four main veins and numerous connecting veins); never black even when dropped (which they do early), when they are still translucent-skinned, dark from the brown seeds in some purple juice.
- Young seeds from white to brownish-ochre in green fruits.
- The corolla in both is white with a basal yellowish patch inside and bluish-mauve tinting outside.
- Corolla cut to nearly four-fifths, white, less tissue-papery in consistence; teeth narrowly triangular, about 1½ longer than broad, acute, separated by sinus little more than 90°; reflexed to descending.
- Filaments short, about a fourth to a fifth the length of the (broader) orange-chrome anthers.
- Fruit subdepressed-spherical (9 × 8½, 9½ × 9, but sometimes smaller to 7 × 6 mm.), opaque when green becoming slightly shining and faintly veined just before blackening, when it is unveined and slightly shining.
- Young seeds white to pale greenish or pale grey-yellowish-white.

Another gathering of this species was made in Suffolk (v.-c. 25) at Felixstowe Dock by Miss M. S. Campbell in 1936.

The plant collected in 1929 by R. Melville and R. L. Smith at Hayle Towans, Cornwall, and doubtfully recorded by them (1930 Report, p. 276) as *S. chenopodioides* Lam., is some other species. It lacks the accrescent calyx, characteristic indumentum, etc.—A. J. WILMOTT.

+566/1. *SALVIA PRATENSIS* L. 23, W. Norf.; a large clump in Mr G. F. Coulton's meadow at Pentney on chalk, 8th June 1944. Origin unknown. This would come under the var. *vulgaris* Rehb. f., *Ic. F. Germ. et Helv.* "Basal leaves oval or elliptic-oblong, cordate, but with a narrow sinus, more or less crenate, not pinnatifid; calyx small (5-6 mm. long whilst flowering), corolla hermaphrodite, projecting 12-15 mm." The plant from meadowland at Griston, West Norfolk, found by Mr F. Robinson, 21st June 1915, was determined by Dr Druce as var. *modesta* Briquet. "Flowers of *vulgaris*, basal leaves elongated, narrowly oblong, more or less truncate or attenuated at the base." See *B.E.U. 1916 Rep.*, 427.—E. L. SWANN.

577/5. *STACHYS PALUSTRIS* L. The North-American varieties of this species are described by Fernald (1943: *Rhodora*, 45, 473-475, pls. 792-794). "Typical Eurasian *S. palustris* L. has the calyx closely viscid-pilose with many gland-tipped hairs mixed with short glandless ones, the latter rarely more than 1 mm. long." It and three of its varieties recognised in Europe are naturalised. The American var. *pilosa* (Nutt.) Fernald has the "calyx long-hirsute as well as short-pilose, the shorter pubescence largely hidden by long whitish and glandless setiform trichomes mostly 1.5-3 mm. long."—[Wi.]

640(2)/1. *Platanus acerifolia* (Aiton) Willd., *Sp. Pl.*, 4, 474, 1805—based on *P. orientalis* var. *acerifolia* Aiton, *Hort. Kew.*, 3, 364, 1789. The London Plane is believed to have originated as a hybrid between *P. occidentalis* L. and *P. orientalis* L. and includes many variants, some of which have received special names (see Redher, *Manual of Cult. Trees and Shrubs*, ed. 2, 321, 1940). Although usually raised commercially from layers or cuttings (Webster, *London Trees*, 101, 1920) the London Plane reproduces quite freely from seed and it is a little surprising that it has not previously been added to the *List*. For the occurrence of seedlings in the ruins of the Temple see later in this *Report*.—J. E. LOUSLEY.

641/1. MYRICA GALE L. 6, N. Somerset; several monoecious bushes with androgynous catkins in wet, heathy ground among other bushes and small trees by a "rhine" on the peat-moors, S. of Shapwick railway station, July 1944, J. P. M. BRENNAN and Dr J. N. MILLS.

These bushes had all their catkins bisexual, some of the flowers being ♂, others ♀, others mixed, with the ovary sometimes bearing a stamen in addition to the styles. There appears to be no constant correlation of sex with position in the catkin, but "zones" of similar flowers occur and there is frequently a basal ♂ part and an apical part predominantly ♀.

Penzig; in *Pflanzen-teratologie*, 1, 303, 1894, has a pertinent note on sexual abnormalities in *M. Gale* and gives various bibliographical references; he writes, "Die Pflanze ist normal dioecisch: man findet aber häufig monoecische Individuen, mit männlichen und weiblichen Kätzchen. Auch in denselben Kätzchen können männliche und weibliche Blüten zusammen vorkommen (die letzteren an der Spitze der Kätzchen); und man hat sogar hermaphrodite Blüten beobachtet." It will be seen that the latter remarks appear to indicate the state seen in the Shapwick plants.

There are a few other British records for monoecious *M. Gale*. W. Wilson, in *The Phytologist*, 1, 235, 1842, describes a bush on Risley Moss near Warrington that must be closely similar to the Somerset ones. Druce, in *Fl. Berks.*, 445, 1897, mentions "an androgynous form" near Sandhurst, but he evidently did not preserve a specimen, as an examination of the material in Herb. Druce did not reveal any abnormal bog myrtle. Praeger, in *Fl. N.E. Ireland*, ed. 2, 191, 1938, has an extract from Templeton: "Specimens with the barren and female Catkins on the same plant in great plenty on Laghy Bog, C. Down; these plants may be distinguished by the leaves being exactly spear-shaped or their broadest part at the middle whereas the dioecious variety have their broadest part near the apex." Templeton's record and observations deserve reinvestigation; he evidently does not refer to a form with mixed catkins. The leaves on the Shapwick bushes, it should be added, were quite normal in shape. Mr W. J. Lambert, of the School of Forestry, Oxford University, informs me that he has observed monoecious bog

myrtle at Sandford Mire, Westmorland, and it was he who first drew my attention to the occurrence of this condition.

The fact that bog myrtle is occasionally monoecious does not appear to be generally realised in this country. The mixture of sexes on the Shapwick bushes gave an odd malformed appearance to the catkins, and this may have led to the rejection of such plants by botanists in the field; the somewhat inconspicuous catkins may also have helped them to remain unnoticed. It is hoped that this note may stimulate closer observation of bog myrtle, so that it may be ascertained whether the poverty of British records of monoecious states indicates a genuine scarcity of the phenomenon, or whether it has been overlooked and Penzig is correct in describing it as frequent.

Since the above note was written, Mr N. Y. Sandwith has informed me that monoecious *Myrica* had been observed previously at Shapwick, and the following relevant account (from J. W. White, "Bristol Botany in 1924," in *Proc. Brist. Nat. Soc.*, 1924, Ser. 4, 6, Part 2, 176, 1925) seems worth reproducing:—" *Myrica Gale* L. Is generally described as dioecious, but the careful examination of a number of plants on Shapwick Moor by Miss Roper in the early spring showed that four other variations exist in the arrangement of the sexes. Staminate and pistillate catkins grew on adjoining twigs, or together on the same twig of a bush; while a third mingling of the sexes was noticed one above the other in the same catkin. In addition, catkins were found consisting solely of hermaphrodite flowers." [See also Davey and Gibson (*Proc. Linn. Soc.*, 14th December 1916, pp. 6-7, and *J.B.*, 55, 63-64.—J. E. LOUSLEY.)]

69, Westmorland; Sandford Mire, 1944, W. J. LAMBERT. Specimens kindly communicated to me by Mr Lambert since the above was written show that the distribution of the sexes here is not the same as in the Shapwick plants, but appears to correspond to the condition described by Templeton from County Down. The catkins are thus each unisexual but both sexes are borne on one and the same plant. The number of catkins seen is not sufficient to decide whether there is any correlation of sex with position nor whether an individual branchlet can bear catkins of more than one sex. The foliage on Mr Lambert's specimens is apparently not yet mature, but is evidently of the normal oblanceolate shape.—J. P. M. BRENNAN.

650/10d. *SALIX ATROCINEREA* Brot. var. **ebudium** Harrison (1944: *Vasc.*, 29, 15, as var. *Ebudium*). A low sprawling shrub with branches and branchlets decumbent, interwoven; leaves narrow, 25 mm. long and 3-9 mm. wide. N. Harris (v.-c. 110), Allt Tomnaval and elsewhere: type in Herb. J. W. H. Harrison.—[Wi.]

669/6. "ORCHIS PARDALINA Pugsl." at Birling Marshes, W. Kent. In June 1943 Mr F. Rose took me to this locality to see what appeared to be this plant, which I have so far interpreted as being *O. Fuchsii* × *praetermissa*. In the marshes there was an abundance of both *O. latifolia*

L. sec. Pugsl. ("*O. incarnata*" auct.) and *O. praetermissa* Druce, and a small amount of *O. Fuchsii* Druce. The *O. latifolia* was all of the flesh-pink form. All possible hybrids of these three species were seen. As the orchids were in great abundance it was possible to pick plenty of specimens for demonstration as we traversed the ground, placing them into six groups in the hand. The groups became increasingly evident as they were added to, and I think that Mr Rose was satisfied by the demonstration of the hybrids. When at last we reached the specimens which he had brought me to see as *O. pardalina*, it seemed evident that these, although they would agree with the description of that plant, could be easily fitted into the series already in our hands as *O. Fuchsii* × *praetermissa*. Indeed, there seemed no reason to regard them as anything other than a slightly extreme form of that series. The point I then made to Mr Rose, which I consider of fundamental importance, was that when species hybridise regularly among themselves as these orchids do, three species will produce three hybrid forms, making six forms in all, but four species should (by the simple mathematical law of combinations) produce six hybrids (AB, AC, AD, BC, BD, CD) making ten forms in all. If therefore there is at Birling a fourth species, "*O. pardalina*," we should have been able to sort our specimens into ten groups. We had made six groups, and either had to put the "*O. pardalina*" into one of these or make a seventh. But it is unreasonable to suppose that "*O. pardalina*" alone of these orchids does not make the usual series of hybrids. Seven groups is therefore unreasonable: we must have six or ten. And we could not make ten. Therefore the groups were six, and the "*O. pardalina*" at Birling was *O. Fuchsii* × *praetermissa*.

I have this year received from the Rev. T. Stephenson specimens of "*O. pardalina*" from Kingskerswell, S. Devon, a locality where I had understood that *O. Fuchsii* did not occur. But *O. Fuchsii* was sent with the series of orchids. I have yet to see "*O. pardalina*" growing in, or from, a locality where it could not be a hybrid of *O. Fuchsii*. I find it difficult to believe in a species which can never be found growing by itself. All the other species, both spotted and marsh orchids, can be found growing alone in some locality or other, and if *O. pardalina* is really a species it should be possible to find it growing alone somewhere. So far I have been unable to hear of such a locality, and I should be glad to see series of orchids from any locality where this is believed to occur.

My experience so far has led me to believe that the "ring-spots" [really ring-blotches for the word spots is needed to describe smaller markings] indicate hybrids of *O. Fuchsii*. That species often shows pale-centred blotches. One objection to the interpretation of *O. pardalina* as *O. Fuchsii* × *praetermissa* which has been made to me is the broadness of the labellum. Those who make this objection appear to consider the labellum of *O. Fuchsii* to be narrow. In fact, the labellum of *O. Fuchsii* is broad; it is only the three lobes which are themselves narrow.

The plant at Rudley in Hants which was at one time said to be near "*O. pardalina*" is *O. Fuchsii* × *latifolia* ("*incarnata*"). I convinced P. M. Hall of this when he took me to the locality, and demonstrated to

him the breadth of the labellum of *O. Fuchsii* and the reasonableness of expecting hybrids of that species to have broad lips.—A. J. WILMOTT.

669/7×9, b. × *ORCHIS LATIRELLA* P. M. Hall var. **roseo-alba** T. Stephenson (1944: *J.B.*, 80, 131), from marshy sand near the coast of Aberdovey, which has the labellum pale pink, or white and pink, the *O. latifolia* (*O. incarnata* auct.) parent presumably being the pale flesh-pink coloured form seen in the locality.—[Wi.]

669/8×9. × *Orchis Salteri* Steph. T. Stephenson (1943: *J.B.*, 80, 104) describes this new hybrid, between *Orchis praetermissa* Druce and *O. purpurella* T. & T. A. Steph., from a damp pasture about three miles from Aberystwyth, towards Borth.—[Wa.]. The flowers are intermediate between those of the associated parents, with paler and with less heavily marked labellum, with more rounded lateral lobes, than in *O. purpurella*. The leaves are slightly spotted.—[Wi.]

674/1d. *GYMNADENIA CONOPSEA* (L.) R. Br. var. **insulicola** Harrison (1941 B: 260). Outer Hebrides, Fuday. "Differs from the type in its lower stature, fewer flowers of a dull reddish purple colour . . . possessing a disagreeable smell." I have seen plants like this in Westerness, and considered them to be small plants of typical *G. conopsea* (L.) R. Br. as opposed to the sweet scented "var. *densiflora*" which appeared to be more common in the Scottish Highlands.—A. J. WILMOTT.

674/1d × 669/11(2). A hybrid of the preceding with *Orchis hebridensis* Wilmott is also recorded from Fuday (*loc. cit.*) without description.

684/1b. *NARCISSUS OBVALLARIS* Salisb. The abstract on p. 474 of the last *Report* suggests that this plant was always limited to one field near Tenby, but Miss E. Vachell has drawn my attention to a paper—"Contribution towards an Account of the Narcissi of South Wales"—by her father, C. T. Vachell, reprinted from the *Trans. Cardiff Nat. Soc.*, 26, pt. ii, 1893-4, where a full account is given of the occurrence of this species in Pembrokeshire. It was formerly abundant and more widespread, but it has been almost exterminated owing to its being sold to supply the horticultural market: "about half-a-million bulbs were sent to London in the course of two years." Photographic plates are given of both *N. obvallaris* and of the double-flowered plant of Penylan, near Cardiff, which is named *N. obvallaris-plenus*.—A. J. WILMOTT.

718/26. *JUNCUS PALLIDUS* R. Br. (1810: *Prodr. Fl. Nov. Holl.*, 258). Bedford, v.-c. 30: Eaton Socon, one plant with many culms in a gravel-pit, 30th August 1944, J. G. DONY. This species is widely distributed in Australia and New Zealand. According to Vierhapper's classification (in Engler and Prantl; 1930: *Nat. Pflanzenfam.*, ed. 2, 15a, 215) it belongs to the section *Genuini* and, more particularly, to the group of species characterised by ribbed culms and many-flowered inflorescences.

This group includes the British species *J. effusus* L., *J. conglomeratus* L., and *J. inflexus* L. (*J. glaucus* Ehrh.); but *J. pallidus* is a much more robust plant than any of these (the culm, in Dony's specimen, having a diameter of 4.5-5 mm. at the point where it emerges from the cataphylls), and furthermore, according to Vierhapper, it differs in the fruits being triseptate but not trilocular. The uppermost cataphyll in *J. pallidus* is not laminiferous, as in the related *J. uruguensis* Griseb., but bears a conspicuous subulate mucro which in Dony's specimen is about 4 mm. long. The many-flowered inflorescence is subtended by an elongated bract which varies greatly in length (in Dony's specimen it is about 10.5 cm. long). The flowers in the fruiting stage are about 4 mm. long: tepals pale, more or less straw-coloured with whitish margins, ovate-lanceolate and acute. The fruit, which slightly exceeds the tepals, is trigonous-ellipsoid, blunt; seeds minute, ferruginous, obliquely white-apiculate.—J. E. DANDY.

As this species is an ally of both *J. uruguensis* Griseb. and *J. vaginatus* R. Br., it would be interesting to compare Dony's plant with the plants recorded under those names in the *B.P.L.* If any member has specimens identified with either species, will they please send them for examination.—ED.

737/15×16. × *Potamogeton cognatus* Asch. & Graebn. (1897: *Syn. Mitteleur. Fl.*, 1, 317) = *P. perfoliatus* L. × *praelongus*. A full account of this hybrid, as occurring in N. Lincs. (v.-c. 54) in the parishes of Belton and Crowle, is given by J. M. Taylor and W. A. Sledge (1944: *Naturalist*, 121-123). The same hybrid had been reported as "reserved for further and more detailed study" by J. W. H. Harrison and W. A. Clark (1942: *Vasc.*, 27, 29) from Crag Lough, Northumberland (v.-c. 67).

The hybrid combines many characters derived from the parent species, especially in the leaves with perfoliate bases and cucullate tips. The shoots persist till the end of the year but develop winter buds as in *P. perfoliatus*. In relative breadth the leaves are intermediate; they have the lenticulate margin of *P. perfoliatus* but the venation of *P. praelongus*. In the anatomy of the stem the stele and endodermis is as in *P. perfoliatus* but the cortical bundles as in *P. praelongus*. Flowers were present: previous records do not mention flowers: the pollen was abortive.—[Wi.]

749/2. *SCHOENUS FERRUGINEUS* L. The Construction Scheme No. 2 of the North of Scotland Hydro-Electric Board will, if carried out, involve considerable changes in the levels of the Rivers Tummel and Garry and their tributaries, and will affect a number of rare Perthshire plants. It is proposed that the level of Loch Tummel should be raised about 17 ft. by the construction of a dam and that its area should be increased. This will almost certainly involve the extermination of *Schoenus ferrugineus* as a British plant unless it can be found elsewhere. The riverside walks near Pitlochry will also be submerged and it therefore appears

likely that the excellent flora there will be lost. Past experience indicates that rare plants can rarely adapt themselves to artificial changes in the water level (cf. Red Tarn, Helvellyn, for example) and it is probable that the adoption of this Scheme would have a serious effect on the flora. Further details will be found in *The Times* (10th February 1945) from which some of the above information is taken.—J. E. LOUSLEY.

Preliminary arrangements have been made officially for moving some of the *Schoenus ferrugineus* for replanting should this Hydro-Electric Scheme be put into effect.—Ed.

753/21. *CAREX LEPIDOCARPA* Tausch. 28, West Norfolk; very common in the very wet parts of local fens on chalk formations. Mr Nelmes writes: "Norfolk supports Gloucestershire in establishing that typical *C. lepidocarpa* favours a chalk or lime formation. In the Severn Vale, on clay, and on the Old Red Sandstone of the Forest of Dean area, *C. flava* L. var. *minor* Towns. replaces *C. lepidocarpa*." In *B.E.C. 1934 Rep.*, 992, Mr Lousley writes: "In my experience *lepidocarpa* only grows in habitats approaching to very wet fen, and it would be interesting to know if others agree."—E. L. SWANN.

753/25(2). *Carex glacialis* Mackenzie (= *C. pedata* Wahl. non Linn.). "Apparently very rare in the mountains of Central Rhum," J. W. H. Harrison (1944: *Vasc.*, 29, 15). Dried and living specimens deposited at Kew; determination confirmed by E. Nelmes.—[Wi.]. Placed by Kükenthal (1909: *Pflanzenr.*, iv, 20, p. 495) in the *Eu-digitatae*, it is distinguished from the other British representatives by having its culms lateral as in *C. digitata* and *C. ornithopoda*, but having its utricles glabrous. It is an Arctic and Subarctic plant stretching from Greenland across Iceland, Scandinavia, and N. Asia to Alaska. It is described as from 5 to 15 cm. high, stiff, smooth, leafy below with very narrow rigid channelled leaves shorter than the culm. The spikes are 3-4, the terminal one male, sessile, linear, 4-6 mm. long, the others close set and female, sessile or the lowest shortly stalked, oblong, 4-6 mm. long and laxly 2-5 flowered. The male glumes are oblong obtuse, pale fuscous with broad white-hyaline margin. The female glumes orbicular-ovate obtuse or subacute, black-purple with green keel and very broad hyaline-purple margins. Utricles slightly exceeding the glumes and black-purple at the top (straw-green below), orbicular-ovate inflated-trigonus, 2 mm. long, shining and glabrous, unveined, abruptly constricted into a short black-purple beak with hyaline subentire beak. Nut orbicular-ovate turgid-trigonus, dark brown with thickened green angles. Stigmas 3.—A. J. WILMOTT.

753/41. *CAREX ATRATA* L. "Specimens agreeing with a description of "*f. gelida* Sch." were found in the mountains of Rhum; ("E. Nelmes det.")—(J. W. H. Harrison, 1944: *Vasc.*, 29, 16). Kükenthal (1909: *Pflanzenr.*, iv, 20, 398) merely describes Schur's plant as 6-12 cm. high with 1-3 shortened oval spikelets.—[Wi.]

753/461. *CAREX ACUTA* L. var. **staminifera** Boott—with 2-3 stamens protruding from the utricle which is split on one side. 42, Brecon; 1943, J. A. Whellan; apparently only previously found in Yorkshire in 1867 and on the continent.—E. NELMES.

753/59. *CAREX OTRUBAE* Podp. The following characters distinguishing this from *C. vulpina* L. are additional to those given in the 1939-40 *Rep.*, 264:—Ligule longer than broad, elongated-inverted-V-shaped, not overlapping the margins of the leaf; hyaline membranous front of the leaf-sheath not glandular dotted nor wrinkled; utricles smooth under a lens, not readily dropping at maturity.—E. NELMES.

753/59(2). *CAREX VULPINA* L. Characters contrasting with the above:—Ligule broader than long, truncate-deltoid, overlapping the margins of the leaf; hyaline membranous front of the leaf-sheath sometimes partly covered with minute yellowish or reddish glandular dots, sometimes marked with transverse wrinkles; utricles seen under a pocket lens ($\times 10$) to be densely papillose, readily dropping at maturity.—E. NELMES.

753/68. *CAREX DIVISA* Huds. 28, W. Norf. On Wolferton Marshes in 1940, among many normal plants, one was gathered showing a monstrosity in the form of proliferous utricles. Normally, in any species the female spikes bear in the axil of each bract a secondary shoot; the axis of this is included in the utricle together with the pistil which is borne in the axil of the bract. In the abnormal form, the secondary axis was found to be elongated and bore another but smaller utricle and nut. Such aberrations are not uncommon; indeed, it is the normal feature of *C. microglochis* Wahl. Instances of this monstrosity, however, in *C. divisa*, so far as can be ascertained, have not been noticed before.

Notes on abnormality in the Cyperaceae (kindly supplied by Mr Nelmes) have been published by Caruel F. (*Observations organogéniques sur la fleur femelle des Carex*; in *Ann. Sci. Nat.*, ser. v, 1, 104-111, t. 8, 1867), Thiselton-Dyer, W. T.; On the perygynium and seta of *Carex* (*J.L.S. Bot.*, 14, 154-6, t. 12, 1874) and Ridley, H. N. (*A monstrosity of C. glauca*; *ibid.*, 20, 45-6, 1883).—E. L. SWANN.

783/1. *CALAMAGROSTIS EPIGEIOS* (L.) Roth. Contrary to the distributional data given by most authorities, this species, at least in West Norfolk, is far less common than *C. canescens* (Wigg.) Gmel. emend. Druce (*C. lanceolata* Roth). Whereas *C. canescens* is often met with and indeed is the dominant species on one small fen at Blackboro' End near King's Lynn, I have to record *C. epigeios* from one station only, near the level crossing over the Beach Road at Snettisham.—E. L. SWANN.

797/1. *CYNODON DACTYLON* (L.) Pers. On the 6th of August 1944 I found a large colony of this grass by the roadside at Castle Rising. Measuring 18 feet by 3 feet and with many young plants on the edges, it must be three or four years old and slowly spreading. Although a

rare plant with us, it is a common cosmopolitan plant in the warmer (not tropical) parts of the whole earth, abundant by waysides, in vineyards, and in the Cape Province cultivated as a lawn grass. It has become naturalised in America.

Two possible explanations of its introduction can be formulated. Two or three years ago a tobacco warehouse on the docks at King's Lynn suffered a direct hit by a canister of incendiaries. As the crow flies, the docks are three miles south-west of Castle Rising. The terrific heat from this fire would cause convection currents and seeds of this grass which would probably be in the tobacco would be conveyed by the south-west wind then prevailing to the spot at Castle Rising. The ground there is relatively high. No shading occurs. Therefore, the young plants would not suffer from extremes of frost and moisture. Whereas this grass usually has 4-5 digitate spikes, in this station they range from 4-3. The second theory also has a war background. Not far from Castle Rising is an American camp. The freight cars often take their loads of goods (shipped from America) from King's Lynn station. Leaving the town, the drivers would be obliged to travel slowly until they reached the Castle Rising road. There they would accelerate, especially on the first small hill, and the consequent draught would be most likely to liberate and distribute the seeds from the packages. Just past the first small hill is to be found this grass.—E. L. SWANN.

824/2. *POA PRATENSIS* L. var. A variety remarkable for its glaucous leaves and inner lemmae divided to the base was found on Leziat Fen, West Norfolk. This fen is on chalk and the dominant grass is *Deschampsia caespitosa* (L.) Beauv., the innumerable tussocks of which make very rough going. In the hollows between the tussocks, this variety of *Poa pratensis* is plentiful. Mr Hubbard has only once before seen this variant and that was from the Isle of Wight, where also it was growing on chalk. It is not the var. *arenaria* Parn., which is a plant of sandy coasts and has larger spikelets and less hairy lemmae.—E. L. SWANN.

829/2a. *LOLIUM TEMULENTUM* L. var. *macrochaeton* A. Braun (1834: *Flora*, 17, 252). This name is used by C. E. Hubbard in his determination of one of my plants collected as an adventive at Burton-on-Trent. By some writers it is regarded as the typical variety, and it is certainly the common one. In it the awn is straight and strong, longer than the glume.—J. E. LOUSLEY.

INTRODUCTION OF WEEDS IN CARROT SEED. Mr R. J. Libbey reports a number of aliens found in several localities in Norfolk, all growing in carrot crops. In one particular field he was able to obtain a sample of seed left over after drilling, and the weed seeds in this sample were of these aliens growing in that field. The alien weeds found thus, all but the first determined at Kew, are:—

Cuscuta campestris Yuncker (det. T. J. Yuncker), widespread in a field of carrots at Sprowston.

Solanum sp. (not yet determined).

Salsola Kali L. var. *Tragus* (L.).

Kochia scoparia (L.) Schrad.

Amaranthus retroflexus L.

Panicum capillare var. *occidentale* Rydb.

Panicum Crus-galli L.

Setaria viridis (L.) Beauv.

Setaria glauca Beauv.

PLANT RECORDS.

To facilitate the corrections of their copies of *Comital Flora* by members, some changes in the use of * and [] have been adopted in this Report:—

* precedes the vice-county number whenever the species is either new to the vice-county or not recorded for that vice-county in the Society's annotated copy of the *Comital Flora*. [*] indicates a similar addition to be bracketed (a) when a native species is not native in the locality; and (b) on account of some doubt concerning the locality or the identification or the need or desire for confirmation. Introductions not bracketed in *C.F.* are left unbracketed. * or [*] precedes the *B.P.L.* number whenever the paragraph contains the sign before one of the records included, and *does not*, as was previously the case, *necessarily apply to the first record*. † indicates that the plant is not native in the locality: [†] indicates doubt concerning the nativity; preceding the *B.P.L.* number it applies to all records included in the paragraph, otherwise it precedes each record to which it applies.

Note.—If the record is a direct contribution, the name of the contributor is printed in small capitals. If the record is an Abstract, capitals are not used and the reference is given in parentheses, either in full or by a date referring to the Bibliography.

The response to the request for records to be sent in on 5 × 3 cards (cut-down postcards or any firm slips are adequate) has been extremely satisfactory and has been a great help. As the verbal explanation of the form required has not always been followed completely, one of the cards in this year set out alongside the instructions, showing the form most helpful. Room should be left at the top and left hand side of the card, and between the lines, for any editorial correction that may be necessary, as some cards were received so closely compressed at the top of the otherwise empty card that editing involved re-writing. But the lightening of work deserves the expression of thanks to all who have assisted, and perhaps the few who did not will now follow suit.

194/10m. ROSA DUMETORUM Thuill.

Var. HEMTRICHA (Rip.) W.-Dod.

35, Monm.; banks of R. Wye, between Hadnock Quarries and Symond's Yat, 1943, R. LEWIS, det. R. MELVILLE.

3.9.1943. *Herb. R. Lewis,*
No. 564. Passed by
 13.6.1943. *Herb. Brit. Mus. Mr Wade.*

B.P.L. number and name.

Variety if any.

Vice-county number (comma), name (semicolon), locality etc., year, collector's name, sender's name if not collector, authority if not collector. Any additional notes to be inserted so that the whole makes a single sentence if possible.

The notes printed in small italics to be added *in pencil*, as not to be printed: the full date in the left-hand bottom corner, the whereabouts of voucher specimens in the middle bottom (with reference numbers if any), and other comments or useful notes in the right-hand bottom corner or on the back of the card. When more than one record is given for the same vice-county the records are separated by *colons*. When the same person sends records following each other from more than one vice-county, the vice-counties are separated by *semicolons*.

N.B.—Do not use capitals (i.e. write, do not print) *unless you make absolutely sure from the printed Report* that you use them rightly—for the plant name but not for the authority, and for the names of the finder, recorder, and determiner when the record is a new one but not when it is taken from some publication. It is much more difficult to remove capitals wrongly used than to double-underline writing as instruction to the printer to use capitals: usually this could not be done and the card had to be re-written.

In dealing with records from parts of vice-counties which have been transferred from one county to another since H. C. Watson's time, the form "20, [Beds.]" will be used, which indicates that the locality is now in Bedfordshire but belongs to vice-county 20 as it was in Hertfordshire *when the vice-county boundaries were fixed* by Watson.

When the record concerns an area dealt with by one of the standard County Floras, contributors, when they can, should indicate in () the number or letter of the subdivision of the County used in the Flora: this not only is of help to the Editors but will be of assistance to future revisers of such Local Floras.

When, for some reason, the name following the vice-county number is not the name of the vice-county, as "55, (Rutland)," the name is placed in ().

Several experiences this year lead me to reprint some of the instructions given by Mr. P. M. Hall in the *1938 Report*, p. 21, where he writes:—

"All records should give the following data:—

- (b) Locality and Watsonian vice-county (the county alone will not suffice).
- (c) Date.
- (d) Name of finder, if not the person submitting the record.
- (e) If the plant belongs to a critical group, the name of the expert by whom it was determined: if the plant has not been named by an expert, a specimen must be sent for determination. Records in critical groups will not be published unless this procedure has been complied with.
- (f) If material has been dried, the Herbarium in which it is kept, so that it may be traced if required for study." [Add this in pencil at the bottom of the card in the middle.]
- (g) Information as to the status of the plant (whether native, naturalised, or casual), habitat, altitude, soil, etc., is desirable." [This information may, if too long for printing, be added on the back of the card.]

"It is important that new vice-comital records should be supported by voucher material and members making such records are urged to deposit material in the herbarium of the Dept. of Botany, British Museum (Natural History), S. Kensington, or one of the other national or public herbaria."

The importance of depositing voucher specimens for all records of special interest, whether N.C.R. or not, cannot be overemphasised. It is more difficult to expunge a wrong record than to make a new one, and deletion can only be made satisfactorily by re-identification of a specified voucher. For instance, Arthur Bennett recorded *Salicornia disarticulata* Moss for "44 Carm. Harmer, B.E.C. '12, 216" (*Top. Bot., Suppl. 2*, 58). But the specimens in Herb. Arthur Bennett collected by Hamer are not *S. disarticulata*. I have seen specimens of *S. disarticulata* Moss from Carm. collected at Ferryside by my wife in 1932. But are they the real record for v.-c. 44? Did Hamer receive back and preserve other specimens which may be *S. disarticulata*? How can wrong records be deleted unless they are based on definitely specified voucher material? The British Museum endeavours to preserve voucher material for all published statements which require it; it is quite impossible to say now who may wish to re-examine the matter later.

Two bad mistakes at least have been avoided this year because the editor wished to satisfy himself that a record which appeared to him suspicious was in fact correct. But others which he had no reason to doubt may be wrong. In the last Report the record of *Salix arbuscula* from Rhum was placed in square brackets because the Editors thought it open to doubt and they were not given the opportunity of satisfying themselves concerning it. During Mr Hall's editorship the Editorial Sub-committee accepted his view that a record need not be accepted if no voucher was submitted for examination. Yet it is desirable to include in *Plant Records* all published N.C.R.s and records of outstanding interest. Only when the material of this and other similar records is made available for examination and comment will it be possible to remove the square brackets. (See *Vasc.*, 29, 11). The aim of depositing vouchers is to make the material available for study by all who wish, which should be the desire of those who would aid the development of science.

Miss Rawlins's Irish records from H. 11-13 exposed the serious discrepancies between the *Comital Flora* (published in 1932) and the Census List given by Praeger in 1934 (*The Botanist in Ireland*, pp. 493-539). It was hoped to add to *Plant Records* the information necessary to correct *C.F.*, but three weeks' work showed this to be impossible without extensive investigation. As Dr Druce states (*C.F.*, pp. xxi-xxiii) that the information in *C.F.* is taken from the Irish publications (*Cybele Hibernica*, *Irish Top. Bot.* and Supplements), the extent of the discrepancies is inexplicable. Dr Praeger writes:—Dr Druce "told me that he had no other sources of information—no store of un-

published records of his own. Shortly after the *Comital Flora* was published I checked it with *I.T.B.* and its *Suppls.* up to that date (1932). . . . I could not discover any discrepancy that was due to an error in *I.T.B.*, though there were some which had been corrected in the *Supplements.*" Some errors in *C.F.* are obviously due to incorrect copying or bad handwriting, but having now made a complete list of the differences it is clear that a thorough examination of them all must be made. For the time being, therefore, I have used Praeger's Census List as a basis for Irish N.C.R.s and the printing of the necessary corrections to *C.F.* must be deferred.

*1/1. *CLEMATIS VITALBA* L. *H.11, Kilkny; hedges about Dysertmore, 1940-44, Miss E. RAWLINS, "not at all uncommon in the county." *H.13, Carlow; hedges about Borris, 1939-44, Miss E. RAWLINS.

*1/1b. *CLEMATIS VITALBA* L. var. *INTEGRATA* DC. 34, W. Glos.; English Bicknor, 1944, S. G. CHARLES, comm. W. R. PRICE. 41, Glam.; the form alluded to in Glamorgan Floras as "abundant" in the Vale of Glamorgan; the form with lobed leaflets was unknown in the county until found recently at Llandaff, Miss E. VACHELL. *47, Mont.; Careghofa and Llandinam, J. A. Webb (Wade and Webb, 1943: 53)—brackets removed in annotated *C.F.*

2/2(2). *THALICTRUM MONTANUM* Wallr. 103, M. Ebudes; Coll; Tíree; Gunna; J. W. H. HARRISON *et al.* (1941C: 277).

[*]+2/2(4). *THALICTRUM COLLINUM* Wallr. [*]47, Mont.; Tyllwch; probably a garden escape, J. A. Webb (Wade and Webb, 1943: 54)—add to *C.F.* under *T. minus*—Ed.

*2/2(6). *THALICTRUM CAPILLARE* Rechb. *104; N. Ebudes; Rhum, J. W. H. HARRISON (1939E: 92)—add to *C.F.* under *T. majus* Cr.

3/2b. *ANEMONE NEMOROSA* L. var. *PURPUREA* DC. 35, Mon.; Priory Grove Wood, Monmouth, 1943, R. LEWIS.

3/2e. *ANEMONE NEMOROSA* L. var. *APETALA* E. J. Salisbury. 17, Surrey; near Ashtead, two colonies, 1944, W. H. SPREADBURY, comm. J. E. LOUSLEY.

+3/4. *ANEMONE APENNINA* L. 35, Mon.; hedgebank, St Mellons, 1943, W. LOVEGROVE, comm. NAT. MUS. WALES.

+3/8. *ANEMONE JAPONICA* S. & Z. 50, Denb.; roadside, Llangollen, and near Capel Garmon, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

4/1. *ADONIS ANNUA* L. em. Mill. 12, N. Hants.; cornfield, Bullington, 1944, Hon. E. PALMER, comm. Hon. W. J. L. PALMER. 14, E. Suss.; downs above Hastings, 1943, Miss Hanson and Miss Walsh (*Hastings Nat.*, 6, 136).

6/3. *RANUNCULUS ACER* L.—female form. 33, E. Glos.; meadow by Coombe Hill Canal, 4 miles S. of Tewkesbury, 1941, E. NELMES.

6/6. *RANUNCULUS LINGUA* L. 17; Surrey; Wire Mill Pond, abundant, 1943, F. ROSE—cf. *B.E.C. 1936 Rep.*, 236. 65, N.W. Yorks.; Ainderby Bottoms, 1943, C. M. Rob (*Nat.*, 1944: 18). 104, N. Ebudes; Eigg, J. W. H. Harrison (1939E: 93)—confirms doubtful record in *C.F.*—Ed.

6/10. *RANUNCULUS SARDOUS* Cr. 6, N. Som.; field between Dunster and Minehead Warren, 1944, J. D. GROSE.

*6/11. *RANUNCULUS SCLERATUS* L. *104, N. Ebudes; Canna, J. W. Harrison (1939E: 93).

6/13. *RANUNCULUS PARVIFLORUS* L. 12, N. Hants.; small but flourishing colony on chalky bank, The Common, Basingstoke, 1943, [G. W. WILLIS, who showed it to] N. E. G. CRUTTWELL. 16, W. Kent; Ryarsh Downs, increasing, 1944, F. ROSE. 37, Worcs.; dry bank, Purshall Green, Chaddeley Corbett, 1943, R. C. L. BURGESS.

*6/20. *RANUNCULUS FLUITANS* Lam. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 277).

6/22. *RANUNCULUS TRICHOPHYLLUS* Chaix. 65, N.W. Yorks.; pond at Well, near Tanfield, 1944, E. C. WALLACE.

6/22(2). *RANUNCULUS RADIANS* Revel. 33, E. Glos.; near Staple Farm, Withington, 1942, H. K. Airy Shaw (W. R. Price, 1943: *Proc. Cotteswold Nat.'s Club*, 28, 8, as *R. trichophyllus* var.).

6/22(2)b. *RANUNCULUS RADIANS* Revel var. *GODRONII* (Gren.) Revel. 33, E. Glos.; Withington Marsh, 1942, H. K. Airy Shaw (W. R. Price, 1943: *Proc. Cotteswold Nat.'s Club*, 28, 8, as *R. trichophyllus* var.).

*6/24. *RANUNCULUS HETEROPHYLLUS* Weber. *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 277).

6/25d. *RANUNCULUS PELTATUS* Schrank var. *FLORIBUNDUS* (Bab.). 33, E. Glos.; pond by Andoversford Ry. Stn., 1942, H. K. Airy Shaw (W. R. Price, 1943: *Proc. Cotteswold Nat.'s Club*, 28, 8).

*6/26. *RANUNCULUS PSEUDO-FLUITANS* (Syme) Baker & Foggitt. *35, Mon.; Hadnock Stream near Monmouth, S. G. CHARLES, comm. NAT. MUS. WALES. *47, Mont.; Newtown Weir, near Llanllwchaiarn Footbridge and near Llandysilio, J. A. Webb (Wade and Webb, 1943: 54).

6/26b. *RANUNCULUS PSEUDO-FLUITANS* Baker & Foggitt var. *MINOR* Pearsall. 33, E. Glos.; Lower Hilcot, Colesbourne and Ampney St Peter, 1942, H. K. Airy Shaw (W. R. Price, 1943: *Proc. Cotteswold Nat.'s Club*, 28, 9).

6/28b. *RANUNCULUS BAUDOTTI* Godr. var. *CONFUSUS* (Godr.). 34, W. Glos.; Frampton, R. B. Abell, 1942 (W. R. Price, 1943: *Proc. Cotteswold Nat.'s Club*, 28, 8).

6/31. *RANUNCULUS LENORMANDI* F. Schultz. 64, M.W. Yorks.; spring on moor towards Greenhow, Pateley Bridge, 1943, E. C. WALLACE, (see *Nat.*, 1944: 18).

*7/2. *CALTHA RADICANS* T. F. Forst. *41, Glam.; St Brides-super-Ely, 1943: St Fagans, 1944; "examined by A. J. WILMOTT, who offers no objection to the identification, the plants rooting at the nodes fairly freely at both places," E. VACHELL. *110, O. Hebr.; Barra, A. J. Wilmott (1939: *J.B.*, 189): Vatersay and S. Uist, J. W. H. Harrison (1941B: 231)—add to *C.F.*

9/2. *HELLEBORUS FOETIDUS* L. 15, E. Kent; 16 colonies between Bluebell Hill and Boxley: †by roadside S. of Headcorn; a green flowered broad leaved form commoner in the more open parts, and one with narrow leaflets and prominent dark red tips to the sepals commoner in the more wooded parts, i.e. Boxley Warren, both 1944, F. ROSE.

10/1. *ERANTHIS HYEMALIS* Salisb. 47, Mont.; Llanllugan, J. A. Webb (Wade and Webb, 1943: 54).

*11/1. *AQUILEGIA VULGARIS* L. *47, Mont.; Churchstoke; Montgomery, Dolfor, Llandinam and Llanmerewig, J. A. Webb (Wade and Webb, 1943: 54). *63, S.W. Yorks.; Hawk's Wood, Kiveton Park, 1943, Mr Dovaston (J. Brown, 1944: *N.W. Nat.*, 18, 325).

†12/1. *NIGELLA DAMASCENA* L. 47, Mont.; Llangurig, J. A. Webb (Wade and Webb, 1943: 54).

*†13/3. *DELPHINIUM GAYANUM* Wilmott. 14, E. Suss.; Newhaven, 1939, L. A. W. BURDER (as *D. Ajacis* L.). 21, Middx.; on a bombed site, Lupus St., London, S.W.1, 1943, D. McCLEINTOCK (as *D. Ajacis*). *35, Mon.; orchard, Marshfield, 1933, Mr WOODCOCK, comm. NAT. MUS. WALES—add to *C.F.* in brackets.

14/1. *ACONITUM ANGLICUM* Stapf. 2, E. Cornwall; Coombe Valley, 1942, J. E. DAVIE, comm. NAT. MUS. WALES (confirmation for the county).

17/1. *BERBERIS VULGARIS* L. 17, Surrey; top of railway embankment, Banstead Downs, 1943, J. R. WALLIS. 22, Berks.; Sulham, 1944, D. McCLINTOCK.

†17/2. *BERBERIS AQUIFOLIUM* Pursh. 35, Monm.; edge of Garth Wood, near Monmouth, 1944, R. LEWIS. 47, Mont.; Carno, above Newtown, Churchstoke, Garthmyl, and Penstrowed, J. A. Webb (Wade and Webb, 1943: 54).

†21/1. *PAPAVER SOMNIFERUM* L. 44, Carm.; amongst potatoes, near Mynydd y Gareg, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; Newtown, Dolforwyn and Llanfair Caereinion, J. A. Webb (Wade and Webb, 1943: 54).

*21/2. *PAPAVER RHOEAS* L. *104, N. Ebudes; Muck, J. W. H. Harrison (1939E: 93).

21/2b. *PAPAVER RHOEAS* L. var. *STRIGOSUM* (Boenn.). 63, S.W. Yorks.; field near Thorpe Salvin, 1943, J. Brown (1944: *N.W. Nat.*, 18, 325).

†23/2. *GLAUCIUM CORNICULATUM* (L.) Curt. 33, E. Glos.; Fiddington, Tewkesbury, 1944, C. W. BANNISTER, comm. W. R. PRICE.

†31/4. *CORYDALIS LUTEA* (L.) DC. 14, E. Sussex; on the Downs near Wilmington, 1943, H. PEATFIELD, comm. A. J. WILMOTT. 47, Mont.; Llanfair Caereinion, Kerry, Newtown, Dolanog, and Pontdolgoch, J. A. Webb (Wade and Webb, 1943: 54).

*32/1. *FUMARIA CAPREOLATA* L. *39, Staffs.; roadside hedges near Ellenhall, 1944, E. S. EDEES, confirmed by F. RILSTONE. *104, N. Ebudes; Eigg, J. W. H. Harrison (1939E: 93).

*32/4. *FUMARIA PURPUREA* Pugsl. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 278).

*32/5. *FUMARIA BORAEI* Jord. 15, E. Kent; near Chart: near Headcorn; both 1944, F. ROSE. 16, W. Kent; E. Malling village: Warren Wood, E. Malling; near Kippings Cross: all 1944, F. ROSE. 34, W. Glos.; English Bicknor, S. G. CHARLES, comm. W. R. PRICE. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 278). *110, O. Hebr.; Vatersay, Barra, and Benbecula, J. W. H. Harrison (1941B: 232).

32/5×10. *FUMARIA BORAEI* Jord. × *OFFICINALIS* L. 4, N. Devon; cultivated land near Cove, Tiverton, 1943, A. L. STILL—det. H. W. Pugsley, who states he would rather not call it ×*F. Painteri* as that plant set some good fruit, and the present plant is quite barren.

*32/9. *FUMARIA BASTARDI* Bor. *104, N. Ebudes; Eigg and Muck, J. W. H. Harrison (1939E: 93).

*32/11. *FUMARIA MICRANTHA* Lag. 17, Surrey; Fetcham Downs, 1941, J. E. LOUSLEY, teste PUGSLEY: Chipstead Valley, 1943, J. E. LOUSLEY, A. B. JACKSON and N. Y. SANDWICH: Warren Barn, Warlingham, 1943, J. E. LOUSLEY. *76, Renfrew; allotments at Merrylee, Glasgow, July 1942, R. MACKECHNIE.

*32/13. *FUMARIA PARVIFLORA* Lam. *61, S.E. Yorks.; cornfield, Staxton near Scarborough, *Yorks. Nat. Union Excursion*, (*Nat.*, 1943: 118; 1944: 18).

†34/1. *CHEIRANTHUS CHEIRI* L. H.12, Wexford; on old walls, New Ross, 1940-44, Miss E. RAWLINS.

*35/2. *ROBIPPA SYLVESTRIS* (L.) Bess. *104, N. Ebudes; Rhum, J. W. H. HARRISON (1939E: 93, as *Nasturtium sylvestre* DC.).

35/4. *ROBIPPA ISLANDICA* (Cr.) Bess. 21, Middx.; on a bombed site, Causton Street, London, S.W.1, 1943, D. McCLINTOCK (as *Nasturtium palustre*).

†36/2. *BARBAREA VERNA* (L.) Asch. 30, Beds.; Round Green, Luton, 1939, J. G. DONY, det. A. B. JACKSON.

36/5. *BARBAREA INTERMEDIA* Bor. 3, S. Devon; Goodrington, Paignton, 1943, F. M. DAY. 37, Worcs.; Wharf Hotel, Holt, 1943, F. M. DAY.

37/6. *ARABIS GLABRA* (L.) Bernh. 28, W. Norf.; a few plants on Barnham Cross Common, 1944, J. A. WHELLAN.

†37/12. *ARABIS CAUCASICA* Willd. 47, Mont.; naturalised on walls, Montgomery, Kerry and near Dolwen, J. A. Webb (Wade and Webb, 1943: 55).

39/1c. *CARDAMINE PRATENSIS* L. var. *DENTATA* (Schultes). 41, Glam.; St Fagans, 1942, a scarce form in the vice-county except as a garden weed, E. VACHELL.

39/7. *CARDAMINE BULBIFERA* (L.) Crantz. 14, E. Suss.; about Hastings, 1943, (*Hastings Nat.*, 6, 136): wood between Mountfield and Robertsbridge, 1944, Miss Hanson (*Hastings Nat.*, 6, 151).

†41/1. *AUBRETTIA DELTOIDEA* DC. 47, Mont.; naturalised on walls and on stony hedges near Llanfair Caereinion, J. A. Webb (Wade and Webb, 1943: 55).

†42/6. *ALYSSUM ALYSSOIDES* (L.) L. 30, Beds.; railway bank, Flitwick, 1942, G. D. NICHOLLS, comm. J. G. DONY.

†42/9. *ALYSSUM INCANUM* L. 35, Mon.; garden weed, New Tredegar, 1933, J. W. THOMAS, comm. NAT. MUS. WALES.

43/4. *DRABA MURALIS* L. 4, N. Devon; Ilfracombe, M. G. Palmer (*Trans. Devon Ass. Adv. Sci.*, 75, 57: 1943). †48, Mer.; bridge at Llandderfel, casual, 1939, J. A. WHELLAN.

*44/2f. *EROPHILA BOERHAAVII* (Van Hall) Dum. var. *BRACHYCARPA* (Jord.) O. E. Schultz. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 278). *110, O. Hebr.; N. Uist, J. W. H. Harrison (1941B: 232) —also collected in 1939 by Miss M. S. CAMPBELL on wall top at Rodel, S. Harris, and Traigh Mhor, North Tolsta, Lewis—A. J. WILMOTT.

*44/3. *EROPHILA PRAECOX* (Stev.) DC. *110, O. Hebr.; Baleshare, J. W. H. Harrison (1941B: 232).

*45/7. *COCHLEARIA DANICA* L. *104, N. Ebudes; Muck; Eilean nam Each; Hyskeir; Eigg: J. W. H. Harrison (1939E: 94).

†47/2. *HESPERIS MATRONALIS* L. 21, Middx.; site of St Olave's, Silver St., London, E.C.2, 1944, D. McCLINTOCK. 22, Berks.; Easthampstead Park, 1944, D. McCLINTOCK. 35, Mon.; banks of R. Wye, far from any garden, between Hadnock Quarries and Symond's Yat, 1943, R. LEWIS. 47, Mont.; Llandysilio, Gofa, Meifod, Llanllugan, Llandrinis and Snead, J. A. Webb (Wade and Webb, 1943: 55).

†49/3. *SISYMBRIUM ALTISSIMUM* L. 3, S. Devon; air-raid debris, Plymouth, 1943, erroneously recorded in local press as *S. Irio* L., E. M. PHILLIPS. 21, Middx.; waste land, junction of Hartington Road and Chertsey Road, Chiswick, 1944, D. H. KENT. H.11, Kilkny; casual on railway line near New Ross, 1940-42, Miss E. RAWLINS. H.13, Carlow; Borris railway line, 1940-44, Miss E. RAWLINS.

†49/4. *SISYMBRIUM ORIENTALE* L. 3, S. Devon; air-raid debris, Plymouth, 1943; Pomphlett and Oreston, Plymstock, 1943: E. M. PHILLIPS. 8, S. Wilts.; Larkhill, 1942, D. McCLINTOCK. 14, E. Suss.; Preston Park, Brighton, 1944, L. A. W. BURDER. 21, Middx.; bombed site, Northolt Road, South Harrow, and bombed site, Uxbridge Road, West Ealing, 1944, D. H. KENT. 47, Mont.; Montgomery, Welshpool, Buttington, Four Crosses to Arddleen and Llanbryn-mair, J. A. Webb (Wade and Webb, 1943: 55). 54, N. Lincs.; Skegness, 1943, D. McCLINTOCK. H.13, Carlow; Borris railway line, Miss E. RAWLINS.

49/6b. *SISYMBRIUM OFFICINALE* (L.) Scop. var. *LEIOCARPUM* DC. 56, Notts.; near Mattersey, 1943, John Brown (1944: *N.W. Nat.*, 18, 325).

*49/7. *SISYMBRIUM THALIANUM* (L.) Gay. *103, M. Ebudes; Tree, J. W. H. Harrison *et al.* (1941C: 278).

49/8. *SISYMBRIUM ALLIARIA* Scop. H.12, Wexford; Newtownbarry, 1943, Miss E. BOOTH, comm. Miss E. RAWLINS.

*50/1. *ERYSIMUM CHEIRANTHOIDES* L. *H.12, Wexford; garden weed, Ballinastraw, 1942, Miss E. BOOTH, comm. Miss E. RAWLINS. *H.13, Carlow; garden weed, Carrigduff, near Newtownbarry, 1942, Miss E. RAWLINS.

*+54/6. *BRASSICA CHEIRANTHOS* Vill. *44, Carm.; Llanelly, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

*+54/22. *BRASSICA INCANA* (L.) F. Schultz. *35, Mon.; Newport docks, 1942, J. MACQUEEN: RUMNEY, 1944, A. E. WADE, comm. NAT. MUS. WALES.

*55/1. *DIPLOTAXIS TENUIFOLIA* (L.) DC. *7, N. Wilts.; Rodbourne, Swindon, 1944, N. PESKET, comm. J. D. GROSE, det. E. C. WALLACE.

*55/2. *DIPLOTAXIS MURALIS* (L.) DC. 3, S. Devon; air-raid debris, Plymouth, 1943, E. M. PHILLIPS. *47, Mont.; near Berriew, near Cemmaes, near Derwenlas and Newtown, J. A. WEBB (Wade and Webb, 1943: 55).

*60/1. *CORONOPUS DIDYMUS* (L.) Sm. *26, E. Suff.; East Ness, Lowestoft, 1925, O. A. READE, comm. A. J. WILMOTT.

*60/2. *CORONOPUS PROCUMBENS* Gilib. 63, S.W. Yorks.; farmyard, Hatfield High Levels, 1943, Dr S. P. Rowlands and Dr J. M. Taylor (*Nat.*, 1944: 18). *110, O. Hebr.; Barra, J. W. H. Harrison (1941B: 233).

*+61/2. *LEPIDIUM LATIFOLIUM* L. 33, E. Glos.; Severn bank (left), weir just below Gloucester, 1944, not far from its native locality at Westbury, J. W. HAINES. *35, Mon.; Alexandra Dock, Newport, 1942, JOHN MACQUEEN, comm. NAT. MUS. WALES.

*+61/3. *LEPIDIUM DRABA* L. *6, N. Som.; Minehead Warren, 1944, J. D. GROSE. 45, Pemb.; abundant near the salt marshes, Tenby, 1944, Mrs F. L. REES, comm. NAT. MUS. WALES. *47, Mont.; Montgomery, J. A. Webb (Wade and Webb, 1943: 55).

61/4. *LEPIDIUM RUDERALE* L. 33, E. Glos.; near Waterworks, Tewkesbury, 1943, F. M. DAY.

+61/12. *LEPIDIUM SATIVUM* L. 47, Mont.; many plants among swedes, between Llwyn Cowrid and Sarn, J. A. Webb (Wade and Webb, 1943: 55).

+61/24. *LEPIDIUM NEGLECTUM* Thell. 35, Mon.; Dixton, Redbrook and Kymyn Hill, S. G. CHARLES, comm. NAT. MUS. WALES.

*64/1. *THLASPI ARVENSE* L. 6, N. Som.; Greenaleigh: Allerford: both 1944, J. D. GROSE. *47, Mont.; Llanllwchaiarn and Llanfyllin Station, J. A. Webb (Wade and Webb, 1943: 55).

[*]65/1. *IBERIS AMARA* L. 17, Surrey; in such abundance on slopes above Headley Lane in 1943 that the white patches of flowering plants were conspicuous from the opposite slopes of Box Hill (cf. *J.B.*, 74, 197, 1936), J. E. LOUSLEY. [*]66, Durham; oatfield weed, near Vigo, not far from Birtley (1944: *Vasc.*, 29, 24).

66/1. *TEESDALIA NUDICAULIS* (L.) R. Br. 62, N.E. Yorks.; sandy bank in lane, Youlton Moor, Aldwark, 1944, E. C. WALLACE.

*†68/1. *ISATIS TINCTORIA* L. *19, N. Essex; one large plant on waste ground, W. Mersea, 1944, J. A. WHELLAN. Not given for 18 or 19 in *C.F.*, but Gibson (1862: *Fl. Essex*, 35) gives a locality in 19 and also "near Epping; seen growing year after year in the same place, J.R."=John Ray—Add 19 to *C.F.*—ED.

†74/2. *BUNIAS ORIENTALIS* L. 30, Beds.; Chalton Cross, Toddington; V. H. CHAMBERS, comm. J. G. DONY.

75/1. *CRAMBE MARITIMA* L. 15, E. Kent; Seasalter beach, 1944, F. ROSE and C. WEST.

*77/1. *CAKILE MARITIMA* Scop. *47, Mont.; by the Llyfnant Brook, Dovey Estuary, J. A. Webb (Wade and Webb, 1943: 55).

80/1b. *RAPHANUS RAPHANISTRUM* L. var. *FLAVUS* Druce. 41, Glam.; in very great abundance for two years in cornfields, St Fagans, 1943, 1944—flowers yellow mostly with dark veins, E. VACHELL.

†80/4. *RAPHANUS SATIVUS* L. 47, Mont.; adventive in a field between Sarn and Llwyn Cowrid, J. A. Webb (Wade and Webb, 1943: 55).

*87/1. *HELIANTHEMUM GUTTATUM* (L.) Mill. *49, Carn.; mainland opposite Bardsea I. (1938, W. Hughes-D'Aeth), 1939 (and det.) Miss B. M. MORGAN, awaiting further material to determine whether it is the var. *Breweri* Planch. or not, the available specimens being small, unbranched and nearly ebracteate.

88/1. *VIOLA STAGNINA* Kit. sec. Rchb. 63, S.W. Yorks.; within ten miles of Thorne Waste, J. M. Taylor, S. P. Rowlands and A. A. Dallman (1942: *N.W. Nat.*, 17, 255-256).

88/4c. *VIOLA RIVINIANA* Rchb. forma *MINOR* Murbeck. 36, Heref.; near Purlieu Lane, Mathon: Evendine, Colwall; both 1943, F. M. DAY.

88/6. *VIOLA CANINA* L. 64, M.W. Yorks.; Walkingham Hill, near Farnham, 1943, E. C. WALLACE (*Nat.*, 1944: 18).

88/6b. *VIOLA CANINA* L. var. *ERICETORUM* (Hayne) Rchb. 14, E. Suss.; in small quantity at Eridge Park, 1943, J. R. WALLIS. 20, Herts.; Croxley Moor, and Moor Park, Rickmansworth, 1943, F. M. DAY.

*88/7. *VIOLA LACTEA* Sm. *35, Mon.; rough field by Minnetts Lane, near Roggiett, 1944, Mrs J. C. ELLIS, comm. NAT. MUS. WALES (see *Nat. Mus. Wales 37th Ann. Rep.*, 11: 1944). 41, Glam.; ridge behind Porthcawl, 1941, E. M. THOMAS, det. E. VACHELL.

88/8b. *VIOLA ODORATA* L. var. *IMBERBIS* (Leight.) Hensl. 34, W. Glos.; Dymock, 1943, F. M. DAY.

88/8d. *VIOLA ODORATA* L. var. *DUMETORUM* (Jord.) R. & F. 34, W. Glos.; Ryton, Bromsberrow; 36, Heref.; Chance's Pitch, Colwall: both 1943; at both places the flowers, as in var. *imberbis* (Leight.), are without hairs on the lateral petals, and round Bromsberrow it appears to be the general form: F. M. DAY.

88/8h. *VIOLA ODORATA* L. var. *SUBCARNEA* (Jord.) Parl. 36, Heref.; Chance's Pitch, Colwall, 1943, the flowers, as in var. *imberbis* (Leight.), are without hairs on the lateral petals, F. M. DAY.

88/9x8. *VIOLA HIRTA* L. x *ODORATA* L. 65, N.W. Yorks.; Nosterfield lime quarry, 1944, E. C. WALLACE.

88/9i. *VIOLA HIRTA* L. var. *PROPERA* (Jord.) Gillot. 36, Heref.; Holt Coppice, Eastnor; 1943: plentiful on the dry silurian limestone banks in Colwall district, near the Malvern Hills, especially where the soil is shallow, but hardly occurring on deeper soils and not at all on the shallow soil of the Malvern Granite, F. M. DAY.

*88/20. *VIOLA LLOYDII* Jord. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 279). *104, N. Ebudes; Eigg, J. W. H. Harrison (1939E: 95).

*88/22. *VIOLA AGRESTIS* Jord. *103, M. Ebudes; Coll and Tiree, J. W. H. Harrison *et al.* (1941C: 279).

*88/23. *VIOLA SEGETALIS* Jord. *47, Mont.; Llanllwchaiarn, J. A. Webb (Wade and Webb, 1943: 55). *110, O. Hebr.; S. Uist and Benbecula, J. W. H. Harrison (1941B: 233, as *V. agrestis* var.).

*88/24. *VIOLA OBTUSIFOLIA* Jord. *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 279).

*88/26. *VIOLA RURALIS* Bor. *104, N. Ebudes; Muck, J. W. H. Harrison (1939E: 95).

88/33. *VIOLA LUTEA* Huds. 47, Mont.; purple flowered on Kerry Hills near Devil's Elbow, and Dolfor, J. A. Webb (Wade and Webb, 1943: 56, as var. *amoena* Hensl.).

*88/34. *VIOLA CURTISII* Forster. *104, N. Ebudes; Eigg, J. W. H. Harrison (1939E: 95).

*89/1. *POLYGALA SERPYLLIFOLIA* Hose. *47, Mont.; near Dolfor, etc., J. A. Webb (Wade and Webb, 1943: 56).

*89/4. *POLYGALA OXYPTERA* Rchb. 30, Beds.; old chalk working near Maiden's Bower, Totterhoe and near Blow's Downs, Dunstable, 1944, J. E. LOUSLEY and E. MILNE-REDHEAD. *103, M. Ebudes; Coll and Gunna, J. W. H. Harrison *et al.* 1941C: 279, as *P. dubia* Bellyneck).

[*]92/2. *DIANTHUS DELTOIDES* L. [*]+47, Mont.; sparingly as a garden escape about Bont Dolgadfan and Llanbrynmair, J. A. Webb (Wade and Webb, 1943: 56). [*]H.13, Carlow; Bruno, on grassy mound near R. Slaney, 1941-44, Miss E. BOOTH, comm. Miss E. RAWLINS, "no houses or gardens near, quite an established little colony."

†92/5. *DIANTHUS BARBATUS* L. 44, Carm.; lineside, Hendy, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

†96/5. *SILENE ANGLICA* L. 34, W. Glos.; cornfield, Avening, 1943, J. W. HAINES.

[*]+96/10b. *SILENE NUTANS* L. var. *SMITHIANA* Moss. [*]85, Mon.; Newport Docks, 1944, JOHN MACQUEEN, comm. NAT. MUS. WALES.

96/16. *SILENE DICHOTOMA* Ehrh. 35, Mon.; field on Kymin Hill, Monmouth, c. 1929, S. G. CHARLES, comm. NAT. MUS. WALES.

*98/7. *LYCHNIS VISCARIA* L. *79, Selk.; reported from "a rock face near the Corbie Lynn waterfall, about two miles from Selkirk town," by Miss A. CHISAM, 1944, comm. A. J. WILMOTT.

*98/8. *LYCHNIS ALPINA* L. *104, N. Ebudes; N. side of Fionchra, Rhum, Harrison *et al.* (1944: 113).

*100/2. *CERASTIUM ARVENSE* L. 33, E. Glos.; roadside between Dagingworth and Ermin Street, 1944, E. NELMES. *47, Mont.; Caersws, Pontdolgoch and from Carno to Talerddig, J. A. Webb (Wade and Webb, 1943: 56).

*100/4. *CERASTIUM ARCTICUM* Lange. 98, Argyll M.; northern slopes of Beinn Dothaidh, 1943, E. C. WALLACE. *110, O. Hebr.; "very rare on a cliff ledge on Rueval, Benbecula," J. W. H. Harrison (1941B: 234).

*100/8. *CERASTIUM SEMIDECANDRUM* L. *104, N. Ebudes; Rhum and Sanday, J. W. H. Harrison (1939E: 96). *110, O. Hebr.; Baleshare, J. W. H. Harrison (1941B: 234).

*100/9. *CERASTIUM TETRANDRUM* Curt. *39, Staffs.; Rushton; on the platform of Cliffe Park station, 1941, E. S. EDEES (in *Trans. N. Staffs. Field Club*, 1941-42).

*101/1. *STELLARIA AQUATICA* (L.) Scop. 21, Middx.; muddy places by the Grand Union Canal at Hanwell, 1944, D. H. KENT. *47, Mont.; by the Severn near Forden Bridge and near Leighton, J. A. Webb (Wade and Webb, 1943: 56).

101/2. *STELLARIA NEMORUM* L. 39, Staffs.; Ravens Clough near Rushton, 1943, E. S. EDEES.

101/3b. *STELLARIA MEDIA* (L.) Vill. var. *GLABELLA* (Jord. & Fourr.) Rouy & Fouc. 56, Notts.; sandy ground near Mattersey, 1943, John Brown (1944: *N.W. Nat.*, 18, 325, as *S. pallida* (Dum.) Piré).

*101/4. *STELLARIA NEGLECTA* Weihe. 17, Surrey; very local in a ravine of Wimbledon Common, 1943, J. E. LOUSLEY. 41, Glam.; Fairwater, E. Vachell (*Trans. Cardiff N.S.*, 71, 30). *104, N. Ebudes; Eigg, J. W. H. Harrison (1939E: 96).

101/4b. *STELLARIA NEGLECTA* Weihe var. *ELIZABETHAE* (F. Schultz.) 41, Glam.; Oxwich, E. Vachell (*Trans. Cardiff N.S.*, 71, 30).

101/5. *STELLARIA HOLOSTEA* L. 98, Argyll M.; grassy slope below rocks on Ben Dothaidh, alt. 3000', not flowering, 1943, E. C. WALLACE.

[*]102/6. *ARENARIA LEPTOCLADOS* Guss. 36, Heref.; top of Bradlow Knoll, near Ledbury, 1944, A. J. WILMOTT. *47, Mont.; Llanllwchaian, Pontdolgoch, Clatter and Llanidloes, J. A. Webb (Wade and Webb, 1943: 56).

*102/7. *ARENARIA PEPLOIDES* L. *47, Mont.; in small quantity on shingle near Dovey Junction, J. A. Webb (Wade and Webb, 1943: 56).

[*]102/8. *ARENARIA TENUIFOLIA* L. 8, S. Wilts.; Larkhill, 1943, in one or two spots, D. McCLINTOCK. [*]+35, Mon.; on railway ballast, Hadnock, 1944, S. G. CHARLES, comm. NAT. MUS. WALES (see *Nat. Mus. Wales 37th Ann. Rep.*, 11: 1944).

102/12. *ARENARIA SEDOIDES* (L.) Druce. 98, Argyll M.; summit of Beinn Achaladoir, 1943, E. C. WALLACE.

102/14. *ARENARIA BALEARICA* L. 70, Cumb.; forming flat cushions on the red-sandstone walls about St Bees, 1943, C. D. PIGOTT, comm. A. J. WILMOTT.

103/7. *SAGINA OBLIATA* Fr. 34, W. Glos.; churchyard, Minchinhampton, 1941, a first record for Flora district 6. Still there in 1942 and 1943, G. C. POWNALL.

*103/8. *SAGINA APETALA* Ard. *104, N. Ebudes; Rhum, J. W. H. Harrison (1939E: 96).

*103/10. *SAGINA MARITIMA* G. Don. *104, N. Ebudes; Eilean nan Each, J. W. H. Harrison (1939E: 96).

103/11c. *SAGINA PROCUMBENS* L. var. *DAVIESII* Druce. 7, N. Wilts.; wall, Marlborough College, 1943 (*Rep. Marl. Coll. N.H.S., No. 92* (1944), 11, "a curious doubled specimen probably this variety"); "it is barren, and can only spread by vegetative means" (J. D. Grose; 1944: 347).

*104/2. *SPERGULA SATIVA* Boenn. 14, E. Suss.; in a sand bunker on the Nevill Golf Course near Tunbridge Wells, 1943, J. R. WALLIS. *47, Mont.; near Ffrwd Mawr, J. A. Webb (Wade and Webb, 1943: 56).

*105/3. *SPERGULARIA SALINA* Presl. *47, Mont.; scarce on the salt-ings near Dovey Junction, J. A. Webb (Wade and Webb, 1943: 56).

*105/5. *SPERGULARIA RUBRA* (L.) J. & C. Presl. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 280, as *S. campestris* (All.) Asch.).

*106/1. *POLYCARPON TETRAPHYLLUM* L. *104, N. Ebudes; "a single plant in a rock crevice along the Kinloch Burn, Rhum," J. W. H. Harrison (1939E: 96).

[*]108/2. *CLAYTONIA PERFOLIATA* Donn. 22, Berks.; two or three plants at Sunninghill Park, 1944, D. McClinTOCK. [*]H.13, Carlow; Borris, 1940-44, abundant in a Rhododendron bed, probably introduced with the Rhododendrons from Bagshot, Miss E. RAWLINS.

*109/1. *MONTIA FONTANA* L. *45, Pemb.; Caniston Woods, near Haverfordwest, 1944, Mrs F. L. REES, comm. NAT. MUS. WALES.

111/2. *ELATINE HEXANDRA* DC. 49, Carn.; abundantly in Llyn Glasfryn, 1942, and Ystumlyn, near Criccieth, 1943, J. A. WHELLAN.

†112/5. *HYPERICUM CALYGINUM* L. 47, Mont.; Fron, Derwenlas and Llandinam, J. A. Webb (Wade and Webb, 1943: 56).

112/12. *HYPERICUM DUBIUM* Leers. 30, Beds.; Byslip Wood, Studham, 1943, J. G. DONY.

*112/14. *HYPERICUM PERFORATUM* L. *104, N. Ebudes; Rhum, J. W. H. Harrison (1939E: 97).

†113/2. *MALOPE TRIFIDA* Cav. 33, E. Glos.; in field of kale, Fiddington, Tewkesbury, 1944, C. W. BANNISTER, comm. W. R. PRICE, det. at Kew.

†116/2. *LAVATERA SYLVESTRIS* Brot. 45, Pemb.; cliffs at Tenby, 1941, thoroughly naturalised, E. VACHELL.

117/1b. *MALVA MOSCHATA* L. var. *HETEROPHYLLA* Lej. & Court. 34, W. Glos.; English Bicknor, 1944, S. G. CHARLES, comm. W. R. PRICE.

*117/3. *MALVA NEGLECTA* Wallr. *H.13, Carlow; quai R. Barrow at St Mullins, 1940-1943, Miss E. RAWLINS (as *M. rotundifolia* L.).

*123/1. *TILIA PLATYPHYLLOS* Scop. 36, Heref.; a fine tree on the edge of Frith Wood near Ledbury, 1944, A. J. WILMOTT. *47, Mont.; steep banks of the Severn at Milford, probably native, and near Llandyssil and Brynmeurig, probably planted, J. A. Webb (Wade and Webb, 1943: 56). †64, M.W. Yorks.; ravine, Hackfall near Masham, 1944, looking native, but probably planted, E. C. WALLACE.

*123/3. *TILIA CORDATA* Mill. 34, W. Glos.; Collinspark Wood, Upleadon, 1943, F. M. DAY. 36, Heref.; a fine tree in Frith Wood near Ledbury, 1944, A. J. WILMOTT. *47, Mont.; common in the west both as a native and as a planted tree, J. A. Webb (Wade and Webb, 1943: 56). 64, M.W. Yorks.; ravine, Hackfall, 1944; 65, N.W. Yorks.; Magdalen Banks, opposite Hackfall on rocky cliff above river Ure, 1944, E. C. WALLACE.

†125/4. *LINUM USITATISSIMUM* L. 3, S. Devon; Paignton, 1941, S. C. Patterson (*Trans. Devon. Ass. Adv. Sci.*, 75, 61: 1943). 47, Mont.; garden weed at Newtown, J. A. Webb (Wade and Webb, 1943: 57). 54, N. Lincs.; casual at Gt. Steeping, 1943, D. McCLINTOCK.

†127/2. *GERANIUM VERSICOLOR* L. 16, W. Kent; roadside grass verge at West Wickham, 1944, F. R. BROWNING (as *G. striatum* L.).

*127/4. *GERANIUM PRATENSE* L. *104, N. Ebudes; Rhum, J. W. H. Harrison (1939E: 97).

†127/5. *GERANIUM PHAEUM* L. 43, Radn.; naturalised fairly plentifully in hedge near Old Radnor, 1943, J. A. WHELLAN. 47, Mont.; hedge-bank near the church, Forden, 1943, J. BEDFORD, comm. A. J. WILMOTT.

*127/7. *GERANIUM PYRENAICUM* Burm. f. 8, S. Wilts; Larkhill, 1943, probably only casual here, D. McCLINTOCK. *47, Mont.; Newtown and Breidden, J. A. Webb (Wade and Webb, 1943: 57).

*127/8. *GERANIUM COLUMBINUM* L. *47, Mont.; Aberbechan, Cem-maes and Dovey Junction, J. A. Webb (Wade and Webb, 1943: 57).

127/10b. *GERANIUM MOLLE* L. var. *AEGUALE* Bab. 47, Mont.; Newtown and near Brynderwen, J. A. Webb (Wade and Webb, 1943: 57).

*127/11. *GERANIUM ROTUNDIFOLIUM* L. 16, W. Kent; Upper Halling, on gravel by chalk pit, abundant, 1943, F. ROSE. *H.11, Kilkny.; near old kiln, on banks of R. Nore at Russelstown above New Ross, 1941-44, Miss E. RAWLINS, det. R. L. PRAEGER.

*127/12. *GERANIUM PUSILLUM* L. *110, O. Hebr.; S. Uist, J. W. H. Harrison (1941B: 236). *H.13, Carlow; waste ground, roadside, Ballyellen (near Gore's bridge), 1944, Miss E. RAWLINS, seen by R. LL. PRAEGER.

*127/13. *GERANIUM LUCIDUM* L. *H.13, Carlow; walls and roadside in village of Borris, 1939-44, Miss E. RAWLINS.

127/14. *GERANIUM ROBERTIANUM* L.—with white flowers. 3, S. Devon; Whympston, Modbury, 1943, E. M. PHILLIPS.

127/15. *GERANIUM PURPUREUM* Vill. emend. 2, E. Cornw.; abundant in two places (with *G. Robertianum* L.) in hedges near Polzeath, 1943, Miss C. LONGFIELD.

†127/16. *GERANIUM MACRORRHIZUM* L. 3, S. Devon; "in great abundance on North Hill, Withycombe, called by the common people, 'Valey Ann'," Rev. W. A. Neck (*Trans. Devon Ass. Adv. Sci.*, 75, 60: 1943).

†127/19. *GERANIUM NODOSUM* L. 34, W. Glos.; Upper Redbrook, 1944, S. G. CHARLES, comm. W. R. PRICE.

†127/24. *GERANIUM IBERICUM* Cav. 35, Mon.; near the school, Cwmyoy, 1942, S. G. CHARLES, comm. NAT. MUS. WALES.

†130/2. *TROPAEOLUM MAJUS* L. 47, Mont.; alien, Newtown, J. A. Webb (Wade and Webb, 1943: 57).

132/1b. *OXALIS ACETOSELLA* L. var. *SUBPURPURASCENS* DC. 36, Heref.; near Snodhill, not very far from the Radnor border, Dr Gray, of Dorstone, "the purple variety," new to v.-c. 40 (*Trans. Woolhope Nat. F.C. for 1933-35*, 163: 1935)—[Wi.].

*†132/2. *OXALIS CORNICULATA* L. *35, Mon.; Hadnock Road, Monmouth, 1942, S. G. CHARLES, comm. NAT. MUS. WALES. *47, Mont.; Llanfair Caereinion and Four Crosses, J. A. Webb (Wade and Webb, 1943: 57).

†133/2. *IMPATIENS BIFLORA* Walt. 12, N. Hants.; by the R. Enborne near Newbury, 1944, H. WHEELER (as *I. fulva*), comm. A. J. WILMOTT.

†133/3. *IMPATIENS PARVIFLORA* DC. 21, Middx.; waste land by the river at Chiswick, 1944, D. H. KENT.

*†133/4. *IMPATIENS ROYLEI* Walp. 44, Carm.; near Llandyrri, 1943, J. F. JONES, comm. NAT. MUS. WALES. *47, Mont.; near Meifod and abundant by the Tanat at Penybont Fawr, J. A. Webb (Wade and Webb, 1943: 57). *106, E. Ross; seen escaped just E. of the station at Evan-ton, 1943, A. J. WILMOTT. *H.11, Kilkny.; river banks Nore Woodstock demesne. 1940-44, Miss E. RAWLINS. *H.13, Carlow; banks of small stream near Borris, 1942, Miss E. RAWLINS.

136/1b. *ILEX AQUIFOLIUM* L. var. *LAURIFOLIUM* Lej. 47, Mont.; Cefn-bryn-talc, near Llandyssil, Tref Caereinion and Berriew, J. A. Webb (Wade and Webb, 1943: 57).

†137/3. *Evonymus japonicus* L. 44, Carm.; tip between Stradey and Sandy, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

138/1. *RHAMNUS FRANGULA* L. 16, W. Kent; in flower and fruit on the same branches, Hook Green, near Lamberhurst, 21.8.1943, J. E. LOUSLEY and J. R. WALLIS.

†138/3. *RHAMNUS ALATERNUS* L. 41, Glam.; scree at the foot of Penarth Head, 1943, A. E. WADE.

†140/3. *VITIS THUNBERGII* (S. & Z.) Druce. 47, Mont.; abundant on the Severn banks at Newtown and on tips at Caersws, J. A. Webb (Wade and Webb, 1943: 57).

142/2. *ACER CAMPESTRE* L. H.12, Wexford; woods and hedges near Pilltown in Barrow Estuary, 1942-44, Miss E. RAWLINS.

†142/3. *ACER PLATANOIDES* L. 47, Mont.; common as a planted tree in the Llangwnog area, seedlings at Bont Dolgadfan, J. A. Webb (Wade and Webb, 1943: 57).

*147/1b. *GENISTA ANGLICA* L. var. *SUBINERMIS* Rouy & Fouc. *98, Argyll M.; moorland beside Loch Ba, Rannoch Moor, 1943, E. C. WALLACE.

147/2. *GENISTA PILOSA* L. 14, E. Suss.; above Newbridge, about a dozen bushes: above Chuck Hatch, only one plant: by Gill's Lap Quarry: all 1944, fortunately surviving damage in the Ashdown Forest area from military operations, F. ROSE, J. R. WALLIS, and C. WEST.

*151/1. *ONONIS RECLINATA* L. *110, O. Hebr.; Vatersay, a very few plants on a grassy bank on the south side of Vatersay Bay, collected in 1939 but under study for some years: "chromosome number very much higher than those of the allied perennial species"—KING'S COLLEGE BIOLOGICAL EXPEDITION, comm. J. W. H. HARRISON.

*151/2. *ONONIS REPENS* L. *103, M. Ebudes; Tirez, J. W. H. Harrison *et al.* (1941C: 281). *110, O. Hebr.; Vatersay, J. W. H. Harrison (1941B: 236).

151/2b. *ONONIS REPENS* L. var. *HORRIDA* Lange. 3, S. Devon; near Gnaton, Newton Ferrers, 1943, E. M. PHILLIPS.

†152/12. *TRIGONELLA HAMOSA* L. 16, W. Kent; Beckenham Place Park, 1934, E. J. BUNNETT, det. J. E. LOUSLEY.

153/7e. *MEDICAGO LUPULINA* L. var. *WILLDENOWIANA* Koch. 35, Mon.; grass verge, roadside, Staunton Road, Monmouth, 1942, R. LEWIS, det. A. J. WILMOTT. 39, Staffs.; roadside, Stanton: roadside on the Westlands estate, Newcastle: border of cultivated field, Maer, 1941, E. S. EDEES (in *Trans. N. Staffs. Field Club*, 1941-42). 44, Carm.; Pantyffynnon, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 50, Denb.; Llangollen, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

*†154/2. *MELILOTUS ALBA* Desf. 13, W. Suss.; Patcham, 1939 and 1941, L. A. W. BURDER. 14, E. Suss.; one plant in Buckhurst Park, 1944, D. McCLINTOCK. 21, Middx.; on a bombed site, Lupus St., London, S.W.1, 1943, D. McCLINTOCK: back of Natural History Museum, S. Kensington, 1943, one plant, A. J. WILMOTT. *H.13, Carlow; tow-path of R. Barrow (tidal), Graig-na-Managh, 1942, Miss E. RAWLINS.

*†154/3. *MELILOTUS ARVENSIS* Wallr. *44, Carm.; Pantyffynnon, 1944, J. A. WEBB, comm. NAT. MUS. WALES. *H.13, Carlow; banks of R. Barrow at Graig-na-Managh and Sligoff, 1942, Miss E. RAWLINS, seen by R. LL. PRAEGER.

*†154/4. *MELILOTUS INDICA* (L.) All. *47, Mont.; Llansantffraid-yn-Mechain, J. A. Webb (Wade and Webb, 1943: 57).

155/1. *TRIFOLIUM MEDIUM* (L.) Huds. H.13, Carlow; banks of R. Slaney near Newtownbarry, 1942, Miss E. RAWLINS.

155/2c. *TRIFOLIUM PRATENSE* L. var. *PARVIFLORUM* Bab. 13, W. Suss.; a few plants on waste land, Hove, 1943, L. A. W. BURDER, det. at Kew.

[*]†155/7. *TRIFOLIUM ARVENSE* L. [*]35, Mon.; Newport Docks, 1943, JOHN MACQUEEN, comm. NAT. MUS. WALES.

[*]155/9. *TRIFOLIUM BOCCONI* Savi. [*]103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 282)—[found mixed with dried specimens of *T. fragiferum*; needs confirmation—Ed.].

155/10. *TRIFOLIUM SCABRUM* L. 54, N. Lincs.; Skegness, in small quantity on both golf courses, 1943, D. McCLINTOCK.

*155/11. *TRIFOLIUM STRIATUM* L. *47, Mont.; cornfield, Llanllwchaiarn, J. A. Webb (Wade and Webb, 1943: 57).

155/12. *TRIFOLIUM SUBTERRANEUM* L. 25, E. Suff.; in turf near Bussock House, Sutton Common, 1944, J. A. WHELLAN.

*155/13. *TRIFOLIUM FRAGIFERUM* L. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 282).

†155/15. *TRIFOLIUM HYBRIDUM* L. H.11, Kilkny; Rosbercon, etc., 1940-44, Miss E. RAWLINS. H.13, Carlow; Borris, etc., 1940-44, Miss E. RAWLINS.

*155/20. *TRIFOLIUM CAMPESTRE* Schreb. 14, E. Suss.; in some abundance on a roadside bank near Eridge Station, 1943, a rare plant in this part of the county and in the neighbouring parts of Kent, J. R. WALLIS (as *T. procumbens* L.). *47, Mont.; frequent, near Llanllwchaiarn, etc., J. A. Webb (Wade and Webb, 1943: 57, as *T. procumbens* L.).

155/21b. *TRIFOLIUM DUBIUM* Sibth. var. *PYGMÆUM* Soy.-Will. 34, W. Glos.; Berry Hill and Bream Meads, flowers pale yellow, 1944, S. G. CHARLES, comm. W. R. PRICE. 47, Mont.; Montgomery Castle and Careghofa, J. A. Webb (Wade and Webb, 1943; 57).

166/1. *ASTRAGALUS GLYCYPHYLOS* L. 16, W. Kent; edge of Mereworth Park: Downs above Ryarsh: abundant near East Malling: all 1943, in Kent seeming equally at home on chalk or the calcareous Ragstone of the Lower Greensand, F. ROSE. 36, Heref.; Conigree Wood, also hedgeside near Gurney's Quarry, Ledbury, 1944, A. J. WILMOTT (shown by W. G. GREAVES).

166/3. *ASTRAGALUS DANICUS* Retz. 71, Man.; plentiful at Langness near St Michaels Island, 1937, J. A. WHELLAN.

176/8b. *VICIA SEPIUM* L. var. *OCHROLEUCA* Bast. 6, N. Som.; hedgerow near Winford, 1943, S. M. WALTERS (Sandwith, 1944: 472).

[*]†176/9. *VICIA LUTEA* L. 46, Card.; Llanbadarn, 1936, J. H. SALTER, comm. NAT. MUS. WALES. [*]H.13, Carlow; barley-field near Newtownbarry, 1942, gone in 1943, Miss E. RAWLINS, det. R. LL. PRAEGER, new to Ireland.

†176/21. *VICIA MONANTHA* Retz. (*V. CALCARATA* Desf.). 39, Staffs.; Wetmore Road (G.N.) railway sidings, Burton-on-Trent, 1936, J. E. LOUSLEY and R. C. L. BURGESS, det. J. P. M. BRENNAN (nomenclature according to Post, *Fl. Syr. Palest. and Sinai*, ed. 2.)

†177/1a. *LENS CULINARIS* Medik. ssp. *ESCULENTA* (Moench) Briq. 12, N. Hants; waste ground, Basingstoke, 1941, N. E. G. CRUTTWELL. 16, W. Kent; Beckenham Place Park, 1934, E. J. BUNNETT, det. J. E. LOUSLEY.

*†178/1. *LATHYRUS LATIFOLIUS* L. 41, Glam.; near St Mary's Well Bay, 1944, A. E. WADE. *47, Mont.; Scafell, Llandysilio, Fron, Tylwch and Hodley, chiefly a garden escape, but probably introduced at Scafell, J. A. Webb (Wade and Webb, 1943: 58).

*+178/3. *LATHYRUS TUBEROSUS* L. *37, Worcs.; on a farm at Badsey, 1941, A. E. JONES (*Trans. Worc. Nat. Club*, 9, 301).

*+178/7. *LATHYRUS HIRSUTUS* L. *33, E. Glos.; Ashchurch, 1941, C. W. BANNISTER (A. J. WILMOTT, 1944: *J.B.*, 80, 135). *H.13, Carlow; barley-field near Newtownbarry, 1942, gone in 1943—not H.12, as printed in 1941-42 *Rep.*, Miss E. BOOTH, comm. Miss E. RAWLINS.

178/8. *LATHYRUS NISSOLIA* L. 8, S. Wilts.; Larkhill, 1943, D. McCINTOCK.

[*]+178/9. *LATHYRUS APHACA* L. [*]H.13, Carlow; barley-field on the Carlow side of Newtownbarry, with *Vicia lutea* and *Lathyrus hirsutus*, 1942, gone in 1943, Miss E. BOOTH, comm. Miss E. RAWLINS—see last Report, p. 486: H.12 in error.—ED.

+178/14. *LATHYRUS SETIFOLIUS* L. 16, W. Kent; Beckenham Place Park, 1934, E. J. BUNNETT, det. J. E. LOUSLEY.

+179/1. *GLYCINE SOJA* S. & Z. 35, Mon.; Newport Docks, 1942, JOHN MACQUEEN, comm. NAT. MUS. WALES.

+180/1. *PISUM ARVENSE* L. 47, Mont.; Cornfield south of Newtown, and Aberbechan, J. A. WEBB (Wade and Webb, 1943: 58).

+181/1. *PHASEOLUS VULGARIS* L. 35, Mon.; Newport Docks, 1942, JOHN MACQUEEN, comm. NAT. MUS. WALES.

+183/1. *PRUNUS LAUROCERASTUS* L. 47, Mont.; common as a planted shrub, producing seedlings and abundant in woods around Pennant, near Llanidloes, and Mount Severn Woods, J. A. WEBB (Wade and Webb, 1943: 58).

*+183/5. *PRUNUS DOMESTICA* L. *47, Mont.; near Newtown, Fron and Machynlleth, J. A. WEBB (Wade and Webb, 1943: 58).

+183/9. *PRUNUS SEROTINA* Ehrh. 41, Glam.; two bushes in Moorlakes Wood near Ilston, in full flower in June 1942, J. P. M. BRENNAN.

+184/7. *SPIRAEA OPULIFOLIA* L. 86, Stirl.; old mill-dam, Clober, 1942 (*Glasgow Nat.*, 14, 89, 1943).

*+184/10. *SPIRAEA SALICIFOLIA* L. 35, Mon.; near Lady Mill, Moun-ton, 1944, A. E. WADE. *47, Mont.; Fron, Garthmyl and near Derwenlas, J. A. WEBB (Wade and Webb, 1943: 58). *86, Stirl.; old mill-dam near Clober, 1942 (*Glasgow Nat.*, 14, 89, 1943).

184/11b. *SPIRAEA ULMARIA* L. var. *DENUDATA* Boenn. 33, E. Glos.; Vicarage Road, Painswick, 1943, F. M. DAY.

185/5. *RUBUS SULCATUS* Vest. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 283)—new to v.-c.

185/7. *RUBUS NITIDUS* W. & N. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 283)—new to v.-c.

185/11. *RUBUS ALTIARCUATUS* Barton & Ridd. 6, N. Som.; side of Blackdown on Mendip, towards Tynning's Farm, 1940, J. P. M. Brenan and Rev. N. E. G. Cruttwell, det. Wm. Watson as *R. rotundatus* P. J. Muell. ex Genev. (Sandwith, 1944: 472)—new to v.-c.

185/24. *RUBUS OXYANCHUS* Sudre. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 283)—new to v.-c.

†185/38. *RUBUS LACINIATUS* Willd. 59, S. Lancs.; naturalised in some quantity on waste ground at Bickerstaffe, 1943, J. A. WHELLAN.

185/45(2). *RUBUS PROPINQUUS* P. J. Muell. 35, Mon.; Rumney, 1942, A. E. WADE, det. WM. WATSON—new to v.-c.

185/46(3). *RUBUS BIFRONS* Vest. 35, Mon.; Daran Road, Risca, 1942, A. E. WADE, det. WM. WATSON—new to v.-c.

185/56b. *RUBUS SCHLECHTENDALII* Weihe var. *ANGLICUS* Sudre. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 283)—new to v.-c.

185/61. *RUBUS ORTHOCLADUS* Ley. 35, Mon.; Pennsylvania, near Castleton, 1941, A. E. WADE, det. WM. WATSON as *R. bracteosus* Weihe—new to v.-c.

185/71. *RUBUS MACROTHYRSUS* Lange. 35, Mon.; Cross Keys, and between Risca and Rogerstone, 1942, A. E. WADE, det. WM. WATSON—new to v.-c.

185/76. *RUBUS ADENANTHUS* Boul. & Gil. 35, Mon.; Castleton, 1941, A. E. WADE, det. WM. WATSON. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 283)—new to both v.-cc.

185/90. *RUBUS RADULA* Weihe. 103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 283)—new to v.-c.

185/92(2). *RUBUS GENEVIERII* Bor. 35, Mon.; Cross Keys and near St Mellons, 1942, A. E. WADE, det. WM. WATSON—new to v.-c.

185/133b. *RUBUS MARSHALLI* Focke & Rogers var. *SEMIGLABER* Rogers. 35, Mon.; between St Mellons and Llanrumney, and Whitson, 1942, A. E. WADE, det. WM. WATSON—new to v.-c.

185/140b. *RUBUS ROTUNDIFOLIUS* Bab. ex Blox. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 283) [cf. 1937 *Rep.*, 446 and 569—Ed.]—new to v.-c.

185/143. *RUBUS ACUTIFRONS* Ley. 35, Mon.; Darren Road, Risca, and between Risca and Cross Keys, 1942, A. E. WADE, det. WM. WATSON—new to v.-c.

185/149j. *RUBUS DUMETORUM* W. & N. var. *TRIANGULARIS* Ley. 35, Mon.; Rumney and Castleton, 1941, A. E. WADE, det. WM. WATSON (as *R. tenuiarmatus* E. Lees).

185/149i. *RUBUS DUMETORUM* W. & N. var. *RUBRIFLORUS* Purchas. 35, Mon.; Castleton, 1941, A. E. WADE, det. WM. WATSON.

185/151c. *RUBUS CORYLIFOLIUS* Sm. var. *CONJUNGENS* Bab. 103, M. Ebudes; Tیره, J. W. H. Harrison *et al.* (1941C: 283, as *R. conjungens* Bab.)—new to v.-c.

†185/156. *RUBUS SPECTABILIS* Pursh. 100, Clyde Is.; Arran, Glen Rosie, 1944, comm. A. J. WILMOTT (specimen received via A. G. Tansley and H. Gilbert Carter).

†185/159. *RUBUS PHOENICOLASIS* Maxim. 36, Heref.; Dog Hill Wood, Ledbury, 1944, Miss K. M. NORMAN, comm. A. J. WILMOTT: a single weak plant in heavy shade in natural oak-hazel wood. My friend W. G. Greaves at my request sought it in gardens of the neighbourhood and found it about 100 yards away in Miss Collins' garden at "The Windway, Upperfields": Miss Collins had removed it from her former residence, "The Willows, The Homend, Ledbury," where it was brought from "Underdown" by the previous occupier, gardener to Mr S. H. Bickham, who originally introduced it.

187/2. *GEUM RIVALE* L. 30, Beds.; Fancott, Toddington, 1941, J. G. DONY.

188/1. *FRAGARIA MOSCHATA* Duchesne. 50, Denb.; Llangollen, 1943, T. R. HODGES, comm. NAT. MUS. WALES.

†188/3. *FRAGARIA INDICA* Andrews. 3, S. Devon; escaped at Ivybridge, 1941, E. M. PHILLIPS.

†188/4. *FRAGARIA CHILOENSIS* Duchesne. 47, Mont.; Scafell, Berriew, Pontdolgoch to Clatter and near Llanfechain, J. A. Webb (Wade and Webb, 1943: 58).

*189/2. *POTENTILLA RUPESTRIS* L. *47, Mont.; seen by me and others on the Breidden in the last decade: correct *C.F.*, i.e. for 48 read 47 and remove from brackets.—A. J. WILMOTT.

189/6. *POTENTILLA VERNA* L. 36, Heref.; summit of Bradlow Knoll, near Ledbury, 1944, showing a flower on 9th August, A. J. WILMOTT. 39, Staffs.; Waterhouses, 1943, E. S. EDEES.

189/7. *POTENTILLA REPTANS* L. 103, M. Ebudes; Coll, Tيرة, and Gunna, J. W. H. Harrison *et al.* (1941C: 283)—shown for 103 in *C.F.*, Ed.

*189/8. *POTENTILLA PROCUMBENS* Sibth. 14, E. Suss.; field near the High Rocks, H. W. PUGSLEY and J. R. WALLIS. 21, Middx.; a large patch on grass at front of Natural History Museum, S. Kensington, 1943, A. J. WILMOTT. 36, Heref.; abundant on Monument Hill (Malvern Range), 1944, A. J. WILMOTT. *47, Mont.; Dolfor, J. A. Webb (Wade and Webb, 1943: 58). Not given for v.-c. 47 in *C.F.* and bracketed as doubtful in Hyde and Wade, *Welsh Fl. Plants*—brackets removed in annotated *C.F.* *104, N. Ebudes; Canna, J. W. H. Harrison (1939E: 100).

†189/11. *POTENTILLA NORVEGICA* L. 35, Mon.; Redbrook, 1937, S. G. CHARLES, COMM. NAT. MUS. WALES.

189/25b. *POTENTILLA PALUSTRIS* (L.) Scop. var. *VILLOSA* (Lehm.) Druce. 50, Denb.; Vron, 1943, J. A. WEBB, COMM. NAT. MUS. WALES.

*190/4. *ALCHEMILLA PSEUDOMINOR* Wilmott. 36 Heref.; Fairy Glen, Conigree Wood, Ledbury, 1944, A. J. WILMOTT. *47, Mont.; by the railway line near Forden, 1943, J. BEDFORD, conf. and comm. A. J. WILMOTT ("f. *vegeta*"). *110, O. Hebr.; S. Uist, "var. *filicaulis* occurs also," J. W. H. Harrison (1941B: 239, as *A. minor* Huds.).

190/4(2). *ALCHEMILLA PSEUDOMINOR* Wilmott var. *FILICAULIS* (Buser) Wilmott. 103, M. Ebudes; J. W. H. Harrison *et al.* (1941C: 284, as *A. minor* var.). 104, N. Ebudes, Fionchra, J. W. H. Harrison (1939E: 100, as *A. minor* var.).

*190/9. *ALCHEMILLA ACUTIDENS* Buser (var. *ALPESTRIFORMIS* Salmon). *110, O. Hebr.; S. Uist and Berneray (Harris), J. W. H. Harrison (1941B: 239).

*191/2. *AGRIMONIA ODORATA* (Gouan) Mill. 55, Leics.; margin of Blakeshay Wood, Newtown Linford, 1943, F. A. SOWTER. *64, M.W. Yorks.; Hackfall and Scarah Moor near Ripley, 1943, E. C. WALLACE (*Nat.*, 1944: 18).

†193/2. *POTERIUM POLYGAMUM* W. & K. 35, Mon.; Rumney, 1922, A. E. WADE.

194/6a. *ROSA CANINA* L. var. *LUTETIANA* (Lem.) Baker. 47, Mont.; near Nantoer and Cemmas, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/6g. *ROSA CANINA* L. var. *FLEXIBILIS* (Déségl.) Rouy. 47, Mont.; between Talerddig and Carno, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/6i. *ROSA CANINA* L. var. *SENTICOSA* (Ach.) Baker f. *oxyphylla* (Rip.) W.-Dod. 33, E. Glos.; green lane leading to Sapperton Valley, near Sapperton, 1942, E. NELMES, det. N. Y. SANDWICH. 35, Mon.; edge of large clearing in Garth Wood, near Monmouth, 1944, R. LEWIS, det. R. MELVILLE.

194/6n. *ROSA CANINA* L. var. *GLOBULARIS* (Franch.) Dum. 35, Mon.; edge of Garth Wood, roadside, Staunton Road, Monmouth, 1944, R. LEWIS, det. R. MELVILLE.

194/6r. *ROSA CANINA* L. var. *RAMOSISSIMA* Rau. 47, Mont.; near Newtown, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/7. *ROSA CANINA* L. var. *DUMALIS* (Bechst.) Dum. 47, Mont.; Cemmaes, Tref Caereinion and Machynlleth, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/7d. *ROSA CANINA* L. var. *MEDIOXIMA* (Déségl.) Rouy. 33, E. Glos.; roadside about a mile W.N.W. of Daglingworth, 1942, E. NELMES, det. N. Y. SANDWICH.

194/8e. *ROSA CANINA* L. var. *VERTICILLACANTHA* (Mér.) Baker, forma. 33, E. Glos.; roadside hedge about a mile W. of North Cerney, 1942, E. NELMES, det. N. Y. SANDWICH.

194/9b. *ROSA CANINA* L. var. *BLONDAEANA* (Rip.) Rouy f. *VINACEA* (Baker) Rouy. 47, Mont.; near Machynlleth, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/9c. *ROSA CANINA* L. var. *BEATRICIS* Burn. & Greml. 66, Durham; old Target Heap, Birtley, "apparently a 'furthest north' record," J. W. H. Harrison (1942: *Vasc.*, 27, 23).

*194/10c. *ROSA DUMETORUM* Thuill. var. *SEMIGLABRA* Rip. *103, M. Ebudes; [no locality cited] J. W. H. Harrison *et al.* (1941C: 284).

*194/10g. *ROSA DUMETORUM* Thuill. var. *CALOPHYLLA* (Rouy.) W.-Dod. *47, Mont.; Nantoer, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/10h. *ROSA DUMETORUM* Thuill. var. *PLATYPHYLLA* (Rau.) W.-Dod. 47, Mont.; near Nantoer, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 58).

194/10m. *ROSA DUMETORUM* Thuill. var. *HEMITRICHA* (Rip.) W.-Dod. 35, Mon.; banks of R. Wye, between Hadnock Quarries and Symond's Yat, 1943, R. LEWIS, det. R. MELVILLE.

194/12e(2). *ROSA AFZELIANA* Fr. var. *GLAUCOPHYLLA* (Winch) W.-Dod. 33, E. Glos.; Welsh Way, about 3 m. N. of Cirencester, 1942, E. NELMES, det. N. Y. SANDWICH.

194/13f. *ROSA CORIIFOLIA* Fr. var. *BAKERI* (Déségl.). 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 284).

*194/14b. *ROSA MICRANTHA* Sm. var. *TYPICA* Chr. *47, Mont.; Ceinws, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 59).

194/14d. *ROSA MICRANTHA* Sm. var. *OPERTA* Pug. 35, Mon.; wood edge, Lady Park Wood, between Hadnock Quarries and Symond's Yat, 1943, R. LEWIS, det. R. MELVILLE—new to v.-c. 35, A. E. WADE.

194/19a. *ROSA TOMENTOSA* Sm. var. *TYPICA* W.-Dod. 47, Mont.; Llandinam, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 59). Recorded for v.-c. 47 in Hyde and Wade, *Welsh Fl. Plants* but not in *C.F.*

194/19 l. *ROSA TOMENTOSA* Sm. var. *DIMORPHA* (Bess.) Déségl. 47, Mont.; near Llanbrynmair, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 59).

194/20a. *ROSA SHERARDI* Davies var. *OMISSA* (Déségl.) W.-Dod. 35, Mon.; in hedge, roadside, Staunton Road, Monmouth, 1944, R. LEWIS, det. R. MELVILLE.

194/20b. *ROSA SHERARDI* Davies [var. *TYPICA* W.-Dod.]. 47, Mont.; near Newtown, J. A. Webb, det. E. B. Bishop (Wade and Webb, 1943: 59)—new to v.-c. 47, not listed separately in *C.F.*

194/20e. *ROSA SHERARDI* Davies var. *PSEUDOMOLLIS* (E. G. Baker). 35, Mon.; on rocky ledges, Taren-yr-Esgob, Black Mountains, near Llanthony, 1944, R. LEWIS, det. R. MELVILLE (as var. *typica* forma *pseudomollis* (E. G. Baker) W.-Dod.).

194/20k. *ROSA SHERARDI* Davies var. *CINERASCENS* (Dum.). 73, Kirke; Glenfair (1943: *Vasc.*, 28, 31).

194/21b. *ROSA MOLLIS* Sm. var. *TYPICA* W.-Dod. 103, M. Ebudes; Coll and Tiree, J. W. H. Harrison *et al.* (1941C: 284)—shown for 103 in *C.F.*—ED.

*194/23. *ROSA SPINOSISSIMA* L. *47, Mont.; Dolfor Main Road, J. A. Webb (Wade and Webb, 1943: 59, as var. *pimpinellifolia* (L.) Druce): limestone cliffs above Llanymynech, 1942, J. W. GOUGH and N. Y. SANDWICH.

*194/23x. ×*ROSA SABINI* Woods. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 285).

195/1b. *PYRUS MALUS* var. *PARADISIACA* L. 47, Mont.; Abermule, J. A. Webb (Wade and Webb, 1943: 59).

196/1k. *CRATAEGUS MONOGYNA* Jacq. var. *SPLENDENS* Druce. 17, Surrey; Warlingham, 1942, fruits 14 × 12 mm., C. E. BRITTON.

*196/2. *CRATAEGUS OXYACANTHOIDES* Thuill. *39, Staffs.; Seabridge Lane, Newcastle, 1942, E. S. EDEES, det. S. B. BATKO. *104, N. Ebudes; J. W. H. HARRISON (1939E: 102 as *C. Oxyacantha* L.).

*196/2b. *CRATAEGUS OXYACANTHOIDES* Thuill. var. *ERIOCALYX* (Frey) Druce. *69, Westm.; Brackember Wood, F. M. WILKINSON (1943: *Vasc.*, 28, 31, as *C. Oxyacantha* L. var. *eriocalyx* Dr.).

†196/6(2). *CRATAEGUS ORIENTALIS* M.B. 6, N. Som.; "Mr J. P. M. Brennan points out that this is the correct name for the tree on Shapwick Moor, which was recorded as *C. Azarolus* L. in 'Bristol Botany in 1920 and 1921.' The tree was still there in 1942" (Sandwith, 1943: 365).

*†197/2. *COTONEASTER MICROPHYLLA* Wallich. *47, Mont.; Derwenlas and Lower Aberangell, J. A. Webb (Wade and Webb, 1943: 59).

*†197/3. *COTONEASTER SIMONSII* Baker. *47, Mont.; Machynlleth area at Forge and Gelligoch, frequent in woods from Dolgadfan to Pennant, Llwycharreg and Derwenlas, J. A. Webb (Wade and Webb, 1943: 59).

199/7. *SAXIFRAGA PLATYPETALA* Sm. 110, O. Hebr.; around the summit of Beinn Mhor, S. Uist, 1944, N. POLUNIN, det. A. J. WILMOTT—leaves only; but not those of *S. hypnoides* L. *sensu stricto*.

[*]199/10. *SAXIFRAGA HYPNOIDES* L. [*]103, M. Ebudes; Coll, J. W. H. HARRISON *et al.* (1941C: 285)—[not seen, and cf. *B.E.C.* 1939 *Rep.*, 245, 1942]. [*]110, O. Hebr.; N. face of Beinn Mhor, S. Uist, HARRISON *et al.* (1944: 114)—[not seen, may be *S. platypetala* Sm.—A. J. WILMOTT].

199/17. *SAXIFRAGA GRANULATA* L. 35, Mon.; banks of River Wye, between Symond's Yat and Hadnock Quarries, near Monmouth, 1944, R. LEWIS. 64, M.W. Yorks.; in turf with *Viola lutea* and *Saxifraga hypnoides* on Greenhow Hill, Pateley Bridge, alt. c. 1300', 1943, E. C. WALLACE.

*199/20. *SAXIFRAGA TRIDACTYLITES* L. *47, Mont.; Careghofa quarries, J. A. Webb, 1940 (Wade and Webb, 1943: 59).

[*]†199/24. *SAXIFRAGA UMBROSA* L. [*]47, Mont.; hedges at Bont Dolgadfan, and lineside at Nantoer, J. A. Webb (Wade and Webb, 1943, 59).

203/1. *CHRYSOSPENIUM ALTERNIFOLIUM* L. 51, Flint; by a stream near Northop, plentifully, 1938, flowering earlier than *C. oppositifolium* L. which grows with it, J. A. WHELLAN.

207/2. *RIBES NIGRUM* L. 33, E. Glos.; Upcote, 1943, Miss L. ABELL.

*+207/5. *RIBES ALPINUM* L. *47, Mont.; Churchstoke in some quantity and near Machynlleth, J. A. Webb (Wade and Webb, 1943: 59).

+207/7. *RIBES SANGUINEUM* Pursh. 47, Mont.; rocky wood, New Mill, probably bird sown, J. A. Webb, 1940 (Wade and Webb, 1943: 59).

*209/1. *TILLAEA MUSCOSA* L. *6, N. Som.; Witham Park, 1944, Mrs J. D. GROSE, comm. J. D. GROSE. *8, S. Wilts.; near Yarnfield Gate, 1944, J. D. GROSE.

*211/1. *SEDUM PURPUREUM* Link. 22, Berks.; Nine-mile Ride, Wokingham, 1944, D. McCLINTOCK (as *S. Telephium*). *86, Stirl.; Helensburgh, 1941 (*Glasgow Nat.*, 14, 89, 1943, as *S. Telephium* L.).

+211/1(2). *SEDUM SPURIUM* M.B. 47, Mont.; naturalised at Kerry and Penstrowed, J. A. Webb (Wade and Webb, 1943: 59).

*211/2. *SEDUM RUPESTRE* L. *H.11, Kilkny.; on rocks, Rosbercon, Bearstown, Carrigcloney, etc., 1940-44, Miss E. RAWLINS, det. R. LL. PRAEGER.

+211/3. *SEDUM REFLEXUM* L. 47, Mont.; rocks below Montgomery Castle, 1943, J. BEDFORD, comm. A. J. WILMOTT.

+211/7. *SEDUM ALBUM* L. 47, Mont.; wall, Welshpool, 1943, J. BEDFORD, det. and comm. A. J. WILMOTT. H.12, Wexford; Arthurs-town, 1940-44, Miss E. RAWLINS.

+212/1. *SEMPERVIVUM TECTORUM* L. 41, Glain.; on farm building wall, Llanishen, 1944, well naturalised, but scarce in the vice-county, E. VACHELL.

213/2×3. *DROSERA LONGIFOLIA* L. × *D. ROTUNDIFOLIA* L. 46, Card.; Borth Bog, J. H. SALTER (1941: *N.W. Nat.*, 16, 92);—leaves nearly as in *D. longifolia* but sometimes dilated distally; scape twice the length of the leaves, A. J. WILMOTT.

*216/1. *MYRIOPHYLLUM SPICATUM* L. *47, Mont.; Newtown, Machynlleth and Llanllwchaiarn, J. A. Webb (Wade and Webb, 1943: 60). *71, Man; Puill-dooey, Ramsey, 1943, C. I. PATON, comm. A. J. WILMOTT—add to *C.F.* but see Paton (1933: *N.W. Nat.*, 569) for previous record, Ed.

216/2. *MYRIOPHYLLUM ALTERNIFLORUM* DC. 34, W. Glos.; Wye at Symonds Yat, 1943, first record for Flora district 4, S. G. CHARLES, comm. W. R. PRICE. 98, Argyll M.; Loch Tulla and Loch Ba, 1943; E. C. WALLACE.

*216/3. *MYRIOPHYLLUM VERTICILLATUM* L. *35, Mon.; reens, White-wall Common, Magor, 1944, R. LEWIS.

*217/2. *CALLITRICHE OBTUSANGULA* Le Gall. 63, S.W. Yorks.; ditch near R. Torne, Hatfield Woodhouse, 1944, J. M. Taylor (*Nat.*, 1945, 23). *66, Durham; in a ditch on Birtley Fell, now destroyed by a new road, J. W. H. Harrison (1942: *Vasc.*, 27, 7).

*217/6. *CALLITRICHE AUTUMNALIS* L. *39, Staffs.; Lichfield canal, Whittington, 1943, R. C. L. BURGESS, det. J. E. LOUSLEY. Specimens sent to me had smaller fruit and no wing to the keel of the fruit: is *C. truncata* Guss. growing there also? A. J. WILMOTT. *47, Mont.; in quantity in the canal between Welshpool and Pool Quay, J. A. Webb (Wade and Webb, 1943: 60). 67, Northumb. S.; in Bolan Lake, the only other habitat in v.-c. 67—Prestwick Carr—"long since destroyed," Miss K. B. Blackburn (1942: *Vasc.*, 27, 6); common in Crag Lough, J. W. H. Harrison and W. A. Clark (*Vasc.*, 27, 32). *103, M. Ebudes; Tیره, J. W. Harrison *et al.* (1941C: 286).

218/1. *PEPLIS PORTULA* L. 64, M.W. Yorks.; roadside hollows near Blubberhouses; 65, N.W. Yorks.; Pillmore Carr near Sharrow; both 1943, E. C. WALLACE.

220. *EPILOBIUM*. All records from v.-cc. 3, 7, 8, 20, 30, 101, and all from J. E. Lousley, det. or confirmed by G. M. Ash.

*220/1. *EPILOBIUM ANGUSTIFOLIUM* L. *H.11, Kilkny.; woods, Dysertmore and Carrig-a-Neal, 1940-44, Miss E. RAWLINS. *H.13, Carlow; woods of Borris demesne, 1940-44, Miss E. RAWLINS.

*220/3. *EPILOBIUM HIRSUTUM* L. *110, O. Hebr.; a single plant in a marsh near Lochboisdale, S. Uist, R. B. Cooke (1944: *Vasc.*, 29, 6).

*220/5. *EPILOBIUM TETRAGONUM* L. 30, Beds.; Dunton, 1942: Aspley Wood, 1943, J. G. DONY. *110, O. Hebr.; Eriskay and S. Uist, J. W. Harrison (1941B: 242).

*220/6. *EPILOBIUM LAMYI* F. Schultz. *110, O. Hebr.; Fuday, Eriskay, and S. Uist, J. W. H. Harrison (1941B: 242).

220/7. *EPILOBIUM OBSCURUM* Schreb. 101, Cant.; deserted garden, Dunmore House, W. Loch Tarbert, 1944, J. S. L. GILMOUR.

220/7×10. *EPILOBIUM MONTANUM* L. × *OBSCURUM* Schreb. 101, Cant.; deserted garden, Dunmore House, W. Loch Tarbert, 1944, J. S. L. GILMOUR.

*220/7(2). *EPILOBIUM ADENOCAULON* Hausskn. *7, N. Wilts.; Coate Water, 1944, J. D. GROSE. 16, W. Kent; in abundance by the River Medway between Hartlake Bridge and Tonbridge, 1943, J. R. WALLIS: ride in Chevening Park, 1943, J. E. LOUSLEY and R. C. L. BURGESS.

17, Surrey; roadside near Worplesdon, 1943, J. E. LOUSLEY, R. C. L. BURGESS and R. H. HALL: dried-up bed of Fetcham Mill-pond, 1944, J. E. LOUSLEY. 30, Beds.; Deadmansea Wood, Whipsnade, 1940, V. H. CHAMBERS: Hinwick, Podington, 1941, J. G. DONY: Coopers Hill, Ampthill, 1941, V. H. CHAMBERS and J. G. DONY: Fancott, 1942, A. J. WILMOTT: Aspley Wood, 1943, J. G. DONY: Rushmere, Heath and Reach, 1944, E. MILNE-REDHEAD and J. G. DONY: Tingnath, 1944, E. MILNE REDHEAD. *36, Heref.; wooded bank by main road from Monmouth to Ross, near Ganarew, 1944, J. W. GOUGH and N. Y. SANDWICH. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 286). *110, O. Hebrides; S. Uist, J. W. H. Harrison (1941B: 242).

220/7(2)×10. *EPILOBIUM ADENOCALON* Haussk. × *E. MONTANUM* L. 30, Beds.; Deadmansea Wood, Whipsnade, 1942, V. H. CHAMBERS and J. G. DONY: Marston Thrift, 1943, J. G. DONY.

*220/8. *EPILOBIUM ROSEUM* Schreb. 3, S. Devon; air-raid debris, Plymouth, 1943, E. M. PHILLIPS. *7, N. Wilts.; wall top near Christ Church, Swindon, 1943 [J. D. Grose] (*Rep. Marl. Coll. N.H.S., No. 92* (1944) 11); the first certain record for v.-c. 7 (J. D. Grose: 1944: 347). 20, [Beds.]; Ravensdell Wood, Studham, 1942, J. G. DONY. 21, Middx.; under wall near Tower of London, 1943, J. E. LOUSLEY. 30, Beds.; Billington, 1940, V. H. CHAMBERS and J. G. DONY: Greenfield Hill, 1940, V. H. CHAMBERS: Harborne Crawley, 1942, V. H. CHAMBERS and J. G. DONY: Deadmansea Wood, Whipsnade, 1942: Aspley Wood, 1943, J. G. DONY. *44, Carm.; near Llanelly, 1944, J. A. WEBB, comm. NAT. MUS. WALES. *47, Mont.; garden weed at Newtown, and Meifod, J. A. Webb (Wade and Webb, 1943: 60). 64, M.W. Yorks.; Macker-shaw Wood, Ripon, 1943, E. C. WALLACE. *101, Cant.; Dunmore House, W. Loch Tarbert, 1944, J. S. L. GILMOUR.

*220/9. *EPILOBIUM LANCEOLATUM* Seb. & Maur. *8, S. Wilts.; Bower Chalke, 1943, J. D. GROSE (1944: *Wilts. A. and N.H.M.*, 347). 14, E. Sussex; Eridge Green, 1943, J. E. LOUSLEY and J. R. WALLIS. 16, W. Kent; Wingate Wood, North Halling, 1944, J. E. LOUSLEY, F. ROSE and C. WEST. 17, Surrey; near Hascombe, 1944, J. E. LOUSLEY and E. B. BISHOP.

220/10×4. *EPILOBIUM MONTANUM* L. × *E. PARVIFLORUM* Schreb. 17, Surrey; Greystone Limeworks, Merstham, 1943, J. E. LOUSLEY. 30, Beds.; Knotting, 1942, J. G. DONY.

220/10×7. *EPILOBIUM MONTANUM* L. × *E. OBSCURUM* Schreb. 30, Beds.; Marston Thrift, 1943, J. G. DONY: Aspley Wood, 1943, J. G. DONY.

220/10×8. *EPILOBIUM MONTANUM* L. × *ROSEUM* Schreb. 64, M.W. Yorks.; garden weed, Headingley, Leeds, 1944, W. A. Sledge (*Nat.*, 1945: 23).

220/12. *EPILOBIUM ALSINIFOLIUM* Vill. 65, N.W. Yorks.; Brant Side, Upper Dentdale, 1944, W. A. Sledge (*Nat.*, 1944: 144).

220/12×10. *EPILOBIUM ALSINIFOLIUM* Vill. × *MONTANUM* L. [85, N.W. Yorks.; "the Uldale plant so recorded in *Suppl. Yorks. Floras* has been seen by G. M. Ash, who refers it to *E. montanum*, but a single minute specimen from Cautley Spout (J.F.P., 20/8/02) so determined by F. A. Lees and C. E. Salmon may be correct"—W. A. Sledge (*Nat.*, 1945: 24).]

220/13. *EPILOBIUM ALPINUM* L. 110, O. Hebr.; Beinn Mhor, S. Uist, with broad leaves, Harrison *et al.* (1944: 114, as *E. anagallidifolium* Lam.).

+220/15. *EPILOBIUM NUMMULARIFOLIUM* R. Cunn. 41, Glam.; rubbish tip, Fochriw, 1944, BRUCE CAMPBELL, comm. NAT. MUS. WALES. 69, Westm.; still on stony edge of stream just below Alcock Tarn, Grasmere, 1943, R. C. L. BURGESS (not Alcock Farm as in *B.E.C. 1929 Rep.*, 116). 75, Ayr; Skelmorlie, 1941 (*Glasgow Nat.*, 14, 89, 1943). 86, Stirl.; Bardowie, 1942 (*Glasgow Nat.*, 14, 90, 1943).

220/17. *EPILOBIUM PEDUNCULARE* A. Cunn. 65, N.W. Yorks.; Brant Side, Upper Dentdale, at 1200 ft., 1944, W. A. Sledge (*Nat.*, 1944: 144).

*+223/1. *OENOTHERA BIENNIS* L. *47, Mont.; railway banks, Dovey Junction, J. A. Webb (Wade and Webb, 1943: 60).

*225/2. *CIRCAEA CANADENSIS* Hill. *47, Mont.; very scarce by the Llyfnant Rock at Glaspwll, J. A. Webb (Wade and Webb, 1943: 60).

+239/1. *ERYNGIUM CAMPESTRE* L. 12, N. Hants.; [the station at S. Wonston was ploughed up in 1942, Hon. W. J. L. PALMER]: small increasing patch in cornfield, Mapledurwell, 1943 (Miss THORPE of Mapledurwell showed it to) N. E. G. CRUTTWELL.

244/1. *SMYRNIUM OLUSATRUM* L. 17, Surrey; Upper Selsdon Road, Croydon, 1943 and 1944, C. T. PRIME, comm. J. E. LOUSLEY.

*250/1. *CARUM CARVI* L. *104, N. Ebrides; amongst grass in the Kinloch Woods, Rhum, R. B. COOKE (1944: *Vasc.*, 29, 6).

250/2. *CARUM VERTICILLATUM* (L.) Koch. 101, Cant.; grassy place by West Loch Tarbert, 1944, J. S. L. GILMOUR.

*+250/3. *CARUM PETROSELINUM* (L.) B. & H. *48, Mer.; Dolgelly, J. A. WEBB, 1941, comm. DEPT. BOT., NAT. MUS. WALES.

250/4. *CARUM SEGETUM* (L.) B. & H. 55, (Rutland); near Tixover, 1943, A. E. WADE, comm. NAT. MUS. WALES.

251/1. *SISON AMOMUM* L. 63, S.W. Yorks.; abundant on heavy clay soil in lanes around Fishlake, near Doncaster, J. M. Taylor (*N.W. Nat.*, 18, 113).

†252/1. *FALCARIA VULGARIS* Bernh. 30, Beds.; Harrold, Miss G. H. DAY, 1941; Miss Day has known the plant in this locality since 1911; comm. J. G. DONY (as *Prionitis Falcaria* (L.) Dum.).

*253/2. *SIUM ERECTUM* Huds. *47, Mont.; in some quantity in the Shropshire Union Canal, much scarcer near Luggy, near Pool Quay and near Derwenlas, J. A. Webb (Wade and Webb, 1943: 60).

255/1. *PIMPINELLA MAJOR* Huds. 31, Hunts.; in shady osier-bed by the R. Ouse, Eynesbury, 1944, S. J. PECK, comm. A. J. WILMOTT.

*257/1. *MYRRHIS ODORATA* L. *47, Mont.; bank near Glanymrafon Halt: in profusion between Mount Pleasant and Llanfair Caereinion: by the Rhiew at New Mills and Manafon: Pedair Ffordd, J. A. Webb (Wade and Webb, 1943: 60): roadside at 800 ft. between Hirnant and Pen-y-bont-fawr, 1942, J. W. GOUGH and N. Y. SANDWITH. *104, N. Ebudes; Eigg and Canna, J. W. H. HARRISON (1939E: 104).

*258/2. *CHAEROPHYLLUM TEMULUM* L. *104, N. Ebudes; Eigg and Canna, J. W. H. HARRISON (1939E: 104). *H.12, Wexford; Killowen, 1944, Miss E. RAWLINS.

259/1. *SCANDIX PECTEN-VENERIS* L. 14, E. Suss.; cornfield near Eridge Station, 1943, a scarce species in this district, J. R. WALLIS.

*265/1. *OENANTHE AQUATICA* (L.) Poir. 33, E. Glos.; abundant in Coombe Hill Canal and adjoining rheens, 1941, E. NELMES. *35, Mon.; Coedkernew, Marshfield and St Brides, Hamilton (1909: *Flora of Mon.*, 33): near Pil-du, St Mellons, 1944, A. E. WADE.

265/4. *OENANTHE PIMPINELLOIDES* L. 33, E. Glos.; grassy meadow by Coombe Hill Canal, 1941, E. NELMES. 34, W. Glos.; fields near Severn Bridge, N.E. of Sharpness, 1942, E. NELMES.

*265/6. *OENANTHE LACHENALII* C. Gmel. *64, M.W. Yorks.; Farnham Mires and marshy ground north of Foster Flat between Copgrove and Bishop Monkton, 1943, E. C. WALLACE and W. A. SLEDGE (*Nat.*, 1944: 18)—add to *C.F.* but see *Top. Bot. Suppl.* (1905: 42) for previous record. 101, Cant.; brackish marsh, West Loch Tarbert, 1944, J. S. L. GILMOUR. *104, N. Ebudes; Rhum, J. W. H. HARRISON (1939E: 104).

†277/1. *HERACLEUM MANTEGAZZIANUM* S. & L. 47, Mont.; Pantyfrid and Meifod, J. A. Webb (Wade and Webb, 1943: 60).

277/2b. *HERACLEUM SPHONDYLIIUM* L. var. *ANGUSTIFOLIUM* Huds. 47, Mont.; not uncommon, Vastre, etc., J. A. Webb (Wade and Webb, 1943: 60).

†279/1. *CORIANDRUM SATIVUM* L. 19, N. Essex; in two cultivated fields near Coggeshall, where it was recorded by Ray, appearing well-established in one: one or two plants also by roadside at Marks Tey: 1944, J. A. WHEELAN, conf. J. E. LOUSLEY.

*283/5. *CAUCALIS NODOSA* Scop. *47, Mont.; Montgomery and Dolforwyn Castles, J. A. Webb (Wade and Webb, 1943: 60).

†285/3. *CORNUS STOLONIFERA* Michx. 44, Carm.; Garnant, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; naturalised near Derwenlas, and Newton Dingle, J. A. Webb (Wade and Webb, 1943: 60).

†287/1. *SAMBUCUS RACEMOSA* L. 47, Mont.; on the northern flanks of the Kerry Hills at 1200 ft., some bushes about twenty years old amongst *Sambucus nigra* L. but they do not seem to be flourishing, 1941, Miss M. G. BENTHAM EVANS, comm. NAT. MUS. WALES.

†287/2b. *SAMBUCUS NIGRA* L. var. *LACINIATA* L. 47, Mont.; bank by the Dolfor Old Road at Newtown, but near houses and probably introduced, Glaspwll Valley near Gelligoch, J. A. Webb (Wade and Webb, 1943: 60). 86, Stirl.; old mill-dam near Clober, 1942 (*Glasgow Nat.*, 14, 89, 1943).

287/2e. *SAMBUCUS NIGRA* L. var. *VIRIDIS* Ait. 21, Middx.; a single tree near Ruislip, 1942, Dr S. BATKO, comm. N. Y. SANDWICH—but see *Plant Notes*, ED.

287/3. *SAMBUCUS EBULUS* L. 24, Bucks.; plentiful in a ditch by roadside three miles east of Buckingham towards Stowe, 1942, A. B. JACKSON.

*†288/2. *VIBURNUM LANTANA* L. *47, Mont.; small bushes in hedges above Llanllwchaiarn, obviously from seed from a bush in the Newtown Hospital grounds, and woods in Glaspwll Valley, J. A. Webb (Wade and Webb, 1943: 60). 64, M.W. Yorks.; between Gisburn and Gargrave, 1943, J. A. WHEELAN (1943: *N.W. Nat.*, 18, 324)—doubtfully indigenous in this locality; bracketed in *C.F.*

†289/1. *SYMPHORICARPUS RACEMOSUS* Michx. 44, Carm.; hedges far from houses, Cwingwili, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; frequently naturalised in hedges, Newtown, etc., J. A. Webb (Wade and Webb, 1943: 60).

†292/1. *LEYCESTERIA FORMOSA* Wallich. 35, Mon.; Cuckoo Wood, near Llandago, 1944, A. E. WADE, comm. NAT. MUS. WALES. 41, Glam.; Penylan: Llandough-juxta-Cardiff: well established in both localities, E. VACHELL. 44, Carm.; Rhydowen, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

296/2×9. ×*GALIUM OCHROLEUCUM* Wolf. 30, Beds.; Dunstable Downs, 1943, B. VERDCOURT.

296/1. *GALIUM BOREALE* L. 65, N.W. Yorks.; Gainford Island above Piercebridge, 1943, C. M. Rob (*Nat.*, 1944: 19).

296/3. *GALIUM ERECTUM* Huds. 36, Heref.; grassy bank in Grammar School grounds, Ledbury, 1944, A. J. WILMOTT.

296/5. *GALIUM PUMILUM* Murray. 20, [Beds.]; Downs, Cuddington, 1944, E. MILNE-REDHEAD.

296/6. *GALIUM ULIGINOSUM* L. 35, Mon.; boggy fields at Trelleck, 1943, S. G. CHARLES and R. LEWIS, confirmed by C. E. BRITTON.

†298/5. *ASPERULA ARVENSIS* L. 35, Mon.; site of a poultry farm, Kymin Hill, Monmouth, 1929, S. G. CHARLES, comm. NAT. MUS. WALES.

299/3. *CRUCIANELLA STYLOSA* Trin. 53, S. Lincs.; grass verge by country lane, one large plant, Quarrington, 1944, Miss I. M. BARBER, det. and comm. A. J. WILMOTT.

*301/3. *VALERIANA DIOICA* L. *104, N. Ebudes; Eigg, J. W. H. Harrison (1939E: 105).

*+302/1. *CENTRANTHUS RUBER* (L.) DC. *47, Mont.; Newtown, Montgomery, near Meifod, Llanfair Caereinion, Llanllwchaiarn, Llanmerewig and Nantoer, J. A. Webb (Wade and Webb, 1943: 60).

304/3. *VALERIANELLA DENTATA* (L.) Poll. 33, E. Glos.; Cotswold Farm, Duntisbourne Abbots, 1943, Mrs SCARLETT, det. and comm. A. J. WILMOTT: a form with the leaves subentire, ligulate-lanceolate; but the fruits are normal and several similar specimens are in *Herb. Mus. Brit.*

304/3b. *VALERIANELLA DENTATA* (L.) Poll. var. *MIXTA* (L.) Dufresne. 35, Mon.; by Thicket-Wood, Roggiett, 1944, A. E. WADE.

*304/4. *VALERIANELLA CARINATA* Lois. *45, Pemb.; old walls, gardens and waste places, about Tenby, 1944, Mrs F. L. REES, comm. NAT. MUS. WALES. *H.12, Wexford; cottage garden, Edermine on R. Slaney, 1942, Miss E. BOOTH, comm. Miss E. RAWLINS. *H.13, Carlow; gardens and walls, Borris, 1939-1944, Miss E. RAWLINS, det. R. LL. PRAEGER.

*306/2. *DIPSACUS PILOSUS* L. *66, Durham; Woodland, J. Rand (1944: *Vasc.*, 29, 24).

*308/5. *SCABIOSA ARVENSIS* L. *110, O. Hebr.; Vatersay, J. W. H. Harrison (1941B: 245, as *Knautia arvensis* (L.) Coult.).

†312/6. *SOLIDAGO CANADENSIS* L. 44, Carm.; coal tip near Ammanford, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; Carno station, J. A. Webb (Wade and Webb, 1943: 61).

†318/4. *ASTER NOVI-BELGII* L. 44, Carm.; waste place, Pantyffynon, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; between Newtown and Llanllwchaiarn, Llandinam, Caersws, railway and river bank near Derwenlas, and Machynlleth, J. A. Webb (Wade and Webb, 1943: 61).

*318/19. *ASTER TRIPOLIUM* L. *47, Mont.; Dovey salt marsh, and in small quantity by the Llynant and Dovey Junction, J. A. Webb (Wade and Webb, 1943: 61). 98, Argyll M.; shore at south end of Isle of Seil, 1943, Mrs E. DORAN, comm. A. J. WILMOTT—about nine inches in height.

*†320/3. *ERIGERON CANADENSIS* L. 3, S. Devon; air-raid debris, Plymouth, 1943, E. M. PHILLIPS. 34, W. Glos.; Lydney, 1942, S. G. CHARLES, comm. W. R. PRICE. *55, Leics.; old quarry, Sapcote, 1943, F. A. SOWTER.

*324/4. *FILAGO GALLICA* L. *104, N. Eubudes; Rhum, new to Scotland, J. W. H. HARRISON (1939E: 105).

*324/5. *FILAGO MINIMA* Pers. *47, Mont.; shaly bank east of Commins Coch, J. A. Webb (Wade and Webb, 1943: 61): Breidden Hills, 1943, J. BEDFORD, comm. A. J. WILMOTT.

*326/1. *ANTENNARIA DIOICA* (L.) Gaertn. *33, E. Glos.; Foxcote, 1943, not the patch recorded in 1937 which has been ploughed up, but another station, Miss L. ABELL.—add * to record in *B.E.C. 1937 Rep.*, 482 and add to *C.F.*

326/1b. *ANTENNARIA DIOICA* (L.) Gaertn. var. *HYPERBOREA* DC. 104, N. Eubudes, on Barkeval, Rhum, J. W. H. HARRISON (1939E: 106).

*†327/1. *ANAPHALIS MARGARITACEA* (L.) C. B. Clarke. 35, Mon.; old quarry at the Wyndcliff, Nr. Tintern Abbey, 1943, R. LEWIS. *47, Mont.; established on the edges of the Green at Llanwrin, J. A. Webb (Wade and Webb, 1943: 61).

328/2b. *GNAPHALIUM ULIGINOSUM* L. var. *PSEUDO-PILULARE* (A. & G.) Scholtz. 64, M.W. Yorks.; a few plants in swampy hollow by road east of Blubberhouses, 1943, E. C. WALLACE.

333/1. *INULA HELENIUM* L. 103, M. Eubudes; Tیره, J. W. H. HARRISON *et al.* (1941C: 288)—given for 103 in *C.F.*—ED.

333/5. *INULA CRITHMOIDES* L. 2, E. Cornw.; Baby Bay, Polzeath, 1943, Miss C. LONGFIELD.

*333/4. *INULA CONYZA* DC. *47, Mont.; Aberbechan, Kerrydale, near Cemmaes, near Pantyfridd, and Careghofa quarries, J. A. Webb (Wade and Webb, 1943: 61).

†339/3. *AMBROSIA ARTEMISIFOLIA* L. 35, Mon.; Alexandra Dock, Newport, 1942, JOHN MACQUEEN, comm. NAT. MUS. WALES.

†339/4b. *AMBROSIA TRIFIDA* L. var. *INTEGRIFOLIA* (Willd.) Torr. & Gray. 60, W. Lancs.; one plant in waste ground at Ansdell, 1943, J. A. WHELLAN, det. J. E. LOUSLEY.

†341/3. *XANTHIUM SPINOSUM* L. 30, Beds.; Bedford, 1937, L. W. WILSON, comm. J. G. DONY.

353/2d. *BIDENS TRIPARTITA* L. var. *RADIANS* (Beck). 41, Glam.; canal side, Llandaff North, 1944, with perhaps more conspicuous ray-florets than at the first station, E. VACHELL.

*353/1. *BIDENS CERNUA* L. 35, Mon.; reens, Whitewall Common, Magor, 1944, R. LEWIS. *47, Mont.; canal near Pentre Leylin and Four Crosses, near Luggy and Garthmyl, J. A. Webb (Wade and Webb, 1943: 61).

†354/1. *GALINSOGA PARVIFLORA* Cav. 59, S. Lancs.; weed in Liverpool Botanic Gardens, 1943, J. A. WHELLAN, comm. J. E. LOUSLEY.

354/2b. *GALINSOGA QUADRIRADIATA* Ruiz & Pav. var. *HISPIDA* (DC.) Thell. 11, S. Hants.; Hurn, near Christchurch, 1943, Capt. A. J. MAUDSLEY, comm. A. J. WILMOTT. 17, Surrey; near Claygate, 1943, W. R. SHERRIN, comm. A. J. WILMOTT.

†355/2. *MADIA SATIVA* Molina. 17, Surrey; variable and in quantity in field of flax, Nutfield, 1943, where it was detected by E. J. BUNNETT and shown by him *in situ* to J. E. LOUSLEY.

†368/1. *ANTHEMIS TINCTORIA* L. 21, Middx.; site of the Churchyard of St Olave's, Silver Street, London, E.C.2, 1944, D. McCLINTOCK.

368/2c. *ANTHEMIS NOBILIS* L. var. *DISCOIDALIS* Harrison. 17, Surrey; in the lawns of Kew Gardens, the form recorded by G. Nicholson (see Salmon, *Fl. Surrey*, 387), and still there, N. Y. SANDWICH.

368/4. *ANTHEMIS COTULA* L. 3, S. Devon; air-raid debris, Plymouth, 1943, E. M. PHILLIPS. *104, N. Ebudes; Eigg and Canna, J. W. H. Harrison (1939E: 106).

†370/8. *CHRYSANTHEMUM MAXIMUM* DC. 47, Mont.; Caersws, J. A. Webb (Wade and Webb, 1943: 61).

*+371/3. *MATRICARIA SUAVEOLENS* (Pursh) Buch. *47, Mont.; Newtown, frequent up to 1300 ft. above Dylife, J. A. Webb (Wade and Webb, 1943: 61, as *M. matricarioides* (Less.) Porter). *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 288).

378/1. *ARTEMISIA ABSINTHIUM* L. 21, Middx.; waste ground, King's Road, Chelsea, 1943, J. E. LOUSLEY and W. J. SLADEN.

380/1. *PETASITES HYBRIDUS* (L.) G.M. & S., emend. Fritsch. H.31, Louth; the female plant, Dundalk, 1943, E. N. CARRUTHERS, comm. A. J. WILMOTT.

*+380/2. *PETASITES ALBUS* (L.) Gaertn. 12, N. Hants.; a large patch in a wooded dell near Basing, 1943, N. E. G. CRUTTWELL. 50, Denb.; by a stream near Llangollen, well established in good quantity, 1937-1943, J. A. WHELLAN. *75, Ayr; Dalry, 1942 (*Glasgow Nat.*, 14, 90, 1943).

*+380/3. *PETASITES FRAGRANS* Presl. *47, Mont.; Fron, Pentre near Meifod and Bont Dolgadfan, J. A. Webb (Wade and Webb, 1943: 61).

380/4. *PETASITES JAPONICUS* (Sieb. & Zucc.) F. Schmidt. 3, S. Devon; Elfordleigh, Plympton St Mary, 1943, E. M. PHILLIPS (as *P. albus*), det. A. J. WILMOTT.

+381/1. *DORONICUM PARDALIANCHES* L. 35, Mon.; naturalised on railway bank at Hadnock, near Monmouth, 1944, R. LEWIS.

*383/6. *SENECIO ERUCIFOLIUS* L. *47, Mont.; Careghofa, lineside near Four Crosses, canal bank near Berriew, J. A. Webb (Wade and Webb, 1943: 62).

*+383/7. *SENECIO SQUALIDUS* L. 3, S. Devon; abundant everywhere on air-raid debris, Plymouth, 1943, and hybridising with *S. vulgaris* var. *radiatus*, E. M. PHILLIPS (see *Plant Notes*). 37, Worcs.; waste places, Droitwich, 1944, F. M. DAY. *47, Mont.; Dovey Junction, Commins Coch, Welshpool, Buttington and Newtown, J. A. Webb (Wade and Webb, 1943: 62); quarry at foot of Breidden Hill, 1942, J. W. GOUGH and N. Y. SANDWICH. 51, Flint; Hawarden and Mold, 1943, Miss R. A. PENNETHORNE, comm. DEPT. BOT., OXFORD UNIV.

*383/8. *SENECIO VISCOSUS* L. *47, Mont.; Llansantffraid, Llanfechain, and Tylwch to Llanidloes, J. A. Webb (Wade and Webb, 1943: 62).

383/10e. *SENECIO VULGARIS* L. var. *RADIATUS* Koch. 3, S. Devon; abundant everywhere on air-raid debris, Plymouth, 1943, E. M. PHILLIPS. 47, Mont.; Brynhyfryd, Dovey Junction, Pool Quay and Llanidloes, J. A. Webb (Wade and Webb, 1943: 62). 50, Denb.; Wrexham, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

†383/15. *SENECIO VERNALIS* W. & K. 4, N. Devon; Barnstaple Boys' Grammar School new playing field ("Kew"—*Trans. Devon Ass. Adv. Sci.*, 75, 57: 1943).

†385/1. *CALENDULA OFFICINALIS* L. 44, Carm.; Bynea, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; apparently established on a shaly bank above the canal, Llanllwchaiarn, J. A. Webb (Wade and Webb, 1943: 62).

*391/1. *CARLINA VULGARIS* L. *47, Mont.; limestone slopes and screes at Careghofa, and Commins Coch, J. A. Webb (Wade and Webb, 1943: 62).

*393/1. *ARCTIUM LAPPA* L. 39, Staffs.; roadside between Mitton and Penkridge, 1944, E. S. EDEES. *47, Mont.; Great Ham near Rhydygroes, J. A. Webb (Wade and Webb, 1943: 62)—not recorded for v.-c. 47 in the *Comital Flora*, but bracketed as doubtful in Hyde and Wade, *Welsh Fl. Plants*. *104, N. Ebudes; Rhum; Eigg: Canna: Sanday: J. W. H. Harrison (1939E: 106).

393/2. *ARCTIUM VULGARE* (Hill) A. H. Evans. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 289, as *A. nemorosum* Lej.).

[*]†395/1. *CARDUUS NUTANS* L. [*]H.13, Carlow; casual on roadside waste verge, Ballyellen near Goresbridge, 1941, 1942, also on sand dump by roadside near Sligoff, 1944, a rare casual in these parts—(gone from the locality noted in 1942 as road-mending material was dumped on the three plants before seed was formed), Miss E. RAWLINS.

*395/2b. *CARDUUS CRISPUS* L. *103, M. Ebudes; Tíree, J. W. H. Harrison *et al.* (1941C: 289).

395/2b×1. *CARDUUS CRISPUS* L. × *NUTANS* L. 65, N.W. Yorks.; by the Swale at Thornton Bridge, near Helperby, 1944, E. C. WALLACE.

395/3. *CARDUUS PYCNOCEPHALUS* L. 3, S. Devon; established at Prince Rock, Plymouth, 1942, a new station about 1½ miles east of the original station on Plymouth Hoe: also, one plant on air-raid debris in Plymouth, 1943, E. M. PHILLIPS.

395/3(2). *CARDUUS TENUIFLORUS* Curt. 3, S. Devon; abundant on air-raid debris, Plymouth, 1943, E. M. PHILLIPS. 17, Surrey; near a defence ditch on Banstead Downs, 1943, J. R. WALLIS.

396/1. *CIRSIUM ERIOPHORUM* (L.) Scop. 36, Heref.; summit of Bradlow Knoll near Ledbury, 1941: field in Eastnor Park, 1944, both shown me by W. G. GREAVES, A. J. WILMOTT.

396/1×2. *Cirsium eriophorum* L. × *vulgare* (Savi) Airy Shaw. 7, N. Wilts.; Bincknoll, 1942 (det. W. A. SLEDGE): Haugh, Winsley, 1943: J. D. GROSE (1944: *Wilts. A. and N.H.M.*, 348, as *C. eriophorum* × *lancoelatum*). 23, Oxon.; Stonepit Hills near Weston-on-the-Green, growing with an abundance of both parent species, 1943, J. P. M. BRENNAN: determination confirmed by J. E. LOUSLEY who adds that the specimens are rather more on the *vulgare* side than those described by him in *Journ. Bot.*, 72, 171-173, 1934.

396/4×2. *Cirsium ACAULE* (L.) Weber ex Wigg × *VULGARE* (Savi) Airy Shaw = × *C. SABAUDUM* Löhr. 6, N. Som.; on bare oolitic pasture at the summit of Creech Hill, S.E. of Evercreech, c. 600', 1941, N. Y. SANDWICH and A. H. G. ALSTON, det. W. A. SLEDGE (and see *Plant Notes*).

396/4b. *Cirsium ACAULE* (L.) Weber. var. *CAULESCENS* (Pers.) DC. 47, Mont.; Montgomeryshire side of Llanymynech Hill, 1943, Miss A. G. COOK, comm. NAT. MUS. WALES.

396/5×9. *Cirsium DISSECTUM* (L.) Hill × *PALUSTRE* (L.) Scop. 34, W. Glos.; damp field between Hill and Rockhampton, 1943, E. NELMES.

396/8×2. *Cirsium ARVENSE* (L.) Scop. × *VULGARE* (Savi) Airy Shaw. 24, Bucks.; a weed in garden at Turville Park, one plant in 1942, not reappearing in 1943, Miss D. HILLCOAT, comm. A. J. WILMOTT.

*†397/1. *Onopordum ACANTHIUM* L. *88, M. Perth; waste ground, Aberfeldy, 1941, Miss E. S. TODD.

*†399/1. *Silybum MARIANUM* (L.) Gaertn. 34, W. Glos.; in a chicken-run at Downend, Horsley, 1941, not reappearing in 1942 or 1943, G. C. POWNALL. 41, Glam.; garden weed, Peterston-super-Ely, 1944, E. VACHELL. *47, Mont.; several plants about houses 2 miles south-east of Welshpool, and Careghofa, J. A. Webb (Wade and Webb, 1943: 62).

*401/1. *Saussurea ALPINA* (L.) DC. 70, Cumb.; on the steep slope of a ghyll close to Esk House, at about 2000 ft., 1914, J. W. HAINES. *73, Kirkc.; cliffs near the summit of the Merrick, 1935, J. E. RAVEN—drawn, but a voucher specimen would be welcome—ED.

402/1. *Serratula TINCTORIA* L. 64, M.W. Yorks.; Walkingham Hill, near Farnham, 1943, E. C. WALLACE (*Nat.*, 1944: 19). H.12, Wexford; New Ross, 1940-44, Miss E. RAWLINS.

*405/8. *Centaurea OBSCURA* Jord. *103, M. Ebudes; Tiree and Coll, J. W. H. HARRISON *et al.* (1941C: 290).

*405/11. *Centaurea NEMORALIS* Jord. *103, M. Ebudes; Tiree, Coll, and Gunna, J. W. H. HARRISON *et al.* (1941C: 290). *104, N. Ebudes; J. W. H. HARRISON (1939E: 107).

405/12. *CENTAUREA CYANUS* L. 17, Surrey: a handsome variant with pale almost white ray florets, plentiful in field of flax, near Nutfield, 1943, J. E. LOUSLEY and E. J. BUNNETT.

†405/19. *CENTAUREA MONTANA* L. 47, Mont.; garden outcast, Guilsfield and Bont Dolgafan, J. A. Webb (Wade and Webb, 1943: 62).

†405/32. *CENTAUREA MELITENSIS* L. 41, Glam.; near Horton Gower, 1944, Miss P. SIMONS—"sent as *C. solstitialis*," which had some years ago been recorded from the locality," comm. E. VACHELL.

*415/1. *PICRIS ECHIOIDES* L. *47, Mont.; roadside west of Llanbrynmair, 1 mile north of Cemmaes and near Cwm Llinau, J. A. Webb (Wade and Webb, 1943: 62). *H.13, Carlow; weed, Carrigduff near Newtownbarry, 1942, Miss E. RAWLINS.

*416/1. *CREPIS MOLLIS* Asch. *104, N. Ebuades; Rhum, J. W. H. HARRISON (1939E: 107).

416/3. *CREPIS BIENNIS* L. 17, Surrey; Tot Hill, Headley, 1943, J. E. LOUSLEY and J. A. WHELLAN.

*416/10. *CREPIS TARAXACIFOLIA* Thuill. *47, Mont.; Velindre to Pantyfridd and Careghofa, J. A. Webb (Wade and Webb, 1943: 62).

*†419/8. *HIERACIUM BRUNNEO-CROCEUM* Pugsl. 3, S. Devon; Plympton St Mary, 1942, E. M. PHILLIPS. *47, Mont.; Llandinam, Meifod, Leighton, Llanfechain and Derwenlas, J. A. Webb (Wade and Webb, 1943: 62); churchyard at Montgomery, 1943, J. BEDFORD, det. H. W. PUGSLEY, comm. A. J. WILMOTT.

419/50. *HIERACIUM SCHMIDTII* Tausch. 67, Northumb. S.; rocks near Swinburn Castle just above the stream, new county record, J. W. H. HARRISON (1942: *Vasc.*, 27, 7).

419/96. *HIERACIUM EXOTERICUM* Jord. 47, Montg.; railway bank near Forden, 1943, J. BEDFORD, comm. A. J. WILMOTT, det. H. W. PUGSLEY.

419/125. *HIERACIUM LACHENALII* Gmel. 34, W. Glos.; Eden's Hill, Upleadon: 36, Heref. and 37, Worcs.; on Malvern Hills, both sides of the Wych: 1943, F. M. DAY, det. H. W. PUGSLEY. 47, Montg.; on the Long Mountain near Leighton: rocks below Montgomery Castle; both 1943, J. BEDFORD, comm. A. J. WILMOTT, det. H. W. PUGSLEY.

419/131. *HIERACIUM SUBAMPLIFOLIUM* (Zahn) Roffey. 34, W. Glos.; Pool Hill, Pauntley, 1943, F. M. DAY, det. H. W. PUGSLEY.

419/188. *HIERACIUM PRENANTHOIDES* Vill. 64, M.W. Yorks.; limestone rocks by the Nidd, near Goydon Pot, Lofthouse, 1944, E. C. WALLACE.

419/217b. *HIERACIUM TRIDENTATUM* Fr., var. *POLYPHYLLUM* Zahn. 4, N. Devon; Bampton Down, A. L. Still, det. H. W. Pugsley (*Trans. Devon Ass. Adv. Sci.*, 75, 59: 1943).

419/239. *HIERACIUM STRICTUM* Fr. 103, M. Ebudes; Coll. J. W. H. Harrison *et al.* (1941C: 290).

419/241. *HIERACIUM UMBELLATUM* L. 47, Montg.; near Llangurig, 1943, J. BEDFORD, conf. H. W. PUGSLEY, comm. A. J. WILMOTT.

*422/3. *LEONTODON LEYSSERI* (Wallr.) Beck. *47, Mont.; near Brynderwen Bridge and Dolforwyn, J. A. Webb (Wade and Webb, 1943: 62). 104, N. Ebudes; Eigg: Canna: Sanday: J. W. H. Harrison (1939E: 107, as *Leontodon taraxacoides* Lacaita).

*423/15. *TARAXACUM PALUSTRE* (Lyons) DC. *47, Mont.; Kerry Moors near the Devil's Elbow, Dolfor, J. A. Webb (Wade and Webb, 1943: 62).

†425/1. *LACTUCA VIROSA* L. 30, Beds.; Great North Road, Stotfold, 1943, where it had been found some years previously by T. A. DYMES, H. and D. MEYER, and J. G. DONY.

427/3×2. *SONCHUS ASPER* Hill. × *S. OLERACEUS* L. 104, N. Ebudes; Rhum, "what appeared to be this hybrid," J. W. H. Harrison (1944: *Vasc.*, 29, 6, as *S. oleraceus* L. × *S. asper* Hill.).

427/3c. *SONCHUS ASPER* Hill. var. *PUNGENS* Bisch. 47, Mont.; Berriew, J. A. Webb (Wade and Webb, 1943: 62).

427/3d. *SONCHUS ASPER* Hill. var. *GLANDULOSUS* (Coss.) Druce. 47, Mont.; Aberbechan, J. A. Webb (Wade and Webb, 1943: 62).

427/4e. *SONCHUS OLERACEUS* L. var. *RUNCINATUS* Coss. & Germ. 47, Mont.; Berriew, J. A. Webb (Wade and Webb, 1943: 62).

*428/2. *TRAGOPOGON PRATENSIS* L. 16, W. Kent; Kidbrooke Camp, 1943, J. A. WHELLAN, teste J. E. LOUSLEY. 30, Beds.; Great North Road, Stotfold, 1943, some quantity of fine specimens of the type plant, not var. *minor* (Mill), which is usual in this area, J. G. DONY. *H.12, Wexford; Newtownbarry, 1942, Miss E. BOOTH, comm. Miss E. RAWLINS.

432/1. *JASIONE MONTANA* L. 34, W. Glos.; near Redbrook, 1942, S. G. CHARLES, comm. W. R. PRICE.

*433/1. *WAHLENBERGIA HEDERACEA* (L.) Rchb. 16, W. Kent; two good patches in a heathy valley in Bedgebury Forest, 1944, the first Kent record for about 80 years, and hitherto unknown in the Weald of Kent; likely, however, to be found on the acid forest country of the Tunbridge Wells Sands, although the nearest Sussex station is near Frant, 8 or 9 miles away, F. ROSE. 34, W. Glos.; pond below Speech

House, 1944, S. G. CHARLES, comm. W. R. PRICE—appears to grow in a small area south of Speech House, but has not been seen for so many years that it was thought to be extinct. *H.11, Kilkny.; boggy field near Tullagher, 1940-44, one spreading colony, Miss E. RAWLINS, det. R. LL. PRAEGER.

[*]+434/2. PHYTEUMA SPICATUM L. [*]39, Staffs.; in shrubbery at Four Ashes Hall (near Stourbridge, Salop), Mrs Amphlett (A. J. Wilmott; 1944: *J.B.*, 80, 135).

[*]+435/4. CAMPANULA RAPUNCULOIDES L. [*]H.7, Tipp. S.; Anner, 1942; H.12, Wexford; Stokestown, 1942-44; H.13, Carlow; Borris, 1940-44; a troublesome garden weed in all the above places, Miss E. RAWLINS.

438/2×3. VACCINIUM MYRTILLUS L. × VITIS-IDAEA L. 64, M.W. Yorks.; Cardall Wood near Birk Crag, Harrogate, 1944, see *Supp. Yorks. Floras*, 1941, 74, for original record; three forms of the hybrid were seen, flowers and fruit being produced by one in some abundance, E. C. WALLACE.

439/1. OXYCOCCUS QUADRIPETALUS Gilib. 65, N.W. Yorks.; abundant in Carr near Marton le Moor, Ripon, 1944, E. C. WALLACE.

439/2. OXYCOCCUS MACROCARPUS Pursh. 70, Cumb.; in sphagnum at a tarn at Netherton, south of St Bees, 1943, C. D. PIGOTT, comm. A. J. WILMOTT.

†452/1. RHODODENDRON PONTICUM L. 47, Mont.; naturalised, about Llwyngwern Hall and Ceinws, and between Aberangell and Cemmaes, J. A. Webb (Wade and Webb, 1943: 63).

*453/3. PYROLA MINOR L. *16, W. Kent; birch-pine wood near Wrotham Heath, 1944, the first certain record: in *C.F.* for v.-c. 16, but the only previous record by J. E. Little in *Gard. Chron.*, 1879: "Medway Valley, between Penshurst and Maidstone, on stiff clay"—is not certainly v.-c. 16, F. ROSE. *H.11, Kilkny.; several extensive patches in woods of Dysertmore on R. Nore, 6 miles above New Ross, 1940-44, Miss E. RAWLINS, det. R. LL. PRAEGER.

†457/9. LIMONIUM SUWOROWII (Regel) Kuntze. 6, N. Som.; tip at Ashton, Bristol, 1942, Ivor Evans (Sandwith, 1943: 365).

460/3. PRIMULA VERIS L. With dark—"polyanthus"—red corolla. 33, E. Glos.; open grassy part of Oakley Park, Cirencester, 1942, E. NELMES.

*463/4. LYSIMACHIA NUMMULARIA L. *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 291).

463/5. *LYSIMACHIA NEMORUM* L. 35, Mon.; a form with cream-coloured flowers, The Forest, Llangibby, 1943, A. E. WADE.

†463/7. *LYSIMACHIA TERRESTRIS* (L.) Britt., St., & Pogg. 69, Westm.; marshy field, south of Bowness: lakeside, Ambleside, both 1943, R. C. L. BURGESS (as *L. stricta* Ait.).

*466/1. *GLAUX MARITIMA* L. *47, Mont.; Dovey Junction, J. A. Webb (Wade and Webb, 1943: 63).

467/2c. *ANAGALLIS ARVENSIS* L. var. *CARNEA* Schrank. 54, N. Lincs.; Great Steeping Aerodrome, 1943, D. McCLINTOCK.

467/2f. *ANAGALLIS ARVENSIS* L. var. *AZUREA* Wilmott. 35, Mon.; fields under cultivation previous year, Warfields, Staunton Road, Monmouth, 1943, R. LEWIS (as var. *coerulea*).

*468/1. *CENTUNCULUS MINIMUS* L. 16, W. Kent; abundant in a ride in Bedgebury Forest, 1944, F. ROSE. *H.12, Wexford; in abundance on the shore of Lady's Island Lake, 1942, Miss E. RAWLINS. H.13, Carlow; sandy spot near tiny stream, near Glynn, 1942, Miss E. RAWLINS, det. R. LL. PRÄGER.

469/1. *SAMOLUS VALERANDI* L. 61, S.E. Yorks.; Houghton Wood, Yorks. Nat. Union Excursion (*Nat.*, 1944: 19). 64, M.W. Yorks.; in two places on Farnham Mires near Knaresborough, 1943, E. C. WALLACE (see *Nat.*, 1944: 19).

†470/1. *SYRINGA VULGARIS* L. 47, Mont.; naturalised in hedges at Carno, J. A. Webb (Wade and Webb, 1943: 63).

472/1. *LIGUSTRUM VULGARE* L. 36, Heref.; the dominant and dense undergrowth over many acres in Conigree Wood, Ledbury, such as I. have seen nowhere else, 1944, A. J. WILMOTT.

472/1c. *LIGUSTRUM VULGARE* L. var. *AURIFLORUM* Hoefk. 7, N. Wilts.; foot of limestone cliff between Alderton and Luckington, 1944, J. D. GROSE, det. Dr R. MELVILLE. One bush only was found, associated with many white-flowered bushes. The station is remote from any house, and the form is, to all appearance, a native one. (See *Plant Notes*.)

†473/1. *VINCA MAJOR* L. 47, Mont.; Fron, etc., J. A. Webb (Wade and Webb, 1943: 63).

†474/2. *BUDDLEIA DAVIDI* Franchet. 44, Carm.; waste ground, Bynea and Carmarthen, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

*478/4. *CENTAURIUM PULCHELLUM* (Sw.) Druce. 30, Beds.; Marston Thrift, 1943, V. H. CHAMBERS and J. G. DONY: West Wood, Knotting, 1944, J. G. DONY. *35, Mon.; wheat-field, Llanolway, Llandenny, 1943, Miss IRIS HARTHY, comm. NAT. MUS. WALES.

478/7. *CENTAURIUM CAPITATUM* (Willd. ex Cham.) Britten & Rend. 41, Glam.; in turf, about 700 ft. alt., Cefn On, Llanishen, 1944 ("one dwarf compact plant, with stamens from base of corolla-tube"), E. VACHELL.

*479/1. *CICENDIA PUSILLA* Griseb. *110, O. Hebr.; Fuday and S. Uist, single specimens, J. W. H. Harrison (1941B: 249).

480/6. *GENTIANA ANGLICA* Pugsf. 7, N. Wilts.; a flesh-coloured form on Overton Down, 1942, J. D. GROSE: (*Rep. Marl. Coll. N.H.S.*, No. 92 (1944), 11; also J. D. Grose; 1944: 348).

480/9b. *GENTIANA CAMPESTRIS* L. var. *BALTICA* (Murb.) Druce. 103, M. Ebudes; Coll and Gunna, J. W. H. Harrison *et al.* (1941C: 291: the variety not previously recorded for the vice-county). 104, N. Ebudes; Rhum, J. W. H. Harrison (1939E: 109, as *G. baltica* Murb.).

*482/1. *NYMPHOIDES PELTATA* (Gmel.) Britt. & Rend. *39, Staffs.; canal between Forton and Oulton, 1944, E. S. EDEES. †41, Glam.; Glamorganshire canal at Whitchurch, 1943, increasing enormously 1944, fully naturalised in the canal for some distance, originating from a lily-pond in a garden near the canal, E. VACHELL (as *Limnanthemum Nymphoides* (L.)).

†490/2. *OMPHALODES VERNA* Moench. 50, Denb.; in a glen near Llangollen, seen yearly in fair quantity since 1937; clearly originally planted but now well established, J. A. WHEELAN.

491/2. *CYNOGLOSSUM GERMANICUM* Jacq. 30, Beds.; Woolton Wood, 1942, J. G. DONY.

†493/2. *LAPPULA ECHINATA* Gilib. 16, W. Kent; Beckenham Place Park, 1934, E. J. BUNNETT, det. J. E. LOUSLEY.

*497/1. *SYMPHYTUM OFFICINALE* L. *104, N. Ebudes; Canna, J. W. H. Harrison (1939E: 109).

*497/2. *SYMPHYTUM TUBEROSUM* L. *47, Mont.; wet shaly bank, Montgomery, J. A. Webb, 1940 (Wade and Webb, 1943: 63). *71, Mon.; Castletown, near the big meadow, 1943, C. I. PATON, comm. A. J. WILMOTT.

†497/3. *SYMPHYTUM ORIENTALE* L. 55, (Rutland); Lyddington, 1943, A. E. WADE, comm. NAT. MUS. WALES.

†497/4. *SYMPHYTUM PEREGRINUM* Ledeb. 47, Mont.; not infrequent on waste ground, riversides and lanesides, Carno, Newtown, etc., J. A. Webb (Wade and Webb, 1943: 63): roadside between Llanymynech and Llansantffraid, 1942, J. W. GOUGH and N. Y. SANDWICH.

†498/1. *BORAGO OFFICINALIS* L. 20, Herts.; Grove Farm, Markyate, 1943, J. G. DONY. 47, Mont.; two or three plants in a hedge near houses, Arddleen, J. A. Webb (Wade and Webb, 1943: 63).

*500/1. *ANCHUSA SEMPERVIRENS* L. *7, N. Wilts.; Treacle Bolly; *8, S. Wilts.; Burbage, both [L. G. Peirson] 1943 (*Rep. Marl. Coll. N.H.S.*, No. 92 (1944), 11; also J. D. Grose; 1944: 348). †33, E. Glos.; roadside, Fish Hill, Broadway, 1944, Mrs A. B. LANE, comm. by W. R. PRICE. *47, Mont.; rather frequent, Aberbechan, Kerrydale, Montgomery, Llanllwchaiarn, Arddleen, Four Crosses, Snead and Derwenlas, J. A. Webb (Wade and Webb, 1943: 63).

*†503/1. *PULMONARIA OFFICINALIS* L. *47, Mont.; among nettles and on rubble at Llanllugan, bank at Bont Dolgadfan, J. A. Webb (Wade and Webb, 1943: 63).

*506/2. *MYOSOTIS BREVIFOLIA* C. E. Salmon. *63, S.W. Yorks.; Pocket near Hebden Bridge, 1943, H. Walsh (*Nat.*, 1944: 19).

506/3. *MYOSOTIS SECUNDA* A. Murray. 16, W. Kent; near Lamberhurst, 1943, J. R. WALLIS (as *M. repens* G. & D. Don). 104, N. Ebudes; new to Rhum, very often with white flowers, Harrison *et al.* (1944: 115, as *M. repens* G. & D. Don).

*506/7. *MYOSOTIS SYLVATICA* (Ehrh.) Hoffm. 33, E. Glos.; in copses and ditches, truly native and plentiful, Tirl Brook, Woolstone, 1944, C. W. BANNISTER, comm. W. R. PRICE. *47, Mont.; Leighton, not native, borders of meadows at Pennant, Llanllugan, abundant and looking native in Gregynog Woods, J. A. Webb (Wade and Webb, 1943: 63).

506/10e. *MYOSOTIS VERSICOLOR* Sm. var. *DUBIA* (Arrond.) Rouy. 39, Staffs.; Madeley and Wrinehill Wood, 1943, E. S. Edees, det. A. E. Wade (1944: *Trans. N. Staffs. Field Club*, 78, 51).

*507/2. *LITHOSPERMUM PURPUREO-CAERULEUM* L. *35, Mon.; edge of a wood, Carrow Hill, 1944, Mrs J. C. ELLIS, comm. NAT. MUS. WALES.

[*]†507/3. *LITHOSPERMUM ARVENSE* L. [*]47, Mont.; two plants on road metal chippings near Forden Union, J. A. Webb (Wade and Webb, 1943: 63). 110, O. Hebr.; Lewis, J. W. H. Harrison (1941B: 250)—confirms "Hebrides; Balfour and Babington" in *Top. Bot.*, ed. 2, and citation of 110 in *C.F.*—Ed.

*513/1. *CONVOLVULUS ARVENSIS* L. *110, O. Hebr.; Vatersay, amongst rye, J. W. H. Harrison (1941B: 250).

513/1d. *CONVOLVULUS ARVENSIS* L. var. *OBTUSIFOLIUS* Choisy. 47, Mont.; Newtown, J. A. Webb (Wade and Webb, 1943: 64).

515/2. *CUSCUTA EUROPAEA* L. 30, Beds.; Harrold Bridge, 1943, abundant, J. G. DONY and B. VERDCOURT: Leighton Buzzard, 1943, just beginning to spread, B. VERDCOURT: Milton Ernest, 1944, J. G. DONY.

*515/3. *CUSCUTA EPITHYMUM* (L.) Murray. 30, Beds.; Rushmere, Heath and Reach, 1944, E. MILNE-REDHEAD and J. G. DONY. *35, Mon.; near Roggiatt, 1942, Mrs J. C. ELLIS, comm. NAT. MUS. WALES. *66, Durham; on gorse, edge of Egglestone Moor, J. W. H. HARRISON (1942: *Vasc.*, 27, 16). *H.12, Wexford; Lady's Island, 1942, Miss E. RAWLINS.

515/4. *CUSCUTA TRIFOLII* Bab. 30, Beds.; Harrold, 1944, Miss G. H. DAY, comm. J. G. DONY.

*517/2. *SOLANUM NIGRUM* L. 3, S. Devon; air-raid debris, Plymouth, 1943, E. M. PHILLIPS. *H.11, Kilkny.; garden weed, Goresbridge, 1942, Miss E. RAWLINS.

†518/1. *PHYSALIS ALKEKENGII* L. 44, Carm.; Hendy, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

519/1. *NICANDRA PHYSALOIDES* Gaertn. 13, W. Suss.; in considerable quantity in a small derelict garden near Brighton railway station, also one fine plant 50 yards away, 1941, 1942: the garden is now in cultivation again, L. A. W. BURDER, det. at Kew.

520/2. *LYCIUM HALIMIFOLIUM* Mill. 47, Mont.; occasionally naturalised in hedgerows, Newtown, Welshpool, Kerry, Montgomery and Four Crosses, J. A. WEBB (Wade and Webb, 1943: 64). 50, Denb.; Kinnell Bay, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

521/1. *ATROPA BELLADONNA* L. 21, Middx.; grounds of the West Middlesex County Hospital, Isleworth: grounds of Syon House, Isleworth: old chalk pit at rear of Asbestos Works at Harefield, several plants; all 1944, D. H. KENT.

522/1. *DATURA STRAMONIUM* L. 7, N. Wilts.; Old Swindon and West Kennett, 1943 (*Rep. Marl. Coll. N.H.S.*, No. 92 (1944), 11). 8, S. Wilts.; Donhead St Mary, A. E. A. Dunston (J. D. GROSE; 1944: 348). 17, Surrey; garden weed, rather plentifully at Petersham, 1943-44, J. A. WHELLAN. 25, E. Suff.; a few plants in waste ground at Bixley Heath, 1944, J. A. WHELLAN.

*527/4. *VERBASCUM VIRGATUM* Stokes. 3, S. Devon; Peverell, Plymouth, 1943, E. M. PHILLIPS. 34, W. Glos.; about half way between Ryton and Ketford Bridge, 1914 and 1915, shown to H. J. RIDDELSDELL, who thought it might be native there, J. W. HAINES (see 1941-42 *Rep.*, 497). *45, Pemb.; on shale of an abandoned coal mine 1 mile from Saundersfoot, 1943, Mrs F. L. REES, comm. NAT. MUS. WALES.

*†527/7. *VERBASCUM LYCHNITIS* L. *33, E. Glos.; waste ground, Walham, Gloucester, 1942, Rev. R. B. ABELL.

527/8. *VERBASCUM NIGRUM* L. 41, Glam.; white- and yellow-flowered plants at Cowbridge, Hon. G. Charteris (*Trans. Cardiff N.S.*, 71, 31).

†527/11. *VERBASCUM SINUATUM* L. 28, W. Norf.; spontaneous in gardens at Thetford, 1943, H. D. HEWITT, det. and comm. J. L. LOUSLEY.

532/1. *LINARIA VULGARIS* Mill. H.11, Kilkny.; a few plants near Bagenalstown, 1940-44, Miss E. RAWLINS.

532/1×3. *LINARIA REPENS* (L.) Mill. × *VULGARIS* Mill. 12, N. Hants.; railway embankment, Sutton Scotney, 1940 (confirmed by P. M. HALL), Hon. W. J. L. PALMER. 44, Carm.; Morfa, Kidwelly, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

†532/2. *LINARIA PURPUREA* (L.) Mill. 7, N. Wilts.; escape, Bath Road, Marlborough, 1943 (*Rep. Marl. Coll. N.H.S.*, No. 92 (1944), 11); also Kingsdown (J. D. GROSE; 1944: 348). 50, Denb.; Penasarn; Maerdy; near Valle Crucis, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

*532/3. *LINARIA REPENS* (L.) Mill. *47, Mont.; railway track, Llanidloes, Penegoes, and Cemmaes, J. A. Webb (Wade and Webb, 1943: 64). *50, Denb.; Cerrig-y-Druidion, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

*532/7. *LINARIA MINOR* (L.) Desf. *47, Mont.; fairly general and almost confined to railway tracks, Breidden to Derwenlas and from Llanfyllin to Tylwch, Glanyrafon, Commins Coch and Talerddig, J. A. Webb (Wade and Webb, 1943: 64).

*532/24. *LINARIA SPURIA* (L.) Mill. *36, Heref.; abundant in field inside the "vallum" and also in field below the wood, Wall Hill, near Ledbury, 1944, virtually new to the county, the plant being long extinct in the only locality given by Purchas & Ley (1889: *Fl. Heref.*, 212); remove from brackets in *C.F.*, A. J. WILMOTT.

[*]532/25. *LINARIA ELATINE* (L.) Mill. 36, Heref.; abundant in field inside the "vallum," and also in field below the wood, Wall Hill, near Ledbury, 1944, A. J. WILMOTT. [*]†H.11, Kilkny.; railway verge near New Ross, casual, 1942, Miss E. RAWLINS.

†534/1. *ANTIRRHINUM MAJUS* L. 47, Mont.; naturalised on walls at Welshpool, Montgomery, Pontdolgoch and Ystum Colwyn, J. A. Webb (Wade and Webb, 1943: 64).

[*]534/2. *ANTIRRHINUM ORONTIUM* L. 30, Beds.; Heath and Reach, 1944, J. G. DONY. [*]†H.11, Kilkny.; railway track at New Ross, casual, 1942, Miss E. RAWLINS. [*]†H.12, Wexford; garden weed, Ballinastraw, Newtownbarry, 1942, Miss E. BOOTH, comm. Miss E. RAWLINS.

†535/1. *SCROPHULARIA VERNALIS* L. 50, Denb.; on a wall at Bettws-y-n-Rhos, 1939, J. A. WHELLAN.

535/3. *SCROPHULARIA UMBROSA* Dum. 33, E. Glos.; osier bed by Severn, near Tewkesbury, very luxuriant, 1944, C. W. BANNISTER, comm. W. R. PRICE (as *S. alata* Gilib.).

535/4b. *SCROPHULARIA NODOSA* L. var. *BOBARTII* Pryor. 7, N. Wilts.; Chisbury Wood, 1943 (*Rep. Marl. Coll. N.H.S., No. 92* (1944), 11)—near Marlborough, L. G. Peirson (J. D. Grose; 1944: 349).

*†537/1. *MIMULUS GUTTATUS* DC. *H.12, Wexford; hedge-ditch by roadside near Stokestown, 1944, Miss E. RAWLINS. *H.13, Carlow; stream side near Poulmonty, 1940-44: also in stream at S. Mullins (on Barrow): Miss E. RAWLINS.

†537/2. *MIMULUS MOSCHATUS* Dougl. 12, N. Hants; established in one place by the R. Enborne near Newbury, 1944, H. WHEELER, comm. A. J. WILMOTT. 42, Brecon; banks of Esgryn Brook between Hay and Capel-y-fin, 1944, S. G. CHARLES, comm. R. LEWIS.

539/1. *LIMOSELLA AQUATICA* L. 30, Beds.; Drakelow Pond, Woburn Park, 1944, J. G. DONY.

543/4. *VERONICA CHAMAEDRYIS* L. 33, E. Glos.; with almost white flowers, roadside, Colesborne, 1941, E. NELMES. 110, O. Hebr.; Barra, J. W. H. HARRISON (1941B: 251)—not in *Top. Bot.* or *Supps.* but given for 110 in *C.F.*—ED.

543/5. *VERONICA MONTANA* L. 20, [Beds.]; Elm Grove, Studham; 1941; J. G. DONY. 30, Beds.; Arden Dells, East Hyde, 1941: Battlesden; 1942, V. H. CHAMBERS and J. G. DONY: Aspley Wood, 1943, V. H. CHAMBERS.

543/6b. *VERONICA SCUTELLATA* L. var. *VILLOSA* Schum. 65, N.W. Yorks.; Pillmore Carr near Sharrow, 1943, E. C. WALLACE.

543/12. *VERONICA HUMIFUSA* Dickson. 98, Argyll M.; Meall Buidhe, Achallader, 1943, E. C. WALLACE.

*543/18. *VERONICA PERSICA* Poir. *47, Mont.; Llanllwchaiarn, etc., J. A. Webb (Wade and Webb, 1943: 64).

*543/20. *VERONICA POLITA* Fr. *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 292). *104, N. Ebudes; Pabbay, J. W. H. Harrison (1939E: 110).

†543/27. *VERONICA REPENS* DC. 59, S. Lancs.; naturalised in lawns, Victoria Park, Nelson, A. Turner (1944: *N.W. Nat.*, 19, 68).

†543/41. *VERONICA FILIFORMIS* Sm. 35, Mon.; banks of River Wye, Hadnock, near Monmouth, 1944, R. LEWIS.

545/3. *EUPHRASIA BREVIPILA* Burnat & Gremli. 47, Mont.; Carno and Cwm Belan, J. A. Webb (Wade and Webb, 1943: 64)—first record for v.-c. 47: upland meadow near Hirnant, 800 ft., and in hayfield at Llanwdden, E. end of Lake Vyrnwy, 1942, J. W. GOUGH and N. Y. SANDWICH; confirmed by H. W. PUGSLEY.

545/5. *EUPHRASIA NEMOROSA* (Pers.) Löhr. 14, E. Suss.; Saxonbury Wood, 1943, J. R. WALLIS, det. H. W. PUGSLEY. 16, W. Kent; Rear Wood near Bayham, 1943, J. R. WALLIS, det. H. W. PUGSLEY.

545/5c. *EUPHRASIA NEMOROSA* (Pers.) Löhr. var. *CALCAREA* Pugsley. 17, Surrey; downs above Chipstead, 1943, J. R. WALLIS, det. H. W. PUGSLEY.

545/5d. *EUPHRASIA NEMOROSA* (Pers.) Löhr. var. *COLLINA* Pugsley. 64, M.W. Yorks.; Quarry Moor, Ripon, Farnham Mires and Burton Leonard, 1943, E. C. WALLACE.

545/16. *EUPHRASIA SCOTICA* Wettst. 69, Westm.; bog, Fellfort, Langdale, 1943, R. C. L. BURGESS, det. H. W. PUGSLEY: 98, Argyll M.; roadside, Inveroran, Loch Tulla, 1943, R. MACKECHNIE and E. C. WALLACE. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 292).

545/18. *EUPHRASIA CONFUSA* Pugsley. 69, Westm.; hillside, Dungeon Gill, Langdale, 1943, R. C. L. BURGESS, det. H. W. PUGSLEY (as *f. albida*). 104, N. Ebudes; shore at Dornoch, Skye, 1938, J. E. LOUSLEY ("the unbranched Scottish form of *f. albida*"), det. H. W. PUGSLEY.

545/19. *EUPHRASIA ROSTKOVIANA* Hayne. 69, Westm.; meadow above Loughrigg Tarn, 1943, R. C. L. BURGESS, det. H. W. PUGSLEY.

545/19(3). *EUPHRASIA RIVULARIS* Pugsley. 69, Westm.; grassy bank at foot of Langdale Pikes above Stickle Tarn, 1943, R. C. L. BURGESS, det. H. W. PUGSLEY.

545/19(4). *EUPHRASIA ANGLICA* Pugsley. 14, E. Suss.; field near the High Rocks, 1943, H. W. PUGSLEY and J. R. WALLIS. 16, W. Kent; field near Bayham, 1943, J. R. WALLIS, det. H. W. PUGSLEY.

*548/1. *RHINANTHUS MAJOR* Ehrh. *103, M. Ebudes; Coll and Tiree, J. W. H. Harrison *et al.* (1941C: 293). *110, O. Hebr.; Vatersay, J. W. H. Harrison (1941B: 252).

*548/5. *RHINANTHUS STENOPHYLLUS* Schur. 62, S.E. Yorks.; turf ground in clay pit, Tollerton Forest; 64, M.W. Yorks.; roadside near Moorcock Hall, Darley, 1944, E. C. WALLACE. *103, M. Ebudes; Coll and Tiree, J. W. H. Harrison *et al.* (1941C: 293).

548/5(2). *RHINANTHUS CALCAREUS* Wilmott. 7, N. Wilts.; near Clyffe Hanging (J. D. Grose; 1944: 349). 8, S. Wilts.; Thirteen Hundred Down; Casterley Camp (J. D. Grose; 1944: 349). [Delete H.15, Galw. S.E.; see *B.E.C. 1939-40 Rep.*, 368. Dr W. A. Sledge states that it was collected by him and N. Douglas Simpson in one locality only, which was in H.9, Clare.—A. J. WILMOTT.]

*548/6. *RHINANTHUS SPADICEUS* Wilmott. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 293; as *R. monticola*). *104, N. Ebudes; Fionchra and Rhum, J. W. H. Harrison (1939E: 111, as *R. monticola* Druce).

548/7. *RHINANTHUS BOREALIS* (Stern.) E. S. Marshall. 98, Argyll M.; various places on the hills from Ben Douran to Ben Chreachain, 2500'-3000', 1943, R. MACKECHNIE and E. C. WALLACE.

548/8. *RHINANTHUS* "DRUMMOND-HAYI (Stern.) Druce." 104, N. Ebudes; Fionchra: Rhum: Eigg, J. W. H. Harrison (1939E: 111)—will be N.C.R. when identified, but see *B.E.C. 1939-40 Rep.*, 373 *seq.*—Ed.

*549/5. *MELAMPYRUM SYLVATICUM* L. *98, Argyll M.; rock ledge on Meall Buidhe, Achallader, alt. 2000', 1943, E. C. WALLACE.

*550/7. *OROBANCHE HEDERAE* Duby. *7, N. Wilts.; Blunsdon Abbey ruins, 1943, J. D. GROSE (1944: *Wilts. A. and N.H.M.*, 349).

550/10. *OROBANCHE MINOR* Sm. 14, E. Suss.; on a recently constructed roadside bank near Eridge Station, 1943, a rare plant in this part of the county, J. R. WALLIS. 34, W. Glos.; roadside, Minchinhampton, towards Longfords, one plant, 1943, G. C. POWNALL.

*551/1. *LATHRAEA SQUAMARIA* L. *H.12, Wexford; Newtownbarry, Miss E. BOOTH, comm. Miss E. RAWLINS.

*552/2. *UTRICULARIA NEGLECTA* Lehm. *25, E. Suff.; Cooper's Farm, Blythburgh, 1880, Miss JULIA GRUBBE—the specimen was discovered by Miss M. M. WHITING in a small collection which Miss Margaret Grubbe (niece of Miss Julia) has recently presented through her to the Kew Herbarium—comm. N. Y. SANDWICH: add to *C.F.* but see *Top. Bot.*

Suppl. 1 for previous record.—Ed. *49, Carn.; abundant, flowering sparingly, in Ystumllyn, near Criccieth, 1943, J. A. WHELLAN (as *U. major* Schmidel.).

552/5. *UTRICULARIA MINOR* L. 98, Argyll M.; flowering freely in pools on Rannoch Moor about Loch Ba, 1943, R. MACKECHNIE and E. C. WALLACE.

*553/2. *PINGUICULA VULGARIS* L. *15, E. Kent; bog on Hothfield Heath, 1943, F. ROSE (see *J.B.*, 80, 135). H.13, Carlow; Ardristan bog near Tullow, 1942, Miss E. RAWLINS.

†554/2. *Acanthus spinosissimus* Pers. 34, W. Glos.; on a ballast heap outside Bristol, 1942, comm. Keeper of Botany, Nat. Mus. Wales, det. at Kew. (Sandwith, 1943: 365).

556/1. *VERBENA OFFICINALIS* L. 61, S.E. Yorks.; Kexby Bridge, river Derwent, 1944, E. C. WALLACE.

*558/1. *MENTHA ROTUNDIFOLIA* (L.) Huds. *47, Mont.; Newtown, near Machynlleth, Llanmerewig and near Melinddol, J. A. Webb (Wade and Webb, 1943: 64). *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 293). H.13, Carlow; Borris, Graigue-na-managh: and other spots: 1940-44, Miss E. RAWLINS.

*558/2. *MENTHA ALOPECUROIDES* Hull. 20, Herts.; Sarratt Bottom, 1943; 36, Heref.; junction of Brock Hill Road and Purlieu Lane: Mathon: both 1943, F. M. DAY, det. A. L. STILL. *44, Carm.; Llwynhendy: Rhydowen: Pwll: Hendy: all 1944, J. A. WEBB, comm. NAT. MUS. WALES.

*558/3. *MENTHA LONGIFOLIA* (L.) Huds. 33, E. Glos.; near The Boys' Home, Painswick, 1943, F. M. DAY, det. A. L. STILL. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 293).

*558/4. *MENTHA SPICATA* L. 37, Worcs.; old Brick Pits, Upton-on-Severn, 1943, F. M. DAY, det. A. L. STILL. *†47, Mont.; near Llandinam Glen and Tylwch, J. A. Webb (Wade and Webb, 1943: 64). 64, M.W. Yorks.; Blubberhouses, ditch on Harrogate road, 1943, E. C. WALLACE (see *Nat.*, 1944: 19). †65, N.W. Yorks.; by stream near Snape, 1944, E. C. WALLACE.

*558/6. *MENTHA PIPERITA* L. 64, M.W. Yorks.; ditches in lane near Birstwith, and near Huby: both 1943, E. C. WALLACE (see *Nat.*, 1944: 19). *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 293). †H.12, Wexford; lanes near Lady's Island, 1942, Miss E. RAWLINS.

558/6. *MENTHA PIPERITA* L. *lusus pilosus*. 64, M.W. Yorks.; ditch in lane, Huby near Weeton: ditch in lane near Aldborough, this latter plant recorded in *Supp. Yorks. Flora's*, 1941, 86, as *M. aquatica* × *piperita*: both 1943, E. C. WALLACE.

558/6a. *MENTHA PIPERITA* L. var. *OFFICINALIS* (Sole). 36, Heref.; Moorcroft, Colwall, 1943, F. M. DAY.

558/6d. *MENTHA PIPERITA* L. var. *SUBCORDATA* Fraser. 35, Mon.; banks of small stream, Botany Bay, above Tintern Parva, 1943, R. LEWIS, det. A. L. STILL. 64, M.W. Yorks.; by stream at Beckwithshaw, 1943, E. C. WALLACE (*Nat.*, 1944: 18).

558/7d. *MENTHA AQUATICA* L. var. *CAPITATA* (Opiz) Briq. 3, S. Devon; Chudleigh Knighton, Heathfield, Hennock, F. M. DAY, det. A. L. STILL.

558/9. × *MENTHA VERTICILLATA* L. 35, Mon.; grass verge, roadside, Trelleck, 1943, R. LEWIS, det. A. L. STILL, who writes, "Topitz figures a similar form as var. *latissima* Strail." 36, Heref.: roadside, Ridgway Cross to Frome's Hill, Cradley, whorls beginning to be subspicate, 1943, F. M. DAY—"This seems to be var. *serotina* (Host.) Top. Topitz includes this under *M. paludosa* Sole var. *serotina* (Host.) H. Br., whatever that may have been," A. L. STILL.

558/9e. *MENTHA VERTICILLATA* L. var. *OVATIFOLIA* H. Braun. 3, S. Devon; Teigngrace, 1943, F. M. DAY, det. A. L. STILL. 30, Beds.; Melchbourne, 1942, J. G. DONY, det. A. L. STILL.

558/9n. *MENTHA VERTICILLATA* L. var. *RUBROHIRTA* (L. & C.) Briq. 36, Heref.; foot of Brock Hill, Colwall, 1943, F. M. DAY. "Perhaps; but these almost simple ground shoots are often not typical. I have one var. *paludosa* with bracts much like those of *M. rubra*," A. L. STILL.

558/9q. × *MENTHA VERTICILLATA* L. var. *RIVALIS* (Sole) Briq. 3, S. Devon; Chudleigh Knighton, Hennock, 1943, F. M. DAY, det. A. L. STILL. 36, Heref.; near Vinesend, Cradley, 1943, F. M. DAY. "Leaves not oval, but obovate. I can only lump it under *rivalis*, but it is not unlike what Topitz calls var. *calaminthoides* (Host.) Top.," A. L. STILL.

*558/10. × *MENTHA GENTILIS* L. 35, Mon.; banks of R. Wye, Hadnock, Monmouth, 1943, R. LEWIS, det. A. L. STILL. *47, Mont.; by the Banwy, Llanfair Caereinion, J. A. Webb (Wade and Webb, 1943: 64) 64, M.W. Yorks.; several places by the Ure, Hackfall, and in 65, N.W. Yorks.; lower down at Tanfield, both 1943, E. C. WALLACE (see *Nat.*, 1944: 19). 65, N.W. Yorks.; by stream at Snape, 1944, E. C. WALLACE.

558/11. × *MENTHA CARDIACA* Baker. 64, M.W. Yorks.; gravel pits near Farnham Mires, 1943, E. C. WALLACE.

558/13b. *MENTHA ARVENSIS* L. var. *OBTUSIFOLIA* Briq. 35, Mon.; weed in cultivated garden, Staunton Road, Monmouth, 1943, R. LEWIS, det. A. L. STILL, who writes, "This agrees well with var. *obtusifolia*, Bq." 36, Heref.; Pithouse Bank, Coddington, 1943, F. M. DAY—"Yes, you could call it that," A. L. STILL.

558/13c. *MENTHA ARVENSIS* L. var. *NUMMULARIA* (Schreb.) 36, Heref.; Downs School garden, Colwall, 1943, F. M. DAY. "The long petioles bring it under var. *silvicola* (H. Braun) Top. He makes *nummularia* (Schreb.) a form of this, and this plant could be called that." A. L. STILL.

558/13f. *MENTHA ARVENSIS* L. var. *PRAECOX* (Sole) Sm. 36, Heref.; Colwall, 1943, F. M. DAY. "Doubtful. According to Fraser *praecox* is a subglabrous form, and Sole's sheets cover *Allionii* and probably other varieties. Topitz figures plant var. *slichoviensis* (Op.) Top. with similar prominent serratures," A. L. STILL.

558/13j. *MENTHA ARVENSIS* L. var. *DENSIFOLIATA* Briq. 36, Heref.; Pithouse Bank, Coddington, 1943, F. M. DAY, det. A. L. STILL.

558/13l. *MENTHA ARVENSIS* L. var. *CUNEIFOLIA* Lej. 36, Heref.; Redland garden, Colwall, a single plant, leaves very narrow, 4 mm. wide by 20 mm. long, with few, if any, small serratures, whorls stalked, especially the lower ones, flowers small, 1943, F. M. DAY—"A very curious plant. The pedicels are glabrous, so I think it must be *arvensis*, and other characters agree well with those given by Fraser for var. *cuneifolia* Lej. & Court, but it is a very extreme form," A. L. STILL: Downs School garden, Colwall, leaves short-stalked, 2 cm. × 4 or 5 cm., serrations shallow and blunt, whorls scarcely stalked, 1943, F. M. DAY—"A curious plant. The very blunt and shallow serratures bring it near to *M. tenuifolia* (Host.) Top., according to Topitz's description. I don't know Host's plant," A. L. STILL.

*558/14. *MENTHA PULEGIUM* L. *44, Carm.; Upper Brynamman and Cwmlllynfell, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

*561/10. *THYMUS NEGLECTUS* Ronn. *103, M. Ebudes; Coll and Tiree, J. W. H. HARRISON *et al.* (1941C: 294).

*561/11. *THYMUS BRITANNICUS* Ronn. *103, M. Ebudes; Coll and Tiree, J. W. H. HARRISON *et al.* (1941C: 294).¹

*†? 563/1. *CLINOPODIUM VULGARE* L. *H.11, Kilknry.; large patches by roadside and field hedges, Goresbridge on Barrow, 1941-44, Miss E. RAWLINS—given for H.11 in *C.F.* but not by Dr Praeger.

*+565/1. *MELISSA OFFICINALIS* L. 2, E. Cornw.; Markwell, St Erney, 1943, E. M. PHILLIPS. 19, N. Essex; established plentifully in Tolleshunt d'Arcy, 1944, J. A. WHEELAN. 44, Carm.; Pwll, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 46, Card.; cliffs at Newquay, plentifully, 1939, J. A. WHEELAN. *47, Mont.; Dolforwyn, Garthmyl, Milford, Careghofa and near Welshpool, J. A. Webb (Wade and Webb, 1943: 64).

566/1. *SALVIA PRATENSIS* L. 15, E. Kent; above Detling; C. GRAY, c. 1935: near Barham Downs, 1939, B. J. BROOKE and F. ROSE: Boxley, Warren, 1944, C. WEST, comm. F. ROSE.

*+573/2. *PRUNELLA LACINIATA* L. *23, Oxon.; near Fawley associated with a wide range of forms with flowers of various colours and various leaf outlines such as have elsewhere been regarded as hybrids of this species with *P. vulgaris*, 1944, D. McCLINTOCK and W. J. L. SLADEN, det. J. E. LOUSLEY.

577/3. *STACHYS SYLVATICA* L. 104, N. Ebudes; new to Rhum, Harrison *et al.* (1944: 115).

*577/4. *STACHYS PALUSTRIS* L. × *SYLVATICA* L. *65, N.W. Yorks.; near Goskins, between Leeming and Catterick Bridge, 1943, C. M. ROB (*Nat.*, 1944: 19). *103, M. Ebudes; Coll (locally common although *S. sylvatica* was absent), J. W. H. HARRISON *et al.* (1941C: 294). 107, E. Suth.; waste ground by station yard, Lairg, 1943, A. J. WILMOTT. *110, O. Hebr.; Barra, J. W. H. HARRISON (1941B: 254).

+577/7. *STACHYS ANNUA* L. 17, Surrey; clover field near Greystone Limeworks, Merstham, 1943, J. E. LOUSLEY.

*578/1. *GALEOPSIS SPECIOSA* Mill. *34, W. Glos.; one plant, near Newland, Forest of Dean, 1942, S. G. CHARLES (W. R. PRICE, 1943: *Proc. Cotteswold Nat.'s Club*, 28, 8). 64, M.W. Yorks.; Arkendale, 1944, E. C. WALLACE.

578/2b. *GALEOPSIS TETRAHIT* L. var. *BIFIDA* (Boenn.) Lej. & Court. 41, Glam.; near Nash, 1940, apparently the rarer form in the vice-county, E. VACHELL.

578/2c. *GALEOPSIS TETRAHIT* L. var. *NIGRICANS* Bréb. 47, Mont.; seems to be as frequent as the type in Montgomeryshire, J. A. WEBB (Wade and Webb, 1943: 65).

+581/2. *LAMIUM MACULATUM* L. 47, Mont.; near Cemmaes, Garthmyl, Melinddol and Uwchygarrag, J. A. WEBB (Wade and Webb, 1943: 65). 64, S.W. Yorks; well naturalised away from houses by a stream near Gargrave, 1943, J. A. WHELLAN.

*581/4. *LAMIUM HYBRIDUM* Vill. 62, N.E. Yorks.; cult. land, Huby, near Stillington, 1944, E. C. WALLACE. *103, M. Ebudes; Coll and Tiree, J. W. H. HARRISON *et al.* (1941C: 294).

*581/10. *LAMIUM GALEODOLON* (L.) Cr. *66, Durham; near Lumley Castle (1942: *Vasc.*, 27, 7).

*583/1. *BALLOTA NIGRA* L. *H.13, Carlow; on old earth covered wall on roadside near Bagenalstown, 1940-44, Miss E. RAWLINS.

*587/2. *AJUGA PYRAMIDALIS* L. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 294).

587/4. *AJUGA CHAMAEPITYS* (L.) Schreb. 12, N. Hants.; cornfield, Bullington, 1944, Hon. E. PALMER, *comin.* W. J. L. PALMER.

*590/1. *ILLECEBRUM VERTICILLATUM* L. 16, W. Kent; by rides in Bedgebury Forest, 1944, F. ROSE (and *cf. B.E.C. 1920 Rep.*, 143). 22, Berks.; moist sandy track in Easthampstead Park, 1944, D. McCLINTOCK. *68, Chev.; sandy ground near the confluence of the Akenshaw and Lewis burns, Kielder area; with roundish leaves, J. W. H. Harrison (1944: *Vasc.*, 29, 24). *110, O. Hebr.; Barra [supporting Goodrich Freer's doubted record (1903) for Eriskay], J. W. H. Harrison 1941B: 255)—add to *C.F.*, Ed.

*593/2b. *HERNIARIA CILIATA* Bab. var. *ANGUSTIFOLIA* Pugsl. *110, O. Hebr.; S. Uist, J. W. H. Harrison (1941B: 255), det. H. W. Pugsley. —Previously recorded by Helena H. Harrison (1940?: in *Proc. King's Coll. Agric. Students' Association*—preprint December 1939, fourth unnumbered page).—Ed.

*595/2. *SCLERANTHUS ANNUUS* L. *47, Mont.; cornfields from Cyfronydd to Maesmawr, J. A. Webb (Wade and Webb, 1943: 65). *H.13, Carlow; side of sandy by-road, Gowlin, foot of Black Stairs-Mt., 1941, Miss E. RAWLINS.

†596/6. *AMARANTHUS RETROFLEXUS* L. 12, N. Hants.; cultivated land, Priory Valley, Selborne, 1944 (confirmed at Kew), Hon. W. J. L. PALMER. 16, W. Kent; Warren Wood, E. Malling, 1942: near Barming Station in Hop-garden: abundant in fields south of E. Malling: two latter records 1944, possibly brought with feathers used as manure, F. ROSE and C. WEST. 30, Beds.; Clophill, 1943, J. G. DONY, J. E. LOUSLEY and V. H. CHAMBERS, det. A. J. WILMOTT.

†600/4. *CHENOPodium HYBRIDUM* L. 30, Beds.; Woburn, 1942, J. G. DONY, det. J. P. M. BRENNAN.

600/6. *CHENOPodium MURALE* L. 21, Middx.; on a bombed site, Causton Street, London, S.W.1, 1943, D. McCLINTOCK: site of bombed buildings, Church Street, Chelsea, 1943, J. E. LOUSLEY and W. J. SLADEN.

*†600/7. *CHENOPodium OPULIFOLIUM* Schrad. *110, O. Hebr.; Vatersay, J. W. H. Harrison (1941B: 255).

†600/11. *CHENOPodium PRATERICOLA* Rydb. 58, Ches.; potato field near Oakmere, 1940, J. A. WHELLAN, det. at Kew (as *C. leptophyllum*).

600/12. *CHENOPodium FIGIFOLIUM* Sm. 26, W. Suff.; abundant in fields near Risby, 1944, J. A. WHELLAN.

*600/13. *CHENOPODIUM GLAUCUM* L. 19, N. Essex; plentiful in a potato field at Springfield, near Chelmsford, 1944, J. A. WHELLAN. *54, N. Lincs.; waste place by roadside near Wroot, 1943, John Brown (1944: *N.W. Nat.*, 18, 325).

*600/15. *CHENOPODIUM POLYSPERMUM* L. *47, Mont.; arable land, Llanllwchaiarn, J. A. Webb (Wade and Webb, 1943: 65).

†600/21. *CHENOPODIUM HIRGINUM* Schrad. 3, S. Devon; Chagford, 1941, J. P. M. Brennan (*Trans. Devon Ass. Adv. Sci.*, 75, 62: 1943). 33, E. Glos.; Fiddington, near Tewkesbury, 1944, C. W. BANNISTER, comm. W. R. PRICE, det. J. P. M. BRENNAN.

*606/2. *ATRIPLEX LITTORALIS* L. *110, O. Hebr.; Flodday and Vatersay, J. W. H. Harrison (1941B: 255).

606/7a. *ATRIPLEX GLABRIUSCULA* Edmondst. var. *VIRESCENS* (Lange) Moss & Wilmott. 41, Glam.; Aberthaw, E. VACHELL, who adds "not mentioned in List of Glamorgan Plants, det. A. J. WILMOTT."

†606/10. *ATRIPLEX HORTENSIS* L. 25, E. Suff.; one plant on waste ground at Bixley Heath, 1944, J. A. WHELLAN. H.12, Wexford; in gardens and waste places at Rosslare, 1941, Miss E. RAWLINS.

*606/17. *ATRIPLEX PORTULACOIDES* L. *47, Mont.; salt marsh, Dovey Junction, J. A. Webb (Wade and Webb, 1943: 65).

†607/1. *AXYRIS AMARANTHOIDES* L. 29, Cambs.; Coton footpath, near Cambridge, 1944, Dr W. H. MILLS, comm. A. J. WILMOTT.

*611/5. *SALICORNIA RAMOSISSIMA* Woods. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 295). *110, O. Hebr.; Benbecula and S. Uist, J. W. H. Harrison (1941B: 256).

*611/8. *SALICORNIA PROSTRATA* Pallas. *110, O. Hebr.; Benbecula, J. W. H. Harrison (1941B: 256)—not seen and much doubted, A. J. WILMOTT.

†613/3. *SALSOLA PESTIFER* Nelson. 17, Surrey; in a field of carrot, Chipstead Valley, 1943, J. E. LOUSLEY, A. B. JACKSON and N. Y. SANDWITH.

615/3. *POLYGONUM BISTORTA* L. 16, W. Kent; Bedgebury, 1943, J. R. WALLIS.

615/4. *POLYGONUM VIVIPARUM* L. 110, O. Hebr.; new to S. Uist, Harrison *et al.* (1944: 115).

615/6×7. *POLYGONUM LAPATHIFOLIUM* L. × *PERSICARIA* L. 35, Mon.; waste ground, Hadnock Cottages, Monmouth, 1943, R. LEWIS, det. C. E. BRITTON.

615/8. *POLYGONUM NODOSUM* Pers. 33, E. Glos.; mud, Swilgate, Tewkesbury, 1944, C. W. BANNISTER, comm. W. R. PRICE (as *P. petec-ticale* (Stokes) Druce).

615/9×11. *POLYGONUM HYDROPIPER* L. × *MINUS* Huds. 64, M.W. Yorks.; with the parents by pond near Copgrove, 1944, E. C. WALLACE.

615/10. *POLYGONUM MITE* Schrank. 35, Mon.; banks of R. Wye, Hadnock, Monmouth, 1943, R. LEWIS, det. C. E. BRITTON. 41, Glam.; wide ditch, Ely, plentiful, 1944, confirmation of old record, see *Phytol.*, 1842 and 1843, E. VACHELL.

615/10×7. *POLYGONUM MITE* Schrank × *PERSICARIA* L. 35, Mon.; banks of R. Wye, Hadnock, Monmouth, 1943, S. G. CHARLES, comm. R. LEWIS, det. C. E. BRITTON.

615/11. *POLYGONUM MINUS* Huds. 34, W. Glos.; two plants among much *P. Hydro Piper*, near Parkend, 1942, S. G. CHARLES, comm. W. R. PRICE. 49, Carn.; abundant on borders of Ystumlyn, near Criccieth, 1943, J. A. WHELLAN, det. J. E. LOUSLEY. 65, N.W. Yorks.; Newby Wiske Carr, and pond at Berryhills, near Kirklington, 1944, E. C. WALLACE.

*615/15. *POLYGONUM AEGUALE* Lindm. *103, M. Ebudes; J. W. H. Harrison *et al.* (1941C: 295). *104, N. Ebudes; Sanday, J. W. H. Harrison (1939E: 113).

†615/31. *POLYGONUM POLYSTACHYUM* Wallich. 6, N. Som.; established among brambles and bushes by the Channel near Ladye Bay, Clevedon, 1943, C. and N. Sandwith (Sandwith, 1944: 473). 50, Denb.; Berwyn and Maerdy, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

†615/32. *POLYGONUM CUSPIDATUM* Sieb. & Zucc. 47, Mont.; canal bank near Llanllwchaiarn, and Newtown, J. A. Webb (Wade and Webb, 1943: 65). 50, Denb.; Llangollen, 1943, J. A. WEBB, comm. NAT. MUS. WALES.

†616/1. *FAGOPYRUM SAGITTATUM* Gilib. 44, Carm.; Sandy, 1944, J. A. WEBB, comm. NAT. MUS. WALES (as *F. esculentum* Mch.).

*617/1. *OXYRIA DIGYNA* (L.) Hill. *73, Kirke.; cliffs near the summit of the Merrick, 1935, J. E. RAVEN—drawn, but a voucher specimen would be welcome.—ED.

618/2. *RUMEX DOMESTICUS* Hartm. 64, M.W. Yorks.; roadside, Keld Houses, Greenhow Hill, 1944, E. C. WALLACE: Gearstones, Ribblehead, 1944, W. A. Sledge (*Nat.*, 1945: 24). 65, N.W. Yorks.; about Dent Station and between Garsdale Station and the Moor Cock Inn, W. A. Sledge (*Nat.*, 1944: 144).

618/2×6. *RUMEX DOMESTICUS* Hartm. × *R. OBTUSIFOLIUS* L. 65, N.W. Yorks.; in the localities given above for *R. domesticus*, W. A. Sledge (*Nat.*, 1944: 144).

618/3×6. *RUMEX CRISPUS* L. × *R. OBTUSIFOLIUS* L. 22, Berks.; near King's Mere on Nine Mile Ride, Wokingham, 1944, D. McClin-
tock, det. J. E. LOUSLEY. 64, M.W. Yorks.; by pond at Copgrove, 1944,
E. C. WALLACE: rubbish tip near Leeds, W. A. Sledge (*Nat.*, 1945: 24).

618/6×20. *RUMEX OBTUSIFOLIUS* L. × *R. PATIENTIA* L. 39, Staffs.;
by River Trent, with parents, 1944, R. C. L. BURGESS, conf. J. E. LOUSLEY.

618/9×3. *RUMEX CONGLOMERATUS* Murr. × *R. CRISPUS* L. 64, M.W.
Yorks.; by pond at Copgrove, 1944, E. C. WALLACE.

618/9×13. *RUMEX CONGLOMERATUS* Murr. × *R. MARITIMUS* L. 28,
W. Norfolk; by pond, South Wootton, 1944, R. P. LIBBEY; 63, S.W.
Yorks.; by lake, Sandbeck Park near Maltby, 1944, J. BROWN: both det.
J. E. LOUSLEY.

618/11. *RUMEX PULCHER* L. 24, Bucks.; by the Mill at Mill End,
1944, D. McClin-
tock. H.12, Wexford; roadsides and waste ground
near sea at Arthurstown and Ballyhack, 1940-44, Miss E. RAWLINS.

618/12. *RUMEX PALUSTRIS* Sm. 21, Middx.; site of bombed build-
ings, Church Street, Chelsea, 1943, J. E. LOUSLEY and W. J. SLADEN.

*618/13. *RUMEX MARITIMUS* L. *7, N. Wilts.; Coate Water, 1944, J.
D. GROSE, det. J. E. LOUSLEY. 65, N.W. Yorks.; reappeared on dried
up pond, Berryhills, Kirklington, 1944; considered lost in this station
but the pond had not dried up for 50 years before 1943—see Baker (*North
Yorkshire*, 364: 1906), E. C. WALLACE—and see W. A. Sledge (*Nat.*,
1945: 24).

†618/17. *RUMEX SCUTATUS* L. 34, W. Glos.; on an old wall, Clifton,
1942, Mrs Bell (Sandwith, 1943: 365). 64, S.W. Yorks.; naturalised on
a wall at Newsholme, 1943, known for several years, J. A. WHELLAN.

†621/1. *ASARUM EUROPAEUM* L. 12, N. Hants.; in woodland verging
into garden (perhaps planted?), Chawton House near Alton, 1943, N. E.
G. CRUTTWELL.

[*]†623/1. *DAPHNE LAUREOLA* L. [*]47, Mont.; rare in shrubberies
just outside Llanidloes, perhaps introduced, J. A. Webb (Wade and
Webb, 1943: 65).

623/2. *DAPHNE MEZEREUM* L. 12, N. Hants.; 11 plants in Birch-
Ash-Hawthorn coppice on clay in the middle of an extensive wood near
Greywell, 1943, N. E. G. CRUTTWELL. 62, N.E. Yorks.; Haugh Rigg

near Pickering, several plants in a quarry, probably not indigenous but known to the people at a neighbouring farm for 25 years, E. G. Highfield (*Nat.*, 1945: 24).

*626/1. *VISCUM ALBUM* L. *47, Mont.; orchard at Llandinam, on apple, J. A. Webb (Wade and Webb, 1943: 65).

628/5. *EUPHORBIA PLATYPHYLLOS* L. 12, N. Hants.; field, Selborne, 1944, Hon. W. J. L. PALMER.

628/6. *EUPHORBIA STRICTA* L. 34, W. Glos.; on rubble, Kidnalls Wood, between Upper Forge and New Mills, a good many plants, 1944, S. G. CHARLES, comm. W. R. PRICE, who adds "This plant appears to grow in the triangular area between Severn and Wye, but its habit here of springing up spontaneously, generally in cut woods, and then disappearing, makes it appear to be extremely rare. Its few localities on the Monmouthshire side of the Wye seem, however, to be permanent. It was last recorded in Lydney Old Park by myself in 1908, and seemed to be extinct, until Mr Charles made a special search for it."

[*]†628/11. *EUPHORBIA CYPARISSIAS* L. 8, S. Wilts.; Larkhill, 1943, many fine clumps on the artillery ranges, D. McCLINTOCK. 15, E. Kent.; near Barham Downs in plenty, 1939, in plenty here, with *Salvia pratensis*, appearing native on this wild, remote area of chalk-scrub (a view supported by older records nearer Dover), B. J. BROOKE and F. ROSE. 41, Glam.; limestone Ridge behind Porthcawl, 1941, E. M. THOMAS, det. E. VACHELL. [*]47, Mont.; among shale on the railway bank near Tylwch, J. A. Webb (Wade and Webb, 1943: 65).

*+628/16. *EUPHORBIA LATHYRUS* L. *47, Mont.; weed among potatoes, Pont Robert, J. A. Webb (Wade and Webb, 1943: 65). H.11, Kilkny.; roadside casual, Rosbercon near New Ross, 1942, Miss E. RAWLINS.

+630/1. *RICINUS COMMUNIS* L. 35, Mon.; Newport Docks, 1942, JOHN MACQUEEN, comm. NAT. MUS. WALES.

[*]†631/1. *BUXUS SEMPERVIRENS* L. [*]47, Mont.; naturalised in woods far from houses, Garthmyl, bank of Vyrnwy near Dolganog, near Llwyngwern, Llanllwchaearn, near Ceinws and Cemmaes, J. A. Webb (Wade and Webb, 1943: 65).

*632/1. *MERCURIALIS PERENNIS* L. *H.11, Kilkny.; several good colonies in woods of Woodstock demesne, Inistiogue on R. Nore, 1940-1944, Miss E. RAWLINS.

*632/2. *MERCURIALIS ANNUA* L. *H.13, Co. Carlow; allotment, Borris, 1939-1944, persistent, Miss E. RAWLINS.

633/1×2. *ULMUS GLABRA* Huds. × *CARPINIFOLIA* Gled. 39, Staffs.; Cannock and also near Whitgreave, 1944, E. S. EDEES, det. R. MELVILLE.

633/1×4. *ULMUS GLABRA* Huds. × *PLOTII* Druce. 39, Staffs.; roadside between Great Bridgeford and Whitgreave, 1944, E. S. EDEES, det. R. MELVILLE.

*633/2. *ULMUS CARPINIFOLIA* Borkh. *47, Mont.; Newtown, near Cemmaes and near Nantoer, J. A. Webb (Wade and Webb, 1943: 65, as *U. nitens* Moench).

633/3. ×*ULMUS HOLLANDICA* Mill. 47, Mont.; Nantoer, Morbren, Abermule, near Moat Lane and near Cemmaes, J. A. Webb (Wade and Webb, 1943: 65).

633/3a. ×*ULMUS HOLLANDICA* Mill. var. **major** (Sm.) Rehd. 39, Staffs.; Butteron near Whitmore, 1944, E. S. EDEES, det. R. MELVILLE.

633/4(2). *ULMUS DIVERSIFOLIA* Melville. 25, E. Suff.; Burgh Castle, 1938, A. E. ELLIS, det. R. MELVILLE.

*634/1. *HUMULUS LUPULUS* L. *H.13, Carlow; Borris, 1940-44, Miss E. RAWLINS.

†636/1. *FIGUS CARICA* L. 44, Carm.; stony dykes, Pwll Marsh, near Pembrey, 1944, J. A. WEBB, comm. NAT. MUS. WALES.

*641/1. *MYRICA GALE* L. *H.13, Carlow; bog on Carlow side of Old Deer Park bog, Newtownbarry, 1942, Miss E. BOOTH, comm. Miss E. RAWLINS.

642/3. *BETULA NANA* L. 98, Argyll M.; very fine on Rannoch Moor beside Loch Ba, 1943, R. MACKECHNIE and E. C. WALLACE.

642/3×2. *BETULA NANA* L. × *PUBESCENS* Ehrh. 98, Argyll M.; one bush on moor beside Loch Ba, Rannoch Moor, 1943, R. MACKECHNIE and E. C. WALLACE.

†643/2. *ALNUS INCANA* Medik. 47, Mont.; rocky slopes, Glaspwll Valley, J. A. Webb (Wade and Webb, 1943: 65).

644/1. *CARPINUS BETULUS* L. 34, W. Glos.; coppiced shrub apparently wild, woods opposite Tintern Abbey, 1942, W. R. PRICE.

*646/1. *QUERCUS ROBUR* L. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 296).

*646/2. *QUERCUS PETRAEA* Lieblein. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 296, as *Q. sessiliflora* Salisb.).

†646/3. *QUERCUS CERRIS* L. 47, Mont.; not infrequent as a planted tree, apparently naturalised near Nantoer, Uwchygarrag, Gelligoch, etc., J. A. Webb (Wade and Webb, 1943, 65).

†647/1. *CASTANEA SATIVA* Mill. 47, Mont.; rather frequent as a planted tree, Berriew, Dolforgan, Dolforwyn and Penstrowed, J. A. Webb (Wade and Webb, 1943: 66).

†648/1. *JUGLANS REGIA* L. 47, Mont.; a large tree near the canal bank at Llanllwchaiarn, Pool Quay, and seedling trees on the lineside at Montgomery station, J. A. Webb (Wade and Webb, 1943: 66).

650/2×1. *SALIX FRAGILIS* L. × *PENTANDRA* L. 47, Mont.; Rhiew Valley, Llanllngan to Manafon and Pantyfridd, J. A. Webb. Recorded as *S. pentandra* (Wade and Webb, 1943: 66), H. H. Haines of Glyncoogan Hall, after the publication of the above, suggested to me that the Rhiew Valley willow is ×*S. Meyeriana* (= *S. fragilis* × *pentandra*), a determination with which I agree. The records for the Banwy Valley and Guilsfield are probably referable to the hybrid, A. E. WADE.

*650/3. *SALIX ALBA* L. *47, Mont.; Abertanat, near Llanfair Caereinion and near Pentre Leylin, J. A. Webb (Wade and Webb, 1943: 66).

*650/4. *SALIX TRIANDRA* L. *47, Mont.; Welshpool, Buttington, near Pool Quay and near Leighton, J. A. Webb (Wade and Webb, 1943: 66).

*650/5. *SALIX PURPUREA* L. *44, Carm.; Wenallt, near Five Roads, 1944, J. A. WEBB, COMM. NAT. MUS. WALES. *47, Mont.; below Vastre, near Pool Quay and Meifod, J. A. Webb (Wade and Webb, 1943: 66).

650/7. ×*SALIX SMITHIANA* Willd. 47, Mont.; frequent around Machynlleth and in the Dovey Valley, and Derwenlas, J. A. Webb (Wade and Webb, 1943: 66).

650/13. *SALIX PHYLLICIFOLIA* L. 104, N. Ebudes; new to Rhum, Harrison *et al.* (1944: 115).

*650/17. *SALIX MYRSINITES* L. *104, N. Ebudes; towards the summit of the Black Hill, Rhum, W. A. Clark (1944: *Vasc.*, 29, 6).

651/2b. *POPULUS TREMULA* L. var. *VILLOSA* (Lang) Syme. 41, Glain; Kenfig Hill, 1944, E. M. THOMAS, det. at NAT. MUS. WALES.

*†651/3. *POPULUS NIGRA* L. *47, Mont.; Newtown and Fronfraith, J. A. Webb (Wade and Webb, 1943: 66).

*652/2. *EMPETRUM HERMAPHRODITICUM* (Lange) Hagerup. *104, N. Ebudes; Rhum, Harrison *et al.* (1944: 115).

654/1. *HYDROCHARIS MORSUS-RANAE* L. 63, S.W. Yorks.; Thorae Gyne, 1943, J. M. Taylor (*Nat.*, 1943: 117; 1944: 19). 65, N.E. Yorks.; Ainderby Bottoms, 1943, C. M. Rob (*Nat.*, 1944: 19).

*659/1. *HAMMARBYA PALUDOSA* (L.) O. Kze. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 297, as *Malaxis p.*).

*664/2. *SPIRANTHES SPIRALIS* (L.) C. Koch. *H.13, Carlow; Kilree near Bagnelstown, 1942, Miss E. RAWLINS.

*664/3b. *SPIRANTHES ROMANZOFFIANA* Cham. var. *STRICTA* (Rydb.) Druce. *103, M. Ebudes; coll, J. H. Harrison, 1939; J. W. H. Harrison (1941C: 297, as *S. stricta*)—confirms the suggestion in *C.F.* that "perhaps this was the *S. spiralis* found in the Isle of Coll; see *B.E.C.*, 212, 1924."

667/2. *CEPHALANTHERA DAMASONTIUM* (Mill.) Druce. 34, W. Glos.; very rare here, Knockalls Inclosure, Redbrook, 1942, S. G. CHARLES, comm. W. R. PRICE (as *C. grandiflora* (L.) S. F. Gray).

668/1. *EPIPACTIS PALUSTRIS* (L.) Crantz. 49, Carn.; bog at Pen Hyddgan, Nevin, plentifully, 1940, J. A. WHEELAN.

Error 668/3(3). *EPIPACTIS VECTENSIS* (T. & T. A. Steph.) Brooke & Rose. 59, S. Lancs.; Freshfield, detected by W. G. TRAVIS and C. THOMAS in 1942, determined 1943. (who by?)

668/3(4). *EPIPACTIS PENDULA* C. Thomas. 30, Beds.; Streatley: Barton: both 1944; shown me at Streatley in 1926 by Sir F. Mander, as *E. media*, det. Tahourdin, and seen by Mr Thomas in 1943, and again in 1944 at Streatley and Barton, where it had been found by A. J. WILMOTT and myself a few weeks previously, J. G. DONY, det. C. THOMAS.

668/4. *EPIPACTIS PURPURATA* Sm. 30, Beds.; Deadmansea Wood, Whipsnade, 1941, J. G. DONY.

669/4. *ORCHIS USTULATA* L. 12, N. Hants.; Ladle Hill, 1944, H. WHEELER, comm. A. J. WILMOTT. 64, M.W. Yorks.; sparingly about The Bottoms, Burton Leonard, 1943, E. C. WALLACE.

669/6. *ORCHIS PARDALINA* Pugsl. 3, S. Devon; Tod Moor, Ermington, in small quantity; with numerous *O. praetermissa* and fairly numerous hybrids, 1943, E. M. PHILLIPS, det. H. W. PUGSLEY.

*669/8. *ORCHIS PRAETERMISSA* Druce. 2, E. Cornw.; near Pool, Sheviok, 1943, E. M. PHILLIPS. 3, S. Devon; Forder Valley, Egg Buckland: Tod Moor, Ermington, the predominant marsh orchid there: both 1943, E. M. PHILLIPS. *47, Mont.; Talerddig, Pennant Valley, Llanbrynmair, Glaspwll, and near Carno, J. A. Webb (Wade and Webb, 1943: 66).

*669/9. *ORCHIS PURPURELLA* T. & T. A. Steph. 74, Wigton; Mull of Galloway, 1934, G. TAYLOR, det. and comm. A. J. WILMOTT. *84, Linl.; Dalmeny, 1934, G. TAYLOR, det. and comm. A. J. WILMOTT. *103, M. Ebudes; Coll, Tiree, and Gunna, J. W. H. Harrison *et al.* (1941C: 298).

669/9(2). *ORCHIS OCCIDENTALIS* (Pugs.) Wilmott. 103, M. Ebudes; Coll and Tiree, J. W. H. Harrison *et al.* (1941C: 298, as *O. majalis* subsp. *occ.*). 104, N. Ebudes; Kilmory-Kinloch area in Rhum, J. W. H. Harrison (1944: *Vasc.*, 29, 6, as *O. majalis* Reichb.).

*669/10. *ORCHIS ERICETORUM* (Linton) E. S. Marshall. *16, E. Kent; abundant on the bogs, Hothfield Heath, 1944, hybridising with *O. praetermissa*, F. ROSE. *47, Mont.; rather frequent, near Carno, etc., J. A. Webb (Wade and Webb, 1943: 66): bog on Boncyn Celyn, S.E. of Lake Vyrnwy, 1942, J. W. GOUGH and N. Y. SANDWICH: bog near Llangurig, 1943, J. BEDFORD, conf. and comm. A. J. WILMOTT.

669/10×8. *ORCHIS ERICETORUM* (Linton) E. S. Marshall × *PRAETERMISSA* Druce. 14, E. Suss.; Ashdown Forest, 1943, J. R. WALLIS (as *O. maculata* × *praetermissa*).

669/10×11(2). *Orchis ericetorum* (Linton) E.S.M. × *O. hebridensis* Wilmott. 110, O. Hebr.; Vatersay and Barra, J. W. H. Harrison (1941B: 259, as *O. ericetorum* × *O. Fuchsii* var. *hebridensis*).

*669/11. *ORCHIS FUCHSII* Druce. *47, Mont.; near Forden and near Carno, J. A. Webb (Wade and Webb, 1943: 66): edge of a pond near Welshpool, 1943, J. BEDFORD, det. and comm. A. J. WILMOTT. *110, O. Hebr.; "typical specimens . . . from Barra, Vatersay, and S. Uist," J. W. H. Harrison (1941B: 259).

669/11(2). *ORCHIS HEBRIDENSIS* Wilmott. 103, M. Ebudes; Coll, Tiree, and Gunna, J. W. H. Harrison *et al.* (1941C: 298, as *O. maculata* var. *h.*). 104, N. Ebudes; Rhum, Harrison *et al.* (1944: 115, as *O. maculata* var. *h.*).

669/11(2)×7. *Orchis hebridensis* Wilmott × *O. latifolia* L. sec. Pugs. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 298, as *O. maculata* var. *hebridensis* × *O. latifolia* L.).

669/11(2)×9. *Orchis hebridensis* Wilmott × *O. purpurella* T. & T. A. Steph. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 298, as *O. maculata* var. *hebridensis* × *purpurella*).

669/11(2)×10. *Orchis hebridensis* Wilmott × *O. ericetorum* (Linton) E. S. Marshall. 103, M. Ebudes; Coll, J. W. H. Harrison (1941C: 298, as *O. maculata* var. *hebridensis* × *O. ericetorum*).

*669(2)/1. *ANACAMPTIS PYRAMIDALIS* (L.) Rich. 40, Salop; a form with spurless flowers and with the labellum replaced by a sepal resembling

ing the lateral sepals was found near Oswestry by Miss A. G. COOK; the flowers were quite regular and bore a superficial resemblance to those of *Erythraea* spp., comm. NAT. MUS. WALES. *47, Mont.; sparingly on limestone screes at Careghofa, J. A. Webb (Wade and Webb, 1943: 66).

669(3)/1. *HIMANTOGLOSSUM HIRCINUM* (L.) C. Koch. 7, N. Wilts.; "near Marlborough," 1942 (*Rep. Marl. Coll. N.H.S., No. 91* (1943), 12).

673/1. *HERMINIUM MONORCHIS* (L.) R. Br. 33, E. Glos.; Cranham, 1943, M. J. MULLIGAN, comm. A. J. WILMOTT.

*674(1)/1. *GYMNADENIA CONOPSEA* (L.) R. Br. *71, Man; Ballaugh Curraghs, 1943, Mrs MEGAW, comm. A. J. WILMOTT (from C. I. PATON).

674(1)/1×669/11(2). *Gymnadenia conopsea* (L.) R. Br. × *Orchis hebridensis* Wilmott. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 298, as *O. maculata* var. *hebridensis* × *Gymnadenia conopsea*).

674(2)/1. *LEUCORCHIS ALBIDA* (L.) E. Mey. ex Schur. 98, Argyll M.; hillocks on moor by Loch Tulla near Forest Lodge, 1943, E. C. WALLACE. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 298).

674(3)/1. *COELOGLOSSUM VIRIDE* (L.) Hartm. 33, E. Glos.; Cranham, 1943, M. J. MULLIGAN, comm. A. J. WILMOTT.

674(3)/1×674(1)/1. *Coeloglossum viride* (L.) Hartm. × *Gymnadenia conopsea* (L.) R. Br. 103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 298).

*674(5)/1. *PLATANATHERA CHELORANTHA* (Cust.) Rehb. *71, Man; Sully Curraghs, 1943, C. I. PATON, comm. A. J. WILMOTT—add to *C.F.* but see Paton (1933: *N.W. Nat.*, 594) for previous record.

*674(5)/2. *PLATANATHERA BIFOLIA* (L.) Rehb. *71, Man; Ballaugh Curraghs, 1943, Mrs MEGAW, comm. (C. I. PATON to) A. J. WILMOTT—add to *C.F.* but see Paton (1933: *N.W. Nat.*, 594) for previous record.

*680/1. *SISYRINCHIUM ANGUSTIFOLIUM* Mill. 14, E. Suss.; Fisher-gate, near Portslade, 1941,—, comm, A. H. WOLLEY-DOD. *96, Easternness; roadside ditch near Castle Urquhart towards Fort Augustus, 1944, M. S. CAMPBELL. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 299).

+683/1. *TRITONIA CROCOSMIFLORA* Nich. 44, Carm.; Hendy, and coal tips, Ammanford, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 47, Mont.; Garthmyl and Tylwch, J. A. Webb (Wade and Webb, 1943: 66).

+684/2. *NARCISSUS HISPANICUS* Gouan. 47, Mont.; frequent in orchards and about ruins chiefly *flore pleno*, Mochdre, Fron, Gregynog, Kerry, Pennant, and Berriew, J. A. Webb (Wade and Webb, 1943: 66, as *N. major* Curt.).

†684/4. *NARCISSUS POETICUS* L. 47, Mont.; Fron, Pennant, Cefnbryn-talch, Powis Park, Gregynog, alder copses a mile below Bwlch-y-fridd, Leighton, Abermule and Bettws, J. A. Webb (Wade and Webb, 1943: 67).

*685/1. *GALANTHUS NIVALIS* L. 36, Heref.; an escape, Purlieu Lane, Colwall, 1943, F. M. DAY. *47, Mont.; abundant in and around Kerry churchyard, streamside Kerry, by the Rhiew between Berriew and East Garthmyl; and near Mochdre, J. A. Webb (Wade and Webb, 1943: 67).

*†689/1. *RUSCUS ACULEATUS* L. *47,, Mont.; near cottages at Pandy, in hedges some distance from houses near Llanllugan, near Mochdre and Machynlleth, J. A. Webb (Wade and Webb, 1943: 67).

†690/2. *ASPARAGUS OFFICINALIS* L. 47, Mont.; Llanerch, J. A. Webb (Wade and Webb, 1943: 67)—first record for v.-c. 47.

691/3. *POLYGONATUM OFFICINALE* All. 3, S. Devon; Elfordleigh, Plympton St Mary, 1943, E. M. PHILLIPS.

†698/2. *ASPHODELUS TENUIFOLIUS* Cav. 16, W. Kent; Beckenham Park Place, 1934, E. J. BUNNETT, det. J. E. LOUSLEY.

*†702/7. *ALLIUM TRIQUETRUM* L. *5, S. Som.; Porlock Weir, 1944, J. D. GROSE.

†702/19. *ALLIUM PARADOXUM* (M.B.) G. Don. 26, W. Suff.; in a small copse at Bury St Edmunds, abundantly, 1944; the copse was subsequently ploughed so the plant may disappear, J. A. WHEELAN. 33, E. Glos.; roadside, a good many plants, near junction of Stroud and Tetbury roads, Cirencester, 1941, Miss K. H. MACAULAY, comm. J. P. M. BRENNAN, first record for the county.

†704/1. *MUSCARI COMOSUM* (L.) Mill. 33, E. Glos.; several bulbs in a field, Sweetslade Farm, Bourton-on-the-Water, 1943, W. S. BELCH, comm. W. R. PRICE.

707/2. *ORNITHOGALUM UMBELLATUM* L. 8, S. Wilts.; Larkhill, 1943, out on the ranges, D. McCLINTOCK. 54, N. Lincs.; Chapel Point, 1943, probably escaped, D. McCLINTOCK.

†707/3. *ORNITHOGALUM NUTANS* L. 12, N. Hants.; a large patch in a small copse near Mapledurwell, 1943 [shown by Miss THORP of Mapledurwell to] N. E. G. CRUTTWELL. 14, E. Sussex; Forge Wood near Worth—to correct the entry in *B.E.C. 1927 Rep.*, 421, 1928, where the county is given in error as Kent, E. C. WALLACE and J. E. LOUSLEY.

716/1. *PARIS QUADRIFOLIA* L. 66, Durham; still in Flatts Woods, Barnard Castle, confirmation of old record, J. B. Nicholson (1942: *Vasc.*, 27, 16).

*718/1. *JUNCUS MARITIMUS* Lam. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 299). *110, O. Hebr.; S. Uist and N. Uist, J. W. H. Harrison (1941B: 261).

718/4b. *JUNCUS EFFUSUS* L. var. *COMPACTUS* Lej. & Court. 47, Mont.; near Newtown and Dolfor, J. A. Webb (Wade and Webb, 1943: 67).

*718/5. *JUNCUS INFLEXUS* L. *47, Mont.; very local, below Montgomery Castle, near Penegoes and Talywern, J. A. Webb (Wade and Webb, 1943: 67).

*718/6. *JUNCUS BALTICUS* Willd. *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 299).

718/8. *JUNCUS SUBNODULOSUS* Schrank. 16, W. Kent; one plant, Snodland Marshes, 1943: below Crayford, 1944: abundant in Holborough Marshes, 1944—the only recent W. Kent records—now almost certainly gone from “Marshes above Woolwich” (found by J. S. Mill about 1863, recorded in *Fl. Kent*, 1899), F. ROSE. 64, M.W. Yorks.; Upper Dunsforth: Cow Mires, Galphay: Crosper and Aketon near Spofforth: Farnham Mires: Foster Flat, Copgrove: near Grewelthorpe: all 1943, E. C. Wallace (see *Nat.*, 1944: 19). Also plentiful in dykes bordering the railway between Towton and Church Fenton, W. A. Sledge (*l.c.*).

*718/14. *JUNCUS COMPRESSUS* L. 16, W. Kent; abundant on Halling Marshes: Cuxton: Upnor: Shorne Marshes: all 1944, apparently replacing *J. Gerardi* by the tidal Medway, where I have not seen the latter for certain, F. ROSE. *63, S.W. Yorks.; abundant by the shores of Ulley Reservoir and sparingly in the quarry at Woodend, Shireoaks, 1943, John Brown (1944: *N.W. Nat.*, 18, 326): Black Drain, Bankside, Thorne, 1943, J. M. Taylor (*Nat.*, 1944: 19): canal reservoir, East Cowick, J. M. Taylor (*Nat.*, 1945: 24). 64, M.W. Yorks.; two places near Occaney, Knaresborough, 1943, E. C. Wallace (see *Nat.*, 1944: 19).

*718/16. *JUNCUS MACER* S. F. Gray. 22, Berks.; a single clump in the open turf of Easthampstead Park, 1944, D. McCLINTOCK. *44, Carm.; Lower Twrch Gorge, 1944, J. A. WEBB, comm. NAT. MUS. WALES. *47, Mont.; roadside, Dolanog, 1944, C. E. RAVEN: 63, S.W. Yorks.; Doncaster, S. P. Rowlands (*Nat.*, 1945: 24). *101, Cant.; sandy path, Knapdale, near Tarbert, 1944, J. S. L. GILMOUR, add to *C.F.* but see Lees *Fl. Clyde* for previous record.

*718/19. *JUNCUS CAPITATUS* Weigel. *110, O. Hebr.; Barra, J. W. H. Harrison (1941B: 261).

718/22. *JUNCUS BIGLUMIS* L. 98, Argyll M.; Beinn Acholadair, Ben Douran sparingly, 1943, R. MACKECHNIE and E. C. WALLACE.

*719/2. *LUZULA PILOSA* (L.) Willd. *H.12, Wexford; Stokestown Woods, 1943-44, Miss E. RAWLINS; also at Newtownbarry, 1943, Miss E. BOOTH, comm. Miss E. RAWLINS.

†719/9. *LUZULA LUZULOIDES* (Lam.) Dandy & Wilmott. 59; S. Lancs.; on a shady bank in Marsden Park, Nelson, a few tufts shown to me by A. Turner who says it has been known at least 20 years, before the ground was enclosed as a park, 1943-4, J. A. WHELLAN (as *L. nemorosa* (Poll.)).

*722/1. *SPARGANIUM NEGLECTUM* Beeby. 33, E. Glos.; ditches round Fiddington and Tewkesbury (much commoner than *S. ramosum*), 1944, C. W. BANNISTER, comm. W. R. PRICE (Mr F. M. Day reports (1943) *S. ramosum* the only form in R. Leadon at Highleadon, v.-c. 34). *103, M. Ebudes; Coll and Tiree, J. W. H. Harrison *et al.* (1941C: 300).

722/2. *SPARGANIUM RAMOSUM* Huds. 33, E. Glos.; pool near Mythe Tute, Tewkesbury: 34, W. Glos.; R. Leadon, Hartpury: both 1943, F. M. DAY.

*722/3. *SPARGANIUM SIMPLEX* Huds. *47, Mont.; canal near Four Crosses and Arddleen, J. A. Webb (Wade and Webb, 1943: 67). 64, M.W. Yorks.; swampy pond by stream, Staveley, 1943, E. C. WALLACE.

723/1(2). *ARUM NEGLECTUM* (TOWNS.) Ridley. 13, W. Suss.; next season's leaves well advanced and conspicuous, September 29th, 1944, on chalky bank by road near Swanbourne Lake, Arundel Park, E. C. WALLACE.

727/2. *LEMNA POLYRHIZA* L. 21, Middx.; in a static-water tank by the Thames, Millbank, London, S.W.1, 1943, with *L. minor*, D. McCCLINTOCK.

727/3. *LEMNA TRISULCA* L. 64, N.W. Yorks.; in flower in pool at Fountains Abbey, 1944, E. C. WALLACE.

729/2. *ALISMA LANCEOLATUM* With. 7, N. Wilts.; Coate Water, [L. G. PEIRSON], 1943 (*Rep. Marl. Coll. N.H.M., No. 92* (1944), 11: also Thornend (J. D. Grose, 1944: 350).

731/1. *LURONIUM NATANS* (L.) Raf. 39, Staffs.; canal, Whittington, 1943, R. C. L. BURGESS (as *Elisma natans*).

732/1. *SAGITTARIA SAGITTIFOLIA* L. 34, W. Glos.; brook, Knockalls Inclosure, Redbrook, 1942, S. G. CHARLES, comm. W. R. PRICE.

733/1. *DAMASONIUM ALISMA* Mill. 20, Herts.; a large number of specimens are reported from a new locality in south Hertfordshire (F. W. Jane, 1944: *Trans. Herts. N.H. Soc., 22*, 55).

*734/1. *BUTOMUS UMBELLATUS* L. *47, Mont.; canal near Pentre Leylin, J. A. Webb (Wade and Webb, 1943: 67).

*737/1×9. ×*POTAMOGETON SPARGANIFOLIUS* Læstæd. ex Fr. *67, Northumb. S.; R. Tyne at Riding Mill, J. W. H. Harrison (1942: *Vasc.*, 27, 31).

*737/4. *POTAMOGETON COLORATUS* Hornem. 63, S.W. Yorks.; Balne pond, and ditch near Sourpiece Wood, Owston near Askem, J. M. Taylor (*Nat.*, 1945: 24). 64, M.W. Yorks.; ditch in lane near Farnham Mires, 1944, G. Taylor (*Nat.*, 1945: 24). *104, N. Ebudes; Rhum, Harrison *et al.* (1944: 115). *110, O. Hebr.; Benbecula and Monach Is., J. W. H. Harrison (1941B: 262)—recorded in the *Entomologist* (1941: 4) and by Dandy and Taylor (1941: *J.B.*, 99).

*737/5. *POTAMOGETON ALPINUS* Balb. *104, N. Ebudes; Rhum, J. W. H. Harrison (1939E: 117)—not seen by Dandy and Taylor. *110, O. Hebr.; Benbecula, J. W. H. Harrison (1941B: 262); Dandy and Taylor (1941: *J.B.*, 99).

*737/9×13. ×*POTAMOGETON ZIZII* Koch ex Roth. *67, Northumb. S.; Crag Lough, J. W. H. Harrison (1942: *Vasc.*, 27, 23).

737/13. *POTAMOGETON LUCENS* L. 110, O. Hebr.; swift runnel near Loch Kildonan, S. Uist, J. W. H. Harrison (1943: *Vasc.*, 28, 24).

*737/15. *POTAMOGETON PRAELONGUS* Wulf. 30, Beds.; plentiful in R. Ouse between Bedford and Cardington; 1944, J. E. DANDY: floating in same river at Eaton Socon, 1944, J. G. DONY: det. J. E. DANDY and G. TAYLOR. *47, Mont.; canal, Pool Quay, J. A. Webb (Wade and Webb, 1943: 67)—confirmed by DANDY and TAYLOR. 63, S.W. Yorks.; Boating Dike, Jacques Bank, east of Thorne, with *P. lucens*, J. M. Taylor (*Nat.*, 1945: 24). *66, Durham; R. Wear, J. W. H. Harrison (1943: *Vasc.*, 28, 24).

737/15×16. ×*POTAMOGETON COGNATUS* Aschers. & Graebn. 67, Northumb. S.; Crag Lough, J. W. H. Harrison and W. A. Clark (1942: *Vasc.*, 27, 29)—new to Britain.

*737/16. *POTAMOGETON PERFOLIATUS* L. *47, Mont.; canal between Pool Quay and Welshpool, and Pentre Leylin, J. A. Webb (Wade and Webb, 1943: 67)—canal plant confirmed, other not seen, by DANDY and TAYLOR.

737/16×17. ×*POTAMOGETON COOPERI* (Fryer) Fryer. 66, Durham; R. Wear, near Chester-le-Street, J. W. H. Harrison (1944: *Vasc.*, 29, 31)—new to the vice-county. 110, O. Hebr.; S. Uist, 1942, W. A. Clark (*Vasc.*, 27, 20; also *P.U. Durham P.S.*, 10, 365, det. J. W. H. Harrison)—new to the vice-county.

*737/17. *POTAMOGETON CRISPUS* L. *47, Mont.; Lymore, Montgomery, 1912, H. J. Riddelsdell in Herb. Butt; det. J. E. DANDY and G. TAYLOR: canal at Berriew, J. A. Webb (Wade and Webb, 1943: 67)—added to annotated *C.F.*, not in *Welsh Fl. Pl.*—ED.

*737/19. *POTAMOGETON ACUTIFOLIUS* Link. *67, Northumb. S.; very sparingly in a backwater between Riding Mill and Carbridge, J. W. H. Harrison (1942: *Vasc.*, 27, 23).

*737/20. *POTAMOGETON OBTUSIFOLIUS* M. & K. *110, O. Hebr.; Loch Snigisclett, S. Uist, J. W. H. Harrison (1943: *Vasc.*, 28, 24).

*737/22. *POTAMOGETON FRIESII* Rupr. 30, Beds.; R. Ouse, Bedford, 1944, J. E. DANDY. *66, Durham; in an old clay pit just west of the railway near Birtley, J. W. H. Harrison (1944: *Vasc.*, 29, 24). *67, Northumb. S.; Bolam Lake, J. W. H. Harrison (1943: *Vasc.*, 28, 24).

737/23. *POTAMOGETON BERCHTOLDII* Fieb. 30, Beds.; Battlesden, 1943, J. E. DANDY: Stockgrove, Heath and Reach, 1944, J. G. DONY; det. J. E. DANDY and G. TAYLOR.

*737/24. *POTAMOGETON RUTILUS* Wolfg. *110, Hebrides; N. Uist, J. W. H. Harrison (1942: *Vasc.*, 27, 28).

737/25. *POTAMOGETON PUSILLUS* L. (*P. panormitanus* Biv.). 30, Beds.; River Ouse, Bedford, 1944, J. E. DANDY: Melchbourne: Eaton Socon: Leighton Buzzard: Heath and Reach: all 1944, J. G. DONY; all det. J. E. DANDY and G. TAYLOR. *66, Durham; old clay pond south of Birtley, det. J. W. H. Harrison (1942: *Vasc.*, 27, 8, 21). *67, Northumb. S.; Crag Lough, J. W. H. Harrison (1942: *Vasc.*, 27, 31)—add to *C.F.*

738/2. *RUPPIA ROSTELLATA* Koch. 49, Carn.; abundant at seaward end of Ystumlyn, near Criccieth, 1943, J. A. WHELLAN.

*739/1. *ZANNICHELLIA PALUSTRIS* L. *H.13, Carlow; pond by roadside, Kilcotrim near Borris, 1942, Miss E. RAWLINS.

740/1(2). *ZOSTERA HORNEMANNIANA* Tutin. 104, N. Ebudes; in pools on Hyskeir reef, J. W. H. Harrison (1939E: 117).

*740/2. *ZOSTERA NANA* Roth. *103, M. Ebudes; washed ashore on Coll, J. W. H. Harrison *et al.* (1941C: 301).

*741/2. *NAIAS FLEXILIS* Rostk. & Schmidt. *110, O. Hebr., S. Uist, J. W. H. Harrison (1941B: 263).

†744/1. *CYPERUS LONGUS* L. 41, Glam.; Maerdy Pool, obviously introduced, R. L. Smith (*Trans. Cardiff N.S.*, 71, 31).

*745/2. *ELEOCHARIS UNIGLUMIS* (Link) Schultes. *16, W. Kent; Birling: Snodland to New Hythe, in the Marshes: both 1943; Holborough Marshes: E. of Cooling: Higham Marshes: Shorne Marshes: Northfleet Brooks: all 1944—see note on this species in W. Kent, F. ROSE.

745/4. *ELEOCHARIS ACICULARIS* (L.) R. Br. 8, S. Wilts.; near Free Warren, 1943 (*Rep. Marl. Coll. N.H.M., No. 92* (1944), 11).

*746/1. *SCIRPUS SYLVATICUS* L. 22, Berks.; streamside by Greenham Common, 1944, D. McCLINTOCK. *42, Brecon; bank of River Wye below Builth Wells, 1943, J. A. WHELLAN. *47, Mont.; Llanfair Caereinion and near Guilsfield, J. A. Webb (Wade and Webb, 1943: 68).

746/2. *SCIRPUS MARITIMUS* L. 18, S. Essex; plentiful at margin of pond, 310 ft. alt., Danbury, 1944, J. A. WHELLAN.

746/3. *SCIRPUS LACUSTRIS* L. 34, W. Glos.; Cannop Ponds, Forest of Dean, 1943, first record for Flora district 4, S. G. CHARLES, comm. W. R. PRICE.

746/4. *SCIRPUS TABERNAEMONTANI* C. Gmel. 63, S.W. Yorks.; dike on west side of Thorne Moor near the colliery, J. M. Taylor (*Nat.*, 1945: 24).

746/11. *SCIRPUS SETACEUS* L. 15, E. Kent; Chiddenden Wood, 1943, J. R. WALLIS. 30, Beds.; Rushmere, Heath and Reach, 1944, E. MILNE-REDHEAD and J. G. DONY.

*746/12. *SCIRPUS CERNUUS* Vahl. *47, Mont.; Dovey Salt Marsh, J. A. Webb (Wade and Webb, 1943: 68, as *S. filiformis* Savi).

747/1. *ERIOPHORUM LATIFOLIUM* Hoppe. 64, M.W. Yorks.; Farnham Mires, western Brearton portion, 1943, confirmation of a record in Baines *Fl. Yorks.*, 1840, E. C. WALLACE (see *Nat.*, 1944: 20).

749/1. *SCHOENUS NIGRICANS* L. 64, M.W. Yorks.; Brearton end of Farnham Mires: Cow Mires, Galphay: Aketon near Spofforth: and at Foster Flat near Copgrove: all 1943, E. C. WALLACE (see *Nat.*, 1944: 20).

*750/1. *CLADIUM MARISCUS* (L.) R. Br. 64, M.W. Yorks.; swampy wood between Copgrove and Newby, 1944, confirming J. Dalton's record (c. 1800)—see Lees (*Fl. W. Yorks.*, 453, 1888), E. C. WALLACE—and see W. A. SLEDGE (*Nat.*, 1945: 24-25). *101, Cant.; edge of loch near Dunmore House, W. Loch Tarbert, 1944, J. S. L. GILMOUR. *110, O. Hebr.; Benbecula and N. Uist (*P.U. Durh. P.S.*, 10, 264) [*Vasc.*, 23, 1].

*753/2. *CAREX RIPARIA* Curt. *47, Mont.; near Dovey Junction, J. A. Webb (Wade and Webb, 1943: 68). *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 303).

*753/3. *CAREX ACUTIFORMIS* Ehrh. *110, O. Hebr.; Baleshare; *111, Orkney; S. Ronaldshay (Harrison, 1944: *Vasc.*, 29, 15, both det. E. Nelmes).

753/3b. *CAREX ACUTIFORMIS* Ehrh. forma *SPADICEA* (Roth) Aschers. & Graebn. 28, W. Norf.; elevated river bank, R. Nar at Marham, 1942, E. L. SWANN.

*753/4. *CAREX VESICARIA* L. *110, O. Hebr.; S. Uist, J. W. H. Harrison (1941B: 266).

*753/7. *CAREX ROSTRATA* Stokes. *47, Mont.; Bettws Cedewain to Panney, J. A. Webb (Wade and Webb, 1943: 68)—added to annotated *C.F.*

753/8. *CAREX LASIOCARPA* Ehrh. 28, W. Norf.; swamp at Derby Fen, Grimston, 1942, E. L. SWANN. 49, Carn.; plentiful in bog near Pen Hyddgan, Nevin, 1940, J. A. WHELLAN. 65, N.W. Yorks.; abundant but apparently not flowering in a carr near Morton le Moor, 1944, E. C. WALLACE. 98, Argyll M.; Loch Ba, Rannoch Moor and in several nearby lochans, 1943, R. MACKECHNIE and E. C. WALLACE.

*753/9. *CAREX HIETA* L. *47, Mont.; Luggy, near Carno and Llandyssil, J. A. Webb (Wade and Webb, 1943: 68).

*753/10. *CAREX PENDULA* Huds. *H.13, Carlow; woods, Borris demesne, 1940-44, Miss E. RAWLINS.

753/12. *CAREX STRIGOSA* Huds. 15, E. Kent; Snarkhurst Wood, Hollingbourne: abundant in a copse east of Lenham: both on gault clay, which this species favours in Kent, both 1944, F. ROSE. 16, W. Kent; Ryarsh Wood, on gault clay, 1943, F. ROSE.

753/13. *CAREX HELODES* Link. 34, W. Gos.; cleared sloping wood between Little Dean and Soudley, 1944, E. NELMES (as *C. laevigata* Sm.).

*753/14. *CAREX CAPILLARIS* L. *104, N. Eubodes; Rhum, J. W. H. Harrison (1939E: 118).

753/19. *CAREX HOSTIANA* DC. 28, W. Norf.; wet places on Roydon Common, 1944, E. L. SWANN. 101, Cant.; bog near Dunmore House, W. Loch Tarbert, 1944, J. S. L. GILMOUR, det. E. NELMES.

753/19×20(2). *CAREX HOSTIANA* DC. × *C. TUMIDICARPA* Anderss. 34, W. Gos.; boggy common between Drybrook and Mitcheldean, 1943, E. NELMES. 101, Cant.; bog near Dunmore House, W. Loch Tarbert, with parents, 1944, J. S. L. GILMOUR, det. E. NELMES.

753/19×21. *CAREX HOSTIANA* DC. × *LEPIDOCARPA* Tausch. 64, M.W. Yorks.; marsh by stream near Sunley Rains, Ripon, 1943, E. C. WALLACE.

753/21. *CAREX LEPIDOCARPA* Tausch. 28, W. Norf.; very wet fen on chalk, East Walton Common, 1944, E. L. SWANN. 33, E. Glos.; in small stream near spring at head of Sheepscombe Valley, 1944, apparently the only species of the "flava" group occurring on the Oolitic Limestone of the Cotswolds, E. NELMES.

*Ernst
denun*
*753/22. *CAREX SEROTINA* Mérat. 15, E. Kent; still at Willesborough Leas, 1944; last recorded there by G. E. Smith (Cowell, 1839: *Floral Guide*, p. 69, as *C. Oederi*), F. ROSE. 28, W. Norf.; on bare soil following turf cutting at Sugar Fen, Leziate, 1943, E. L. SWANN. *33, E. Glos.; in wet muddy hollows in disused gravel pit about half a mile west of S. Cerney, 1943, the only locality for this species known to me in v.-c. 33, E. NELMES.

753/23. *CAREX EXTENSA* Good. 101, Cant.; brackish marsh near W. Loch Tarbert, 1944, J. S. L. GILMOUR, det. E. NELMES.

753/25. *CAREX DIGITATA* L. 64, M.W. Yorks.; Mackershaw Woods, Fountains, 1943, where *C. ornithopoda* (Lees, *Fl. West Yorks.*, 1888, 798) was looked for without success, W. A. SLEDGE and E. C. WALLACE (see *Nat.*, 1944: 20).

*753/28. *CAREX CARYOPHYLLEA* Latour. *47, Mont.; Dolforwyn Castle meadows, Leighton, Careghofa quarries and near Llanfyllin, J. A. Webb (Wade and Webb, 1943: 68): grassy bank at Llanwddyn, head of Lake Vyrnwy, 1942, J. W. GOUGH and N. Y. SANDWITH. *103, M. Ebudes; Coll and Tiree, J. W. H. HARRISON *et al.* (1941C: 303). *110, O. Hebr.; Pabbay (Barra) and Vatersay, J. W. H. HARRISON (1941B: 265).

*753/29. *CAREX ERICETORUM* Poll. *64, M.W. Yorks.; in aboriginal turf on downland by quarry near Burton Leonard, 1943, on the magnesian limestone and associated with typical lime loving plants (see *Yorks. Nat.*, 1943: 97), E. C. WALLACE.

753/30. *CAREX MONTANA* L. 41, Glam.; ridge behind Porthcawl, 1942, E. M. THOMAS, det. E. VACHELL.

753/31. *CAREX TOMENTOSA* L. 33, E. Glos.; dry sloping wood-border just E. of Colesborne, 1941: grassy roadside between Cirencester and Barnsley, 1942: roadside on Akeman Street in several places between Cirencester and Coln St Aldwyn, 1942: at several spots on edges of woods and, many thousands of plants, in wide grassy ride in Oakley Park, 1½ m. W. of Cirencester, 1942: roadside about 1 m. S.W. of Dun-tisbourne Abbots, 1943: roadside on Baunton Downs, near the Foss Way, between Baunton and Calmsden, 1943: E. NELMES.

753/32. *CAREX PILULIFERA* L. 34, W. Glos.; very large plants on a recently cleared area of Michael Wood, about 1½ m. E. of Stone, 1944, E. NELMES. 71, Man; South Barrule, 1943, C. I. PATON, comm. A. J. WILMOTT.

*753/34. *CAREX PALLESCENS* L. *33, E. Glos.; grassy ride in Withington Woods, 1941, E. NELMES. 34, W. Glos.; cleared sloping wood between Little Dean and Soudley, 1944, E. NELMES. *H.12, Wexford; sparingly in woods, Stokestown—demesne New Ross, 1944, Miss E. RAWLINS. *H.13, Carlow; Lucy's Wood, Newtownbarry, 1944, Miss E. BOOTH, contm. Miss E. RAWLINS.

*753/35. *CAREX VAGINATA* Tausch. *110, O. Hebr.; S. Uist, J. W. H. Harrison (1941B: 265).

*753/37. *CAREX PAUPERCULA* Michx. *98, Argyll M.; bogs near Clashgour, Inveroran, Bridge of Orchy, 1943, R. MACKECHNIE and E. C. WALLACE, det. E. NELMES. 110, O. Hebr.; near the South Lee, J. W. H. Harrison (1944: *Vasc.*, 29, 15, confirmed by E. Nelmes).

753/38. *CAREX LIMOSA* L. 98, Argyll M.; bogs by Loch Ba on Rannoch Moor, 1943, R. MACKECHNIE and E. C. WALLACE.

*753/45. *CAREX ELATA* All. 64, M.W. Yorks.; swamp at Staveley: by pond near Copgrove: The Carr, Marton near Boroughbridge: all 1943, E. C. WALLACE (see *Nat.*, 1944: 20, with records for v.-cc. 63 and 65). *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 302, as *C. Hudsonii* Ar. Benn.). *110, O. Hebr.; Gt. Bernera, Lewis, J. W. H. Harrison (1941B: 265, as *C. Hudsonii* Ar. Benn.).

753/46. *CAREX ACUTA* L. 64, M.W. Yorks.; by canal, Littlethorpe near Ripon, 1943, E. C. WALLACE—"Note stamens instead of stigmas protruding from the utricles and thus m. *staminifera* Boott, described in 1867 from "Yorkshire." J. A. Whellan sent a specimen recently from Brecon. I have not heard of its occurrence in any other species," E. NELMES.

*753/47. *CAREX AQUATILIS* Wahl. *45, Pemb.; in a marshy pool near Gilgerran, probably an old bed of the R. Teifi, 1941, J. A. WHELLAN, det. E. NELMES.

753/49(2). *CAREX EBORACENSIS* Nelmes. 63, S.W. Yorks.; St Ives, Bingley, 1943, A. Malins Smith (1944: *Nat.*, 143), det. E. Nelmes.

✓ 753/51(2). *CAREX BICOLOR* All. 104, N. Ebudes; Rhum, seen over slightly greater area than in 1942, Harrison *et al.* (1944: 116).

✓ 753/52. *CAREX ELONGATA* L. 16, W. Kent; in a small marsh near R. Eden, at Gilridge, above Penshurst, 1944, F. ROSE and J. H. LAVENDER.

†753/53(2). *CAREX CRAWFORDII* Fernald. 34, W. Glos.; old brick pit at the Lower Lode, near Tewkesbury, 1925, H. H. KNIGHT, det. E. NELMES. Knight had given Riddelsdell specimens in 1925 (he had sent

others one or more years previously) and they were passed on to Kew, presumably after Riddelsdell's death. They came into my hands in 1943. The label bears the identification "*Carex leporina*, slender f." [H.J.R.]. "I agree, C.E.S." Additional notes from letters from Knight in 1943: "I saw the *Carex* there for several years, but now the brick-pit is so overgrown that I cannot find the plant." "I always thought it could not be typical *C. leporina (ovalis)*. This was not the first time I had sent Riddelsdell specimens of the *Carex* from the Lower Lode. I cannot find in my records when I first found it." "A few days after carding the *Carex* to H.J.R. on 25th June I started with a Bryological friend for Ireland. . . . We wandered about Fishguard and I saw a *Carex* which I think must have been *C. Crawfordii*. But I did not take a specimen." "Cunard steamers from America used to call at Fishguard on their way to Liverpool." The "habitat" seems similar to that in which Mr Lousley found the species in 1937 (see 1937 *Rep.*, 515), but timber from N. America had been laid down in the Kentish pit, and Mr Lousley feels certain his plant was introduced with the timber. E. NELMES.

*753/57×59. ×*CAREX AXILLARIS* Good. *19, N. Essex; plentiful in dry ditch near Coggeshall, with the parents, 1944, J. A. WHELLAN, det. E. NELMES.—Neither 18 nor 19 given in *C.F.* but Gibson (1862: *Fl. Essex*, 348) gives localities for every district of the county; add 18 and 19 to *C.F.*—ED. 34, W. Glos.; south side of Stroudwater Canal, Brimscombe, 1943, R. B. ABELL and E. NELMES (as *C. remota* L. × *Otrubae* Podp.).

*753/58. *CAREX CANESCENS* L. 15, E. Kent; still a few clumps at Willesborough Leas, 1944—last recorded here by Cowell (1839: *Floral Guide*, p. 69, as *C. curta*) and no other recent Kent record, F. ROSE. *103, M. Ebudes; Coll, J. W. H. Harrison *et al.* (1941C: 302, as *C. canescens* Lightf.). *110, O. Hebr.; Pabbay (Barra), J. W. H. Harrison (1941B: 265, as *C. curta* Good.). *H.13, Carlow; Ballintree bog near Bagenalstown, 1941-44, Miss E. RAWLINS.

753/59(2). *CAREX VULPINA* L. 16, W. Kent; Beltring: Whetsted: Brambridges: Leigh: above Tonbridge: Penshurst: S. of Yalding: Gilridge, near Penshurst: below Tonbridge: all 1944, F. ROSE. 33, E. Glos.; in rheens between Coombe Hill and Haw Bridge, 1942: withy beds at Walham, about a mile N.W. of Gloucester, 1942: in ditch about half mile S. of Maisemore, 1943: margin of roadside pond about a mile N.W. of Norton, 1944: E. NELMES. 34, W. Glos.; one plant in withy bed, Chaceley Stock, 1942, E. NELMES.

*753/60. *CAREX SPICATA* Huds. 28, W. Norf.; marshy field near Snettisham Beach, 1944, E. L. SWANN. *47, Mont.; near Dovey Junction, J. A. Webb (Wade and Webb, 1943: 68).

*753/61. *CAREX PAIRAEI* F. Schultz. *15, E. Kent; Harrietsham, by roadside, abundant: Ashford Warren: Willesborough Leas: all 1944, F. ROSE. 16, W. Kent; roadside bank, Postern Lane near Tonbridge, 1939, J. P. M. BRENNAN: E. Malling, by the Village Hall; near New Hythe: both 1944, F. ROSE. *19, N. Essex; hedge bank near Berechurch, 1944, J. A. WHELLAN, det. E. NELMES. 28, W. Norf.; dry hedgebank at Litcham, 1943, E. L. SWANN. 34, W. Glos.; path in Michael Wood, about 1½ m. E. of Stone, 1944, E. NELMES. *47, Mont.; near Penegoes and Cemmaes Road, Llanwrin, Llynant Valley and Montgomery Castle, det. E. Nelves, J. A. Webb (Wade and Webb, 1943: 68): dry bank above Vyrnwy River near Llanwdden, 1942, J. W. GOUGH and N. Y. SANDWITH: 49, Carn.; hedge bank near Llanystumdwy, 1943, J. A. WHELLAN, det. E. NELMES. 63, N.E. Yorks.; Doncaster, S. P. Rowlands, det. E. Nelves (*Nat.*, 1945: 25). *64, M.W. Yorks.; in two places near Spofforth, 1943, see *Yorks. Nat.*, 1943: 116, E. C. WALLACE (*Nat.*, 1944: 20): near Baildon Station, A. M. Smith, det. E. Nelves (*Nat.*, 1945: 25). *110, O. Hebr.; Vatersay, J. W. H. Harrison (1941B: 265).

753/61(2). *CAREX POLYPHYLLA* Kar. & Kir. 64, M.W. Yorks.; hedge bank at Copgrove, 1943, E. C. WALLACE, det. A. J. WILMOTT (as *C. Leersii* F. Schultz), 1944, conf. E. NELMES.

753/62. *CAREX DIVULSA* Stokes. 64, M.W. Yorks.; hedge bank, East Keswick, 1944, E. C. WALLACE.

*753/63. *CAREX PANICULATA* L. *47, Mont.; small bog between Meifod and Llyn du, J. A. Webb (Wade and Webb, 1943: 68): bank of Shropshire Union Canal near Llanmynech, 1942, J. W. GOUGH and N. Y. SANDWITH; confirms *C.F.*, not in *Top. Bot. Supps.*, or *Welsh Fl. Pl.* *104, N. Ebudes; Muck, J. W. H. Harrison (1939E: 117).

753/63×57. *CAREX PANICULATA* L. × *REMOTA* L. 16, W. Kent; wood near Tunbridge Wells, a single plant, 1943, H. W. PUGSLEY, comm. J. R. WALLIS. 62, N.E. Yorks.; Egton Bridge, S. P. Rowlands (*Nat.*, 1944: 143).

*753/64. *CAREX APPROPINQUATA* Schumacher (*C. paradoxa* Willd.). 28, W. Norf.; fen at Wormegay, 1943, E. L. SWANN. *103, M. Ebudes; Gunna, only recorded one previously from Scotland, J. W. H. Harrison *et al.* (1941C: 302).

*753/65. *CAREX DIANDRA* Schrank. *103, M. Ebudes; Tiree, J. W. H. Harrison *et al.* (1941C: 302).

753/67. *CAREX ARENARIA* L. 15, E. Kent; very abundant for half mile by a sandy roadside W. of Hollingbourne: roadside N. of Leeds Park: Warren Wood, Leeds: all 1944, F. ROSE and J. H. LAVENDER.

753/68. *CAREX DIVISA* Huds. 28, W. Norf.; marshes in the valley of the R. Nar, South Lynn, 1942, E. L. SWANN.

753/74. CAREX FULICARIS L. 15, E. Kent; Chiddenden Wood, 1943, J. R. WALLIS.

Boston EAS.
Holborns 59!
Scamney 56!
Roydon C. 59!
753/75. CAREX DIOICA L. 28, W. Norf.; swamp margins at Derby Fen, 1944, E. L. SWANN. 64, M.W. Yorks.; Aketon Marsh near Spofforth: Foster Flat near Copgrove, both 1943, E. C. WALLACE (see *Nat.*, 1944: 20).

Hopton 58!
Redgrave 59!
*754/8. PANICUM CRUS-GALLI L. *36, Heref.; kitchen garden at The Downs School, Colwall, probably introduced in chicken food, 1944, F. M. DAY, det. C. E. HUBBARD (as *Echinochloa Crus-galli* (L.) Beauv.).

*754/8c. PANICUM CRUS-GALLI L. var. BREVISETUM Doll. *35, Monm.; adventive in cultivated garden, Staunton Road, near Monmouth, 1944, R. LEWIS, det. C. E. HUBBARD (as *Echinochloa C. var. mitis* (Pursh) Hitchcock).

754/8d. PANICUM CRUS-GALLI L. var. LONGISETUM Doll. 35, Monm.; adventive in cultivated garden, Staunton Road, near Monmouth, 1944, R. LEWIS, det. C. E. HUBBARD. 36, Heref.; kitchen garden at The Downs School, Colwall, F. M. DAY, det. C. E. HUBBARD (as *Echinochloa C. var. aristata* S. F. Gray).

*758/3. SPARTINA TOWNSENDI H. & J. Groves. *16, W. Kent; by R. Medway at Cuxton, 1943, F. ROSE.

*770/3. ALOPECURUS MYOSUROIDES Huds. *104, N. Ebudes; a weed on Canna, J. W. Harrison (1939E: 118).

770/4. ALOPECURUS BULBOSUS Gouan. 16, W. Kent; abundant at Upnor in brackish meadow, 1944, J. H. LAVENDER and F. ROSE.

770/5x1. ALOPECURUS GENICULATUS L. x PRATENSIS L. 6, N. Som.; in the corner of a pasture on Tickenham Moor, 1942, C. and N. Sandwith (Sandwith, 1943: 364).

770/6. ALOPECURUS AEQUALIS Sobol. 16, W. Kent; pond in Ryarsh Wood, 1944, F. ROSE and C. WEST. *64, M.W. Yorks.; by a pond between Burton Leonard and Copgrave, 1943, E. C. WALLACE (*Nat.*, 1943: 116; 1944: 20): shore of Gouthwaite reservoir, near Ramsgill; *65, N.W. Yorks.; by pond at Berryhills, Kirklington; both 1944, E. C. WALLACE.

*775/1. MILIUM EFFUSUM L. *47, Mont.; Bwlch-y-cibau Glen, J. A. Webb (Wade and Webb, 1943: 68).

777/1g. PHELEUM PRATENSE L. var. NODOSUM (L.) Huds. 44, Carm.; Ashburnham, 1944, J. A. WEBB, comm. NAT. MUS. WALES. 64, M.W. Yorks.; sandy rocky ground, Crosper near Spofforth, 1943, E. C. WALLACE (*Nat.*, 1944: 20, as *P. nodosum* L.).

780/2j. *AGROSTIS STOLONIFERA* L. var. *PALUSTRIS* (Huds.) Farw. 33, E. Glos.; cornfield about a mile W. of Daglingworth, 1943, E. NEMES, det. C. E. HUBBARD.

780/2(2). *AGROSTIS GIGANTEA* Roth. 104, N. Ebudes; Canna, J. W. H. HARRISON (1939E: 119, as *A. nigra* With.).

780/2(2)a. *AGROSTIS GIGANTEA* Roth. var. *RAMOSA* (S. F. Gray) Philipson. 17, Surrey; dried up bed of Fetcham Millpond, 1944, J. E. LOUSLEY, det. C. E. HUBBARD.

780/6k. *AGROSTIS CANINA* L. var. *FASCICULARIS* (Curt.) Sincl. 33, E. Glos.; heath on Greensand, Driffield, 1942, W. R. PRICE, det. C. E. HUBBARD. 37, Worcs.; Old Hills, Powick, 1937, F. M. DAY, det. C. E. HUBBARD. 43, Radn.; Llanfihangel nant Melan, 1936, F. M. DAY, det. C. E. HUBBARD.

*783/1. *CALAMAGROSTIS EPIGEJOS* (L.) Roth. 28, W. Norf.; dyke-side at Snettisham, 1943, E. L. SWANN. 39, Staffs.; roadside near Hatherton, 1944, E. S. EDEES. *47, Mont.; near Forden Station, J. A. WEBB (Wade and Webb, 1943: 63). 64, M.W. Yorks.; Hayton Wood, Aberford, 1943, W. A. SLEDGE: Red House Wood, Moor Monkton, 1891, H. J. WILKINSON (*Nat.*, 1944: 20). *110, O. Hebr.; S. Uist, J. W. H. HARRISON *et al.* (1944: 116).

783/2. *CALAMAGROSTIS CANESCENS* (Weber) Gmel. em. Druce. 39, Staffs.; Chartley Moss, 1944, E. S. EDEES. 64, M.W. Yorks.; swampy wood by the stream between Copgrove and Newby, 1944, confirming another old record of the Rev. J. Dalton; the plant was abundant but non-flowering owing to shade, E. C. WALLACE.

785/1. *APERA SPICA-VENTI* (L.) Beauv. N. Hants.; waste ground in Basingstoke, 1943, N. E. G. CRUTTWELL. 63, S.W. Yorks.; field border north of Thorne, 1943, W. A. SLEDGE (*Nat.*, 1944: 20).

785/2. *APERA INTERRUPTA* (L.) Beauv. 28, W. Norf.; in some abundance on Roydon Common near King's Lynn on both sides of the track leading from Warren Farm over the heath: as a garden weed at North Wootton: on the sand-filled walls of King's Lynn fire-station (cf. Hubbard, 1936: *Proc. Linn. Soc. Sess. 148*), E. L. SWANN.

791/2. *DESCHAMPSIA ALPINA* (L.) R. & S. 98, Argyll M.; Ben Dot-haidh, alt. 3000 ft., 1943, R. MACKECHNIE and E. C. WALLACE. *104, N. Ebudes; Rhum, J. W. H. HARRISON (1939E: 119). 110, O. Hebr., S. Uist, J. W. H. HARRISON (1941B: 267): also seen in Lewis (Griomaval) in 1939 by M. S. CAMPBELL and A. J. WILMOTT—confirms record doubted in *Top. Bot.*, ED.

*793/1. *TRISETUM FLAVESCENS* (L.) Beauv. *103, M. Ebudes; Tiree, J. W. H. HARRISON *et al.* (1941C: 304). *104, N. Ebudes; Eigg (only in one meadow), J. W. H. HARRISON (1939E: 119).

†794/1c. *AVENA FATUA* L. var. *GLABRATA* Peterm. 4, N. Devon; Barton Down, A. L. Still, det. C. E. Hubbard; also var. *pilosissima* S. F. Gray and *A. fatua* × *sativa* (*Trans. Devon Ass. Adv. Sci.*, 75, 59: 1943).

794/2. *AVENA PUBESCENS* Huds. 71, Man; the fisherman's path at the Ballabeg, Arbory, 1943, C. I. PATON, comm. A. J. WILMOTT.

†794/5b. *AVENA LUDOVICIANA* Durieu. 37, Worcs.; Birtsmorton, 1938, F. M. DAY, det. C. E. HUBBARD.

†794/6. *AVENA STRIGOSA* Schreb. 34, W. Glos.; one plant at Bromsberrow, 1942, F. M. Day (W. R. Price, 1943: *Proc. Cotteswold Nat.'s Club*; 28, 8). 35, Mon.; edge of oatfield, "Warfields," Staunton Road, Monmouth, 1944, R. LEWIS, confirmed by C. E. HUBBARD: amongst beans in a field crop, Rumney, 1942, E. VACHELL. 41, Glam.; on heap of rubbish in large grass field, St Fagans, 1943, the first record for Glamorgan except as an alien on newly tipped ground at Cardiff Docks, E. VACHELL.

795/1b. *ARRHENATHERUM ELATIUS* (L.) J. & C. Presl var. *BIARISTATUM* (Peterm.) Druce. 20, Herts.; Sandy Lodge Road, Rickmansworth, 1944, F. M. DAY. 36, Heref.; near The Downs School, Colwall: Wellington Heath: both 1944, F. M. DAY, det. C. E. HUBBARD. 37, Worcs.; canal bank, Droitwich, 1944, F. M. DAY, det. C. E. HUBBARD. 41, Glam.; garden weed, Cardiff, 1943, A. E. WADE, comm. NAT. MUS. WALES.

*795/2. *ARRHENATHERUM TUBEROSUM* (Gilib.) Druce. *47, Mon.; Nantoer, J. A. Webb (Wade and Webb, 1943: 68).

*†808/1. *CYNOSURUS ECHINATUS* L. 19, N. Essex; lane side (with indigenous grasses) near Great Wigborough; several plants appearing established, 1944, J. A. WHELLAN. *47, Mont.; Llansantffraid, J. A. Webb (Wade and Webb, 1943: 68).

*809/1. *KOELERIA GRACILIS* Pers. *H.12, Wexford; Lady's Island, Miss E. BOOTH, comm. Miss E. RAWLINS (as *K. cristata*).

814/1. *CATABROSA AQUATICA* (L.) Beauv. 37, Worcs.; Underhill Farm, Little Malvern, first seen here 20 years ago and not seen again till 1944, F. M. DAY, det. C. E. HUBBARD.

818/1. *MELICA NUTANS* L. 39, Staffs.; Waterhouses, 1944, E. S. EDEES.

820/1. *DESMAZERIA LOLIACEA* (Huds.) Nym. 104, N. Ebudes; Rhum and Sanday, J. W. H. HARRISON (1939E: 120, as *Festuca rottboelloides* Kunth).

*822/1. *BRIZA MEDIA* L. *103, M. Ebudes; Tiree, J. W. H. HARRISON *et al.* (1941C: 304).

†822/3. *BRIZA MAXIMA* L. 19, N. Essex; growing with *Cynosurus echinatus* L. at Great Wigborough and also appearing established, 1944, J. A. WHELLAN.

824/4. *POA IRRIGATA* Lindm. 98, Argyll M.; Ben Dothaidh and Ben Achaladair, 1943, R. MACKECHNIE and E. C. WALLACE.

*824/5. *POA PALUSTRIS* L. 17, Surrey; dried up bed of Fetcham Millpond, 1944, J. E. LOUSLEY. 21, Middx.; top of shelter in Hyde Park, 1944, W. J. L. SLADEN, comm. J. E. LOUSLEY, both confirmed by C. E. HUBBARD. †98, Argyll M.; two plants in garden, Inveroran Hotel, Loch Tulla, 1943, R. MACKECHNIE and E. C. WALLACE. *103, M. Ebudes; Coll and Tiree, J. W. H. HARRISON *et al.* (1941C: 305). *104, N. Ebudes; Canna, J. W. H. HARRISON (1939E: 120).

824/5b. *POA PALUSTRIS* L. var. *EFFUSA* (Kit.) Asch. & Gr. 34, W. Glos.; withy bed, possibly native, Chaceley Stock, 1942, E. NELMES, det. C. E. HUBBARD.

824/10. *POA COMPRESSA* L. 36, Heref.; wall of Grammar School, Ledbury, 1944, A. J. WILMOTT. 64, M.W. Yorks.; old wall at North Deighton, 1943, E. C. WALLACE (see *Nat.*, 1944: 20).

*824/11. *POA ALPINA* L. *110, O. Hebr.; Allt Volagir, S. Uist, J. W. H. HARRISON (1941B: 268).

*825/1. *GLYCERIA MAXIMA* (Hartm.) Holmberg. *47, Mont.; Garthmyl, abundant here and there by the Shropshire Union Canal, J. A. WEBB (Wade and Webb, 1943: 68).

825/2×3. *GLYCERIA FLUITANS* (L.) R. Br. × *G. Plicata* Fr. 30, Beds.; Leagrave, 1941, J. G. DONY, det. C. E. HUBBARD. 35, Mon.; boggy fields, Trelleck, 1943, R. LEWIS, det. C. E. HUBBARD. 36, Heref.; Holme Lacey, 1939; 37, Worcs.; Defford Common, 1936: both F. M. DAY, det. C. E. HUBBARD.

825/3(2). *GLYCERIA DECLINATA* Bréb. 6, N. Som.; in boggy ground below Tynning's Farm near Shipham, 1942, E. J. Hamlin (W. Watson, *Som. Arch. and N.H. Soc. Proc.*, 88, 111, 1943). 16, W. Kent; Wildernesse Park, Seal: Gilridge, near Penshurst: both 1944, J. H. LAVENDER and F. ROSE.

825(2)/2. *PUCCINELLIA DISTANS* (L.) Parl. 34, W. Glos.; Frampton, 1942, Rev. R. B. ABELL.

826/1d. *FESTUCA RIGIDA* (L.) Kunth var. *MAJOR* (J. B. Presl). 17, Surrey; one patch under a beech tree near Leatherhead, 1942, N. Y. SANDWICH (as *Scleropoa rigida* var. *major*).

*826/4(b). *FESTUCA PRATENSIS* Huds. 30, Beds.; in arable field near Zonches' Farm, Dunstable, 1944, J. E. LOUSLEY and E. MILNE-REDHEAD, det. C. E. HUBBARD. *104, N. Ebudes; Rhum, J. W. H. HARRISON (1939E: 120).

826/4b×829/1. *FESTUCA PRATENSIS* Huds. × *LOLIUM PERENNE* L. 17, Surrey; Chertsey Meads, 1943, J. R. WALLIS.

*826/5. *FESTUCA SYLVATICA* Vill. *47, Mont.; Cwm Dulas, 6 miles south of Machynlleth, 1926, J. H. SALTER, comm. NAT. MUS. WALES. *H.13, Carlow; woods at Ballintemple in R. Slaney, 1942, Miss E. RAWLINS.

826/7a(2). *FESTUCA RUBRA* L. var. *VULGARIS* Gaud. 35, Mon.; fields under cultivation previous year, Warfields, Staunton Road, Monmouth, 1943, R. LEWIS, det. W. O. HOWARTH.

826/7b. *FESTUCA RUBRA* L. var. *COMMUTATA* Gaud. 28, W. Norf.; roadside at Roydon Common, 1944, E. L. SWANN, det. C. E. HUBBARD. 30, Beds.; Knotting, 1942, J. G. DONY, det. C. E. HUBBARD (as *F. fallax* Thuill.).

826/7c. *FESTUCA RUBRA* L. var. *DUMETORUM* (L.) Lej. & Court. 28, W. Norf.; swamp margin at Leziate Fen, 1944, E. L. SWANN, det. C. E. HUBBARD (as var. *barbata* (Hack.)). 35, Mon.; fields under cultivation previous year, Warfields, Staunton Road, Monmouth, 1943, R. LEWIS, det. W. O. HOWARTH.

826/7d. *FESTUCA RUBRA* L. var. *MEGASTACHYA* Gaud. 28, W. Norf.; fixed shingle at Wolfreton Beach, 1944, E. L. SWANN, det. C. E. HUBBARD (as var. *grandiflora* Hack.).

826/7e. *FESTUCA RUBRA* L. var. *PRUINOSA* (Hack.) Howarth. 28, W. Norf.; fixed shingle at Wolfreton Beach, 1944, E. L. SWANN, det. C. E. HUBBARD.

826/7e(2). *FESTUCA RUBRA* L. var. *GLAUCESCENS* (Hegets. & Heer) Richt. 35, Mon.; grass verge, roadside, Staunton Road, Monmouth, 1943, R. LEWIS, det. W. O. HOWARTH, who writes regarding the unusual habitat for this grass, "The only suggestion I can offer is that it has been introduced with commercial sand."

826/7h. *FESTUCA RUBRA* L. var. *PLANIFOLIA* Hack. 35, Mon.; in cultivated garden, Staunton Road, Monmouth, 1944, R. LEWIS, det. W. O. HOWARTH.

826/9b. *FESTUCA OVINA* L. var. *HISPIDULA* (Hack.) Richt. 33, E. Glos.; roadside on Welsh Way, between Bagendon and Baumton, 1942, E. NELMES, det. C. E. HUBBARD.

826/11. *FESTUCA LONGIFOLIA* Thuill. 110, O. Hebr.; S. Uist, "referred with some hesitation to this species by Dr W. O. Howarth," Harrison *et al.* (1944: 116).

826/11b. *FESTUCA LONGIFOLIA* Thuill. var. *TRACHYPHYLLA* (Hack.). 30, Beds.; railway embankment west of Dunstable, 1944, J. E. LOUSLEY and E. MILNE-REDHEAD, det. C. E. HUBBARD.

826/12. *FESTUCA TENUIFOLIA* Sibth. 35, Mon.; on dry bank, "Warfields," Staunton Road, near Monmouth, 1944, R. LEWIS, det. W. O. HOWARTH.

826/14b. *FESTUCA GLAUCA* Lam. var. *HEBRIDENSIS* Harrison. 103, M. Ebudes; Coll, J. W. H. Harrison (1940: 269), J. W. H. Harrison *et al.* (1941C: 305).

826/16b. *FESTUCA AMBIGUA* Le Gall. 28, W. Norf.; on both sides of the track between Warren Farm and Roydon Common, 1944, so abundant that the reddish colouration of the rachis was most conspicuous even at a distance and for some way outlined the edges of the track, E. L. SWANN: track over heath, Roydon Common, 1944, E. L. SWANN (as *Vulpia ambigua*).

*827/3. *BROMUS STERILIS* L. *47, Mont.; frequent, Garthmyl, Montgomery, Newtown, Aberbechan and Kerrydale, J. A. Webb (Wade and Webb, 1943: 68).

[*]+827/5. *BROMUS MADRITENSIS* L. [*]46, Card.; Aberystwyth, 1925, J. H. SALTER, comm. NAT. MUS. WALES.

827/13. *BROMUS UNIOLOIDES* H. B. K. 28, W. Norf.; ash-tip at King's Lynn, 1944, E. L. SWANN, det. C. E. HUBBARD.

827/16b. *BROMUS SECALINUS* L. var. *HIRTUS* (F. Schultz) Hegi. 4, N. Devon; Cove Hill, Tiverton, A. L. Still, det. C. E. Hubbard (*Trans. Devon Ass. Adv. Sci.*, 75, 59: 1943). 17, Surrey; sandy cornfield near Royal Mills, Esher, 1943, J. E. LOUSLEY and J. R. WALLIS. 20, Herts.; near Rickmansworth, 1943, F. M. DAY, det. C. E. HUBBARD.

827/17. *BROMUS PRATENSIS* Ehrh. 37, Worcs.; Marsh Common, near Defford, 1936, F. M. DAY, det. C. E. HUBBARD (as *B. commutatus* Schrad.).

827/18. *BROMUS RACEMOSUS* L. 36, Heref.; near Post Office, Codrington, 1937: Mathon, 1938: 37, Worcs.; near Mill Coppice, Cowley, Malvern, 1938: F. M. DAY, det. C. E. HUBBARD.

827/19b. *BROMUS HORDEACEUS* L. var. *GLABRATUS* (Döll.) Druce. 36, Heref.; Brock Hill, Colwall, 1944, F. M. DAY, det. C. E. HUBBARD.

*827/19i. *BROMUS THOMINI* Hard. (all det. C. E. HUBBARD). 3, S. Devon; Cliffords Bridge, Moreton Hampstead, 1936, F. M. DAY: also "intermediate between *B. lepidus* Holmb. and *B. Thomini*" at Monk's Bridge, Brixham, 1938, F. M. DAY. 30, Beds.; Knotting, 1944, E. MILNE-REDHEAD and J. G. DONY: Burton, 1944, J. G. DONY. 35, Mon.; fields under cultivation previous year; Warfields, Staunton Road, Monmouth, 1943, R. LEWIS. 36, Heref.; Evendine, Colwall, 1944, F. M. DAY. 37, Worcs.; Diglis Lock, Worcester, 1941: Wells Common, Malvern, 1944; both F. M. DAY: roadside at British Camp Reservoir, Little Malvern, 1944, F. M. DAY, of which C. E. HUBBARD writes "hairy spiculate form—*B. hordeaceus* forma *hirsutus* Holmb."

*827/19(2). *BROMUS LEPIDUS* Holmberg (as n. 30 in *C.F.*). 7, N. Wilts.; Stone Pit Hill, near Devizes, 1942 (*Rep. Marl. Coll. N.H.S.*, No. 91 (1943) 12). 28, W. Norf.; West Newton, 1944; frequently met with on arable land north of King's Lynn chiefly on chalk and from the nature of its habitat most likely introduced with seed, E. L. SWANN: arable land at West Newton, 1944, E. L. SWANN, det. C. E. HUBBARD. 33, E. Glos.; Stanway, Cotswold Hills, 1938, F. M. DAY, det. C. E. HUBBARD. *35, Mon.; Hadnock Farm, near Monmouth, 1942, S. G. CHARLES, comm. NAT. MUS WALES: fields under cultivation previous year, Warfields, Staunton Road, Monmouth, 1943, R. LEWIS, det. C. E. HUBBARD. 36, Heref.; Colwall, 1943, F. M. DAY, det. C. E. HUBBARD. 64, M.W. Yorks.; field border, Camblesforth Common, 1943, W. A. Sledge (*Nat.*, 1944: 20).

*828/2. *BRACHYPODIUM PINNATUM* (L.) Beauv. *67, Northumb. S.; in two places on the moor and in fields at East Bolton, near Alnwick, W. A. Clark (1942: *Vasc.*, 27, 8).

†829/4b. *LOLIUM MULTIFLORUM* Lam. var. *ITALICUM* (A. Br.). 47, Mont.; Derwenlas, Garthmyl and Ffrwd Mawr, J. A. Webb (Wade and Webb, 1943: 68).

*830/2. *AGROPYRON PUNGENS* (Pers.) R. & S. *104, N. Ebudes; Canna, the var. *aristatum* Hack. on Rhum and Canna. J. W. H. Harrison (1939E: 121).

830/4b. *AGROPYRON REPENS* L. var. *DUMETORUM* (Hoffm.) S. F. Gray. 35, Mon.; near Pen-twyni, St Mellons, 1944, A. E. WADE.

830/4d. *AGROPYRON REPENS* L. var. *VALLANTIANUM* (Schreb.) Schrank. 35, Mon.; Llandegveth, 1943, A. E. WADE.

830/4e. *AGROPYRON REPENS* L. var. *LASIORACHIS* Hack. 35, Mon.; St Mellons, 1944, A. E. WADE.

830/4i. *AGROPYRON REPENS* L. var. *CAESIUM* (Presl) Beck. 35, Mon.; near Hendre Hall, St Mellons, 1944, A. E. WADE.

830/4j. *AGROPYRON REPENS* L. var. *SUBULATUM* (Schreb. ex Schweigg. & Koerte) R. & S. 35, Mon.; Abergavenny, 1944, A. E. WADE.

834/1. *NARDUS STRICTA* L. 30, Beds.; Rushmere, Heath and Reach, 1944, C. E. HUBBARD and J. G. DONY. 33, E. Glos.; heath on Greensand, Driffeld, 1942, W. R. PRICE.

835/2. *HORDEUM MURINUM* L. 64, M.W. Yorks.; roadside waste south end of Ripon, 1943, a rare plant in v.-c. 64, E. C. WALLACE.

836/3. *ELYMUS EUROPAEUS* L. 20, [Beds.]; Long Wood, Studham, 1941, J. G. DONY.

844/2c. *EQUISETUM ARVENSE* L. var. *NEMOROSUM* Braun. 41, Glam.; under trees, Mynydd-y-Glew, 1936, sterile stems very tall, branches spreading and lax, E. VACHELL.

844/2e. *EQUISETUM ARVENSE* L. var. *DECUMBENS* G. Meyer. 41, Glam.; cultivated field, Llandaff North, 1942, the variety new to the vice-county, E. VACHELL.

*844/3. *EQUISETUM SYLVATICUM* L. 14, E. Suss.; near Ordnance Place, Mayfield, 1943, J. R. WALLIS. *35, Mon.; grassy bank, roadside, Grosmont Woods, near Grosmont, 1944, R. LEWIS, confirmed by A. E. WADE, who writes:—"The only previous record for this is one made about eighty years ago at Varteg."—Add to *C.F.*

844/3b. *EQUISETUM SYLVATICUM* L. var. *CAPILLARE* Hoffm. 47, Mont.; Llandinam, J. A. Webb (Wade and Webb, 1943: 68).

844/4. *EQUISETUM PRATENSE* Ehrh. 98, Argyll M.; rock ledges on Meall Buidhe, Achaladair, 1943, E. C. WALLACE.

*844/7. *EQUISETUM HYEMALE* L. *104, N. Ebrudes; a single clump in a sheltered situation, Allt Beinn nan Stac, Rhum, R. B. COOKE (1944: *Vasc.*, 29, 6).

*850/1. *PHYLLITIS SCOLOPENDRIUM* (L.) Newm. *110, O. Hebr.; new to S. Uist, Harrison *et al.* (1944: 116).

851/2. *ASPLENIUM TRICHOMANES* L. 30, Beds.; well established on sides of lake, Woburn Park, 1944, E. MILNE-REDHEAD and J. G. DONY.

*853/3. *ATHYRIUM FLEXILE* Syme. *98, Argyll M.; a few plants among rocks low on Meall Buidhe, Achaladair, 1943, E. C. WALLACE.

854/1. *POLYSTICHUM SETIFERUM* (Forsk.) Woyнар. 64, M.W. Yorks.; Hackfall and Mackershaw near Ripon, both 1943, E. C. WALLACE (see *Nat.*, 1944: 20).

856/7. *DRYOPTERIS OREOPTERIS* (Ehrh.) Maxon. 15, E. Kent; still at Willesborough Leas, 1944, last recorded thence by Cowell (1839: *Floral Guide* 69 as *Aspidium Oreopteris*), F. ROSE.

*857/4. *CYSTOPTERIS FILIX-FRAGILIS* (L.) Bernh. *9, Dorset; "in a thickly wooded swamp, on dead tree trunks," Bryanston Park, Blandford, 1944, H. BURY and H. G. SADLER, comm. A. J. WILMOTT.

*866/1. *OPHIOGLOSSUM VULGATUM* L. *103, M. Ebudes; Coll, Tiree, and Gunna, J. W. H. HARRISON *et al.* (1941C: 307). 104, N. Ebudes; Rhum: Eigg: Hyskeir: J. W. H. HARRISON (1939E: 122).

*869/1. *ISOETES LACUSTRIS* L. *47, Mont.; Llyn du, J. A. WEBB (Wade and Webb, 1943: 68).

870/5. *LYCOPODIUM CLAVATUM* L. 16, W. Kent; abundant on heathy ground, mixed with the mosses *Hypnum Schreberi* and *Polypodium formosum*, near Bedgebury State Forest: also seen within the Forest: the first Kent records for many years, both 1943, J. BURGESS; shown to F. ROSE, 1944, comm. F. ROSE. [J. P. M. Brennan found a single plant in the "pinetum" area at Bedgebury some years ago but thought it was probably introduced with conifers—in *litt.* to J. E. LOUSLEY]. 35, Mon.; on heathy bank in wood, between St Arvans and Devanden, 1944, R. LEWIS.

872/3. *NITELLA FLEXILIS* Ag. 41, Glam.; Aberdulais, 1938, second locality for the vice-county (the record in 1937 Rep., 597, an error, see 1939 Rep., 306), det. G. O. ALLEN, who writes "must, I think, be *N. flexilis*. It does not look at all like *N. opaca*, and from what I could make out it fits in well with *N. flexilis*"; E. VACHELL.

873/1. *TOLYPELLA INTRICATA* Leonh. 23, Oxon.; ditch near Oxford, 1943, J. P. M. BRENNAN.

876/3. *CHARA VULGARIS* L. 41, Glam.; canal near Whitchurch, September 1943, E. VACHELL, det. G. O. ALLEN.

876/3b. *CHARA VULGARIS* L. var. *LONGIBRACTEATA* Kütz. 41, Glam.; Baglan marshes, July 1935, E. VACHELL, det. G. O. ALLEN.

*876/5. *CHARA HISPIDA* L. 41, Glam.; Glamorganshire Canal at Whitchurch, 1943, det. G. O. ALLEN; one old record from Crymlyn (Crumlin) Bog (*Bot. Guide*, 1805); "remove brackets in *Glamorgan Plant List*, p. 178"—E. VACHELL; add to *C.F.* but see 1933 Rep., 741.

876/7. *CHARA CONTRARIA* Kütz. 41, Glam.; Lily Pool, Duffryn Gardens, St Nicholas, September 1942, E. VACHELL, det. G. O. ALLEN (and in Kenfig Pool, April 1935, det. G. O. Allen, where it had been recorded by H. J. Riddelsdell).

876/11. *CHARA ACULEOLATA* Kütz. 63, N.E. Yorks.; Balne Pond, J. M. Taylor (*Nat.*, 1945: 25).

THE WEATHER OF 1943 AND 1944 AND ITS EFFECTS.

(Adapted by permission from the Phenological Reports of the Meteorological Society, with additional information supplied by Miss Lewis of the Meteorological Office and others. Mention of a county indicates merely the source of the statement and does not exclude other counties.)

1943.

After a brief cold spell in January the temperature from February to mid-June (except for a week at the beginning of April) was never below, and often several degrees above, the average. After the mild winter the ash flowered very abundantly (Somerset) and fruited heavily (Wilts.). High winds in April and early May damaged young foliage in exposed places, and the accompanying snow in the north destroyed blossom. A gale did damage to trees and the apple crop suffered locally (Somerset). June was sunless and dry, until a sunny period at the end of the month and early in July: pastures in eastern and midland counties were burned and root crops were affected. After this the weather was unsettled and fluctuating until mid-August except for a short heat-wave at the end of July, terminated by widespread thunderstorms. The second half of August was dry in the south and wet in the north. The harvest generally was good, with wheat above the average; it was early in the Midlands, East Anglia and Kent, damaged by rain in the south-west and in Wales, and held up and somewhat damaged in the north of England and in Scotland. Wild fruits also often gave a heavy crop (in Wilts. especially sloes and bullaces). It was a remarkable summer after an early flowering, with some second flowerings in the autumn.

1944.

After a rather cold December, 1944 opened with a warm period till mid-February (except for brief cold spells). There was heavy snow in Scotland at the end of February. Then it was cold and dry until the beginning of April (with three short warm spells), but mostly less cold in the north-east and north-west. April was warm and wet (especially in the north) after which, except for a short period in the north, it continued dryish until the end of June in England and Ireland. The absence of frost left plants forward (in Cheshire the Horse Chestnut was noted in flower on 30th April and gooseberries were eaten on 11th May: Major J. W. Campbell), May had some cold snaps, which locally did much damage to fruit, especially to plums and apples in East Anglia. In Scotland May was in general wet, especially in the west. June was wetter in Scotland than in England. July was dull, with rainfall in England above the average during the first half, in north-west Scotland rather deficient, and in northern Ireland excessive. The

rest of September was rather cool and dry in England, less wet than average in the west of Scotland but excessively rainy elsewhere, continuing so through October and most of November. In England October started cold and dry, but ended wet and stormy. Frost occurred early in November. Harvest conditions by early August were excellent, but broken weather did considerable damage where the crops were less forward.

A. J. WILMOTT.

NOTES ON THE FLORA OF OXFORDSHIRE AND BERKSHIRE.

J. P. M. BRENNAN, M.A.

The following notes are mainly a result of the writer's botanising since 1936 in the counties of Oxfordshire and Berkshire, especially in those parts in the neighbourhood of the city of Oxford. Some of the more interesting records have already been dealt with in previous Reports of the Society, and will not be mentioned again here, except in a few instances where additional information is given.

Though both counties must be considered as botanically well-worked, and the second edition of Druce's *Flora of Oxfordshire* was published as recently as 1927, the additions since made and the changes already discernible emphasise both the amount of work yet to be done and the often repeated fact that the vegetation of any area is not static but dynamic. The field-botanist who has explored any considerable tract over a term of years does not fail to notice the constant changes, some slow and sometimes barely perceptible, usually caused by natural means, others rapid and often extensive, usually by the agency of man; he observes the appearance of newcomers and too often has to mourn the extinction of cherished rarities. It seems appropriate to dwell on this aspect now, as the last few years have witnessed changes in the vegetation of this country perhaps greater than any that have been previously accomplished in so short a time; from the botanist's point of view they have been rarely for the better. Military installations and edifices, frequently occupying considerable tracts of countryside, have grown up as it were like fungi during the night. The botanist cannot disregard also the mania for indiscriminate ploughing that has affected enormous areas. The propagandist may magnify the importance of each grain of corn; others will with reason wonder whether the sparse and feeble crop, so encumbered with weeds as to be scarcely worth the reaping, that is too often the sorry result of such activity, is an adequate recompense for the industry expended upon it or for the value and interest of that which it has irrevocably destroyed. Among the tasks of the field-botanist in many areas during the coming years will be the assessment of the effect of such recent changes on the flora; it is yet too early to calculate their full effect; it seems certain that it will be considerable.

I must here give my very grateful thanks to those who have assisted in the determination of various critical groups:—Dr P. Aellen (*Chenopodium*), Mr C. E. Hubbard (*Gramineae*), Mr J. E. Lousley (*Rumex*, *Cirsium*), Mr E. Nelmes (*Carex*), the late Mr A. L. Still (*Mentha*), Mr W. Watson (*Rubus*); also to Prof. T. G. B. Osborn for permission to use the library of the Oxford University Department of Botany and to Dr N. Polunin for facilities in consulting Herb. Druce and Herb. Field-

ing. My gratitude is also due to the Rev. N. E. G. Cruttwell, Dr J. N. Mills and others for their companionship and assistance on various excursions; especially too is it due to Mr R. Burn, with whom I have enjoyed numerous botanical hunts in the last few years; the following pages will bear witness to his diligence and enthusiasm, and to the extent of my indebtedness to Mr Burn.

In the interest of space the following abbreviations of recorders' names are employed:—J.N.M. = J. N. Mills; J.P.M.B. = J. P. M. Brenan; N.E.G.C. = N. E. G. Cruttwell; N.Y.S. = N. Y. Sandwith; P.G.B. = P. G. Beak; R.B. = R. Burn. Where no recorder is given, the writer is alone responsible.

The abbreviation " (sp.) " given after the date indicates that a voucher specimen is preserved in the writer's herbarium (Herb. Brenan). Only of a few obvious and non-critical plants were no specimens taken.

The records are arranged under their appropriate vice-counties:—Berkshire (" 22, Berks.") and Oxfordshire (" 23, Oxon."). The numbers between 1 and 7 preceding records refer to the botanical districts, under which the records in the following pages are arranged serially. The districts for Berkshire are defined in the introduction to Druce's *Fl. Berks.*, 1897, and there is a map illustrating them at the end of that work; those for Oxfordshire are defined in the introduction to the second edition of Druce's *Fl. Oxfordsh.*, 1927.

It would be unfitting to close without recalling the debt that all field-botanists working in these counties must owe to the late Dr G. C. Druce, and to pay tribute to the thoroughness of his botanical explorations in this district.

- 1/1. CLEMATIS VITALBA L. 23, Oxon. 5. From Burford to the Gloucestershire border, 1938.
- 5/1. MYOSURUS MINIMUS L. 22, Berks. 2. Cornfield between Cholsey and Wallingford, 1937 (sp.), N.Y.S. and J.P.M.B. 23, Oxon. 6. Sandy field under corn or clover near Nuneham Courtenay, 1937 and subsequently (sp.).
- 6/9. RANUNCULUS ARVENSIS L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.). 6. Cornfield between Chalgrove and Stadhampton, 1937 (sp.).
- 6/33. RANUNCULUS FICARIA L. 23, Oxon. 6. One plant on a track through a patch of woodland on the S.W. side of Shotover with flowers all " double," the stamens being narrow, yellow and petaloid, 1943 (sp.), Dr N. POLUNIN & J.P.M.B.
- 35/1b. NASTURTIUM OFFICINALE R. Br. var. SIFOLIUM Rchb. 23, Oxon. 5. Roadside stream at Westwell, 1937 (sp.).
- +35/4. RORIPPA ISLANDICA (Oeder) Borbás. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938.
- 39/2. CARDAMINE AMARA L. 23, Oxon. 6. Shillingford, 1938, R.B. & J.P.M.B.; Preston Crowmarsh near Benson, 1938, N.E.G.C. & J.P.M.B.

- +42/10. *ALYSSUM MARITIMUM* (L.) Lam. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937. 5. Waste ground, Port Meadow, Oxford, 1941, J.N.M. & J.P.M.B. 6. Waste ground, Jackdaw Lane, Oxford, 1938.
- +47/2. *HESPERIS MATRONALIS* L. 22, Berks. 2. Waste ground near Kennington, 1938 (sp.). 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford!, 1938, found by N.E.G.C.
- +49/2. *SISYBRIUM SOPHIA* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1939.
- +49/4. *SISYMBRIUM ORIENTALE* L. 23, Oxon. 5. Railway bridge, Wolvercote, 1938; waste ground, Burford, 1938 (sp.). 6. Waste ground, Jackdaw Lane, Oxford, 1938.
- +49/5. *SISYMBRIUM IRIO* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.). 6. Waste ground, Jackdaw Lane, Oxford, 1938.
- 49/6b. *SISYMBRIUM OFFICINALE* (L.) Scop. var. *LEIOCARPUM* DC. 23, Oxon. 4. Manor Road, Oxford, 1938.
- +50/1. *ERYSIMUM CHEIRANTHOIDES* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938. 7. By the waterworks, Lamb-bridge Wood near Henley, 1940, J.N.M. & J.P.M.B.
- +52/1. *CAMELINA SATIVA* (L.) Crantz. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.). 5. Waste ground, Port Meadow, Oxford, 1941.
- +52/2. *CAMELINA ALYSSUM* (Mill.) Thell. 22, Berks. 2. Very sparsely in a field of flax $\frac{1}{2}$ mile N.E. of Pusey village, 1943 (sp.), R.B. & J.P.M.B.
- 54/14. *SINAPIS ARVENSIS* L. (*Brassica kaber* (DC.) Wheeler). 23, Oxon. 6. A single large plant showing a very curious modification of the siliquas occurred by the roadside not far from Shepherd's Quarry, about $\frac{1}{2}$ mile from Stanton St John towards Headington, 1942 (sp.), R.B. & J.P.M.B. In many, but not all, of the siliquas on this plant both sutures are expanded at the base of the beak into a very narrow, longitudinal, hyaline or pale green wing; each wing bearing on its outer margin a single, very small, divaricate cusp up to about 1.25 mm. long, the position of this cusp being usually opposite or slightly below the single seed in the beak. The pods thus appear to be each equipped with a pair of tiny horns. So far I have found no mention of this peculiarity in published literature, nor has it been observed on other plants of *Sinapis arvensis* examined. It will be of interest to learn whether botanists have noticed this form elsewhere.
- +54/16. *BRASSICA JUNCEA* (L.) Coss. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.). 5. Waste ground by a railway bridge near Yarnton, 1941; waste ground, Port Meadow, Oxford, 1939-41 (sp.). 6. Waste ground, Jackdaw Lane, Oxford, 1938-9 (sp.).

- +54/20. *BRASSICA GALLICA* (Willd.) Druce. 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1940 (sp.).
- +61/20. *LEPIDIUM VIRGINICUM* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.).
- +61/22. *LEPIDIUM DENSIFLORUM* Schrad. 23, Oxon. 5. Waste ground, St Ebbe's, Oxford, 1937 (sp.).
- +61/28. *LEPIDIUM BONARIENSE* L. 23, Oxon. 4. In a field of ryegrass near Sturdy's Castle, 1936 (sp.).
- +64/2. *THLASPI PERFOLIATUM* L. 23, Oxon. 4. A single large plant on the sandy edge of a cornfield by the footpath from Headington to Stow Wood, 1941 (sp.), J.N.M. & J.P.M.B. A very curious and unexpected find, which must surely be attributed to recent introduction from some distant locality, since it is scarcely conceivable that so marked a plant could have hitherto escaped the sharp eyes of the generations of botanists who have sampled the riches of the Headington Wick neighbourhood. Its occurrence here is difficult to explain; no other obvious aliens were observed among the neighbouring corn, and the nearest native locality for *T. perfoliatum* is some miles distant, so that a wind-borne arrival is hardly feasible. Perhaps we must invoke a seed dropped from the vasculum of an itinerant botanist!
- +74/2. *BUNIAS ORIENTALIS* L. 22, Berks. 1. One plant on a roadside near Botley Pound, 1943-4, R.B. & J.P.M.B. 23, Oxon. 7. Field near Berinshill Wood, Ipsden, 1939 (sp.), J. F. G. CHAPPLE & J.P.M.B.
- +85/1. *RESEDA ALBA* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.).
- 88/10. *VIOLA CALCAREA* Greg. 23, Oxon. 5. Quarry near Cornbury, 1938 (sp.).
- 88/15b. *VIOLA VARIATA* Jord. var. *SULPHUREA* Drabble. 22, Berks. 2. Field between Cholsey and Wallingford, 1937 (sp.). 3. In a sainfoin field on the chalk between Streatley and Moulsoford Downs, 1937 (sp.).
- +95/2b. *SAPONARIA VACCARIA* L. var. *GRANDIFLORA* Fisch. 22, Berks. 2. Waste ground by roadside near Bradley Farm between Cumnor and Wootton, 1939 (sp.).
- +98/9. *LYCHNIS GITHAGO* (L.) Scop. 22, Berks. 1. With very pale pink, almost white, flowers in a field of planted vetches N.W. of Fyfield, 1941 (sp.), N.Y.S. & J.P.M.B.
- 100/2. *CERASTIUM ARVENSE* L. 23, Oxon. 4. Some patches of this plant on the grassy verge of the by-pass road between Marston and Headington, 1943-4.
- 100/8. *CERASTIUM SEMIDECANDRUM* L. 23, Oxon. 6. Dyke Hills, Dorchester, 1938, R.B. & J.P.M.B.
- 101/7. *STELLARIA GRAMINEA* L. J. W. White (*Fl. Bristol*, 193, 1912) draws attention to dimorphic flowers in this species. In June

1944 large and small flowered plants were seen plentifully on the grassy margin of a track near Noke Wood (23, Oxon., district 4) by R.B. & J.P.M.B. (sp.). The large flowered plants were hermaphrodite with well developed stamens and styles, as indicated by White; the small flowered plants had apparently well developed stamens but very minute styles less than 0.5 mm. long. White, however, describes the small flowered plants as having dwarf stamens and very prominent styles; so that the species is possibly trioecious; however, the small flowered plants at Noke Wood apparently all had their flowers infected by a smut, so that it is possible that the condition described is merely a pathological response. In other localities in this neighbourhood the two forms similar to those at Noke Wood were again observed, together with small flowered plants with prominent styles and reduced stamens, agreeing with those described by White. These latter were, however, not all identical, for while some plants had all the stamens uniformly dwarfed, in others the antesealous stamens were twice as large as the antepetalous. This may perhaps be regarded as an intermediate condition between the hermaphrodite and the female forms, possibly due to crossing. In one instance the antesealous whorl was only partly enlarged. In addition the degree of smallness of the corolla was not uniform. The demarcation of the sexual forms seems thus to be not very definite, and a study of the genetical mechanism underlying these differences should present a problem well worth investigation. It may be suspected that the varieties based on flower size by continental botanists have been made with perhaps insufficient regard for the possibly trioecious behaviour of this species and its correlation with petal length (see Graebner in Asch. & Graebn., *Syn. Mitteleur. Fl.*, 5 (1), 556-7, 1917).*

†108/2. CLAYTONIA PERFOLIATA Donn. 23, Oxon. 6. Established about the Palace at Cuddesdon, 1940, where it was shown to me by N.E.G.C.

112/8. HYPERICUM HIRsutUM L. 23, Oxon. 5. Several plants showing a striking colour variation in the flowers (petals almost white, with a faint yellowish-green tinge, stamen filaments

*Since the above was written, my attention has been drawn by Mr J. E. Lousley and Dr W. B. Turrill to a paper on floral variability in this species by Horne, in *New Phyt.*, 13, 73-82, 1914. On a basis of observations made on some thousands of individuals, he tabulates the corolla measurements of male-sterile and hermaphrodite flowers and demonstrates that there is considerable variation in corolla diameter and width of petal lobes in each of the two sexual groups. He concludes that the flowers with the largest and smallest corollas are usually hermaphrodite and male-sterile respectively; and that those with intermediate-sized corollas may belong to either group or else be sexually intermediate. In connection with these latter he notes the occurrence of heteromorphic stamens in one and the same flower.

- same colour as petals, anthers orange) were growing among a normally coloured multitude of *H. hirsutum* in Burleigh Wood near Bladon, 1942 (sp.), R.B. & J.P.M.B. Mr N. Y. Sandwith writes (*in litt.*) that he has twice seen this colour-form of *H. hirsutum*—on Mickleham Downs and with Mr H. W. Pugsley in an Essex wood—and a similar one of *H. quadrangulum* L. (*H. tetrapterum* Fr.) in Dorset.
- 112/12. *HYPERICUM DUBIUM* Leers. 22, Berks. 2. On loamy soil among coarse grass, Buckland Warren N. of Hatford, 1942 (sp.), P.G.B. & J.P.M.B. 23, Oxon. 5. Burleigh Wood near Bladon, 1942 (sp.), R.B. & J.P.M.B.
- +115/1. *ALTHAEA OFFICINALIS* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1940-42 (sp.).
- +117/1. *MALVA MOSCHATA* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.). This plant had white flowers and was otherwise untypical.
- 117/2. *MALVA SYLVESTRIS* L. 23, Oxon. 4. Waste ground, Mandr Road, Oxford, 1939 (sp.). 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.). In both localities with white flowers.
Var. *LASIOCARPA* Druce. 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1944 (sp.), A. P. D. Jones & J.P.M.B. 6. Waste ground, Sandford Lock, 1941 (sp.).
- 127/14. *GERANIUM ROBERTIANUM* L. 23, Oxon. 6. Several plants with white flowers in and near a hedge by the river bank close to Ifley Lock, 1944, N.E.G.C. & J.P.M.B. Specimens from this locality are in Herb. Cruttwell.
- +128/2. *ERODIUM MOSCHATUM* (Burm.) L'Hérit. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.).
- +133/3. *IMPATIENS PARVIFLORA* DC. 22, Berks. 1. Abundant by a stream in Long Copse on Cumnor Hill, 1940-43. 23, Oxon. Evidently increasing rapidly in the city of Oxford. It is a troublesome weed in some gardens along the Banbury Road, where it occurs in abundance.
- 147/3. *GENISTA TINCTORIA* L. 23, Oxon. 4. Otmoor, plentiful in one part, 1937. 6. Meadow on the N.E. side of Stanton Great Wood, 1942, R.B. & J.P.M.B.
- +153/5. *MEDICAGO ARAHICA* (L.) All. 23, Oxon. 5. One patch on grassy ground by a gravel pit between Sutton and South Leigh, 1943 (sp.), R.B. & J.P.M.B. 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.). The plant from the last-named locality is remarkable in that, while some of the pods are normal, most are falcate, not spirally twisted, quite unarmed, and up to 1 cm. long, in general appearance not unlike those of some species of *Trigonella*. The epithet *unguiculata* has been bestowed on what is apparently a similarly monstrous condition of *M. lupulina*. As in many inland counties, *M. arahica* is a very rare plant in Oxfordshire; Druce (*Fl. Oxfordsh.*, ed. 2, 107) gives no recent records.

- 153/7e. *MEDICAGO LUPULINA* L. var. *WILLDENOWIANA* Koch. 23, Oxon. 6. A specimen collected by Mr P. D. Abbott in 1941 at Stadhampton has been shown to me by Mr R. Burn.
- †154/4. *MELILOTUS INDICA* (L.) All. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938. 6. Waste ground, Jackdaw Lane, Oxford, 1938-42.
- 155/2. *TRIFOLIUM PRATENSE* L. 22, Berks. 2. Roadside bank, Pusey, 1942 (sp.), P.G.B. & J.P.M.B. An interesting monstrosity in which several of the calyces in each inflorescence bear, not single flowers, but smaller secondary inflorescences; these are congested and give the main capitula an irregularly lobed appearance. It may be better described as a contracted "hen and chickens" condition.
- †155/19. *TRIFOLIUM AGRARIUM* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1940 (sp.), N.E.G.C. & J.P.M.B.
- †176/5. *VICIA VILLOSA* Roth. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.).
- †176/6. *VICIA DASycARPA* Tenore. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.).
- †176/25. *VICIA NARBONENSIS* L. 23, Oxon. 4. One plant seen on waste ground, Manor Road, Oxford, 1938.
- †176/26b. *VICIA PANNONICA* Crantz var. *PURPURASCENS* (DC.) Ser. in DC. 22, Berks. 1. In a field of planted vetches N.W. of Fyfield, 1941 (sp.), N.Y.S. & J.P.M.B.
- †178/18. *LATHYRUS CICERA* L. 22, Berks. 1. In a field of planted vetches N.W. of Fyfield, 1941 (sp.), N.Y.S. & J.P.M.B.
185. *RUBUS*. All determined by W. Watson.
- 185/40(3). *RUBUS RHODANTHUS* W. Wats. 22, Berks. 2. Heathy ground among bracken, Hen Wood on Boar's Hill, 1942 (sp.), P.G.B. & J.P.M.B. 23, Oxon. 6. Plentiful in open bushy ground among bracken, Horsepath Common, 1943 (sp.).
- 185/45. *RUBUS WINTERI* Focke. 22, Berks. 2. Bushy ground near wood border in an enclosure on Boar's Hill, 1942 (sp.), P.G.B. & J.P.M.B.
- 185/46(2). *RUBUS CUSPIDIFERUS* Lef. & Muell. 22, Berks. 2. Plentiful near the fen at Cothill, 1943 (sp.), R.B. & J.P.M.B.
- 185/93. *RUBUS RUDIS* Weihe. 23, Oxon. 6. In moderate shade by a green lane between Shotover and Wheatley near Horsepath Common, 1941 (sp.).
- 185/125. *RUBUS RUFESCENS* Lef. & Muell. 23, Oxon. 7. Lambridge Wood near Henley, 1940 (sp.), R.B. & J.P.M.B.
- 185/129(2). *RUBUS ADENLOBUS* W. Wats. (*R. Koehleri* Weihe var. *cognatus* (N. E. Br.) Rogers). 22, Berks. 2. Bushy ground in an enclosure on Boar's Hill, 1942 (sp.), P.G.B. & J.P.M.B.
- 185/151c. *RUBUS CORYLIFOLIUS* Sm. var. *CONJUNGENS* Bab. 22, Berks. 2. Buckland Warren near Hatford, 1942 (sp.), P.G.B. & J.P.M.B.

187/2. *GEUM RIVALE* L. 23, Oxon. 4. In vast profusion in the lower-lying part of Woodeaton Wood, near Woodeaton, 1943 (sp.), R.B. & J.P.M.B.

Var. *PALLIDUM* (Fisch. & Mey.) Blytt, *e desc.* 23, Oxon. 4. Several patches of this among the normal plant in one part of Woodeaton Wood, 1943 (sp.), R.B. & J.P.M.B. This is an exceedingly striking colour-variant. Comparison with the normal plant in the fresh condition showed that it could be explained by assuming a complete absence or suppression (except at the extreme base of the stem and on the petioles of the radical leaves) of the purple pigment that is so conspicuous in normal *G. rivale*. This results in the following differences from the normal plant:—The styles are wholly green, not purple-tipped (this is especially noticeable when, after the fall of the petals, the styles elongate greatly, and in the normal plant the deep purple colour extends to the style base, while here the styles remain green); the petals are uniformly pale yellow, without the pink or purple tinge of normal *G. rivale*; the calyx is pale green, not deep purple; the pedicels, stems and the nerves on the lower side of the upper leaves are likewise green.

Mr N. D. Simpson has made (*in litt.*) the interesting suggestion that this plant may represent *G. rivale* offspring from a previous cross between *G. urbanum* and *G. rivale*, the genotype of the offspring having become upset on segregation. Mr Simpson cites examples of such effects following hybridisation in cottons (*Gossypium*). This, of course, is a perfectly feasible explanation, especially as crosses between the two species were observed in Woodeaton Wood; but it seems also at least quite possible that the effect could be produced by a mutation, perhaps only affecting one gene, of normal *G. rivale*.

A decision between these theories can hardly be made without cultivation and experiment. As far as the external morphology of the plant is concerned, no differences from normal *G. rivale*, other than those already mentioned, could be seen, and from the taxonomic standpoint it seems reasonable to leave it under *G. rivale*.

Apparently similar plants have been collected elsewhere. In Herb. Druce there is a gathering made in E. Lothian by S. Anderson in 1910 (see *B.E.C. 1910 Rep.*, 500, 1911); the collector, however, describes (*in litt.*) the flowers as "green." Mounted with the last is a fragment of what looks like normal *G. rivale*. There is also an "albino" form collected by W. R. Linton on June 11th, 1907, at Stanton, Staffs. (see *B.E.C. 1907 Rep.*, 288, 1908); a sheet of this in Herb. Druce appears to agree with the Woodeaton plant. F. Buchanan White (*Fl. Perthsh.*, 126, 1898) refers to plants "with much paler foliage and greenish-white flowers" from Glen Farg, and suggests that they are perhaps var. *pallidum*.

- 187/2×1. *GEUM RIVALE* L. × *URBANUM* L. 23, Oxon. 4. Scattered thinly among the parent species in Woodeaton Wood, 1943 (sp.), R.B. & J.P.M.B.
- 189/8×7. *POTENTILLA PROCUMBENS* Sibth. × *REPTANS* L. (× *P. MIXTA* Nolte). 23, Oxon. 5. With the parent species in Burleigh Wood near Bladon, 1942 (sp.), R.B. & J.P.M.B. This agrees with specimens in Herb. Druce determined by Th. Wolf, the monographer of the genus.
- 191/2. *AGRIMONIA ODORATA* (Gouan) Mill. 22, Berks. 1. Plentiful in woodland on the S. side of Wytham Hill below Radbrook Common, 1944, Dr E. W. JONES & J.P.M.B. 23, Oxon. 6. Coombe Wood near Cuddesdon, 1940 (sp.), N.E.G.C. & J.P.M.B. There is a record on Holliday's authority for this species from Coomb (*sic*) Wood given in Druce's *Fl. Oxfordsh.*, ed. 2, 156, but the locality is placed in district 5. I suspect that Holliday's record does refer to the Cuddesdon wood, which is spelt "Coomb" elsewhere in the flora, but that it was referred to the wrong district, possibly through confusion with the village of Combe, which is in district 5. The spelling "Coombe" for the Cuddesdon wood is that adopted on the one-inch Ordnance Survey map.
- 199/17. *SAXIFRAGA GRANULATA* L. 23, Oxon. 5. Quarry near Stonesfield, 1944, Dr A. R. CLAPHAM & J.P.M.B.
- +211/10. *SEDUM DASYPHYLLUM* L. 23, Oxon. 4. Islip.
- +220/7(2). *EPILOBIUM ADENOCALON* Hausskn. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1940 (sp.). Previously recorded for the county only from Cassington (*B.E.C. 1933 Rep.*, 41, 1939).
- 220/8. *EPILOBIUM ROSEUM* Schreb. 23, Oxon. 5. Plentiful in Burleigh Wood near Bladon, 1942, R.B. & J.P.M.B.
- +227/1. *Blumenbachia Hieronymi* Urban. This striking adventive species belonging to the family *Loasaceae* has been twice recorded on waste ground in Britain. The first alleged occurrence was on rubbish at Marston Brickyards, Oxon., in 1909, where it was found by the late Dr Druce, who published the record in *B.E.C. 1910 Rep.*, 502, 1911, as *B. insignis* Schrad., and repeated it in *Fl. Oxfordsh.*, ed. 2, 187, 1927. The second was at Jackdaw Lane, Oxford, in 1938, where it was found by Mr J. F. G. Chapple and the writer; plants from Jackdaw Lane were distributed through the Exchange Club by Mr Chapple under the reference No. 38339 (see *B.E.C. 1938 Rep.*, 193, 1942).

It was thought at first that the Jackdaw Lane plant was *B. insignis*, but further investigation showed that this was wrong, and that it was referable to the closely related *B. Hieronymi* Urban in *Jahrb. Königl. Bot. Gart. Mus. Berl.*, 3, 249-50, 1884. The unfortunate distribution of this plant under an incorrect name was doubtless due to the peculiar difficul-

ties that attended that distribution, the report of which was edited in Mr Chapple's absence; it should be noted that Mr Chapple had written up his own specimen correctly as *B. Hieronymi*. Recipients of this plant through the Exchange Club should therefore note this alteration of name on their specimens.

The original record from Marston Brickyards is backed by a specimen in Herb. Druce; though it is rather poor and scrappy it is sufficient for there to be no doubt that it and the Jackdaw Lane plant are conspecific. There is thus no evidence for the occurrence of *B. insignis* Schrad. in Britain, and the latter name must therefore relinquish its place in the *British Plant List* and be replaced by *B. Hieronymi* Urb.

B. Hieronymi is a native of the Argentine, and was based on specimens collected by Hieronymus in the province of Córdoba; at the same time the collector sent back seeds to Europe, whereby the plant was introduced into cultivation at the Berlin Botanic Garden. It seems probable that its occurrence in this country is due to rubbish thrown out of the Oxford Botanic Garden. According to Urban, *B. insignis* has a wider distribution in South America than *B. Hieronymi*, being recorded from Brazil, Uruguay, the Argentine and Patagonia.

The most obvious character separating *B. Hieronymi* from *B. insignis* is to be seen in the sepals, which in the former species are ovate or broadly ovate and coarsely incise-serrate to pinnatifid, while in the latter species they are linear-subulate, lanceolate or triangular-lanceolate and entire. A second character is in the structure of the valves of the fruit ("carpidia" of Urban), which in *B. Hieronymi* are longitudinally open on the ventral side in their lower part, while in *B. insignis* they are closed ventrally. For a fuller account of both these species, reference may be made to Urban's great "*Monographia Loasacearum*" in *Nov. Act. Acad. Caes. Leopold.-Carol. Germ. Nat. Cur.*, 76, 1900; on pp. 353-5 of that work *B. Hieronymi* is described in great detail, and on pp. 351-3 a comparable account of *B. insignis* will be found; on t. 8, figs. 25-52 dissections of the former species are illustrated and diagrams given.

- †249/1. AMMI MAJUS L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.).
- †250/1. CARUM CARVI L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938 (sp.).
- 250/4. CARUM SEGETUM (L.) Benth. ex Hook. f. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.).
- †252/1. FALCARIA VULGARIS Bernh. 23, Oxon. 6. Still in its Culham locality (see *Fl. Oxfordsh.*, ed. 2, 193) in 1941 (sp.), where it grows in a large patch that is conspicuous even from the passing train.

- 255/1. *PIMPINELLA MAJOR* (L.) Huds. 23, Oxon. 6. Lane on the N.E. side of Stanton Great Wood, 1942, R.B. & J.P.M.B.
- +261/3. *ANTHRISCUS CEREFOLIUM* (L.) Hoffm. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.).
- +263/1. *FOENICULUM VULGARE* Mill. 23, Oxon. 4. Manor Road, Oxford, 1938.
- +279/1. *CORIANDRUM SATIVUM* L. 23, Oxon. 4. Manor Road, Oxford, 1937. 6. Jackdaw Lane, Oxford, 1939.
- +281/1. *BIFORA RADIANIS* M. Bieb. 22, Berks. 1. Weed in a field of planted vetches N.W. of Fyfield, 1941 (sp.), N.Y.S. & J.P.M.B.
- 296/4. *GALIUM SAXATILE* L. 23, Oxon. 6. In two small areas in Coombe Wood near Cuddesdon!, 1944, found by Prof. T. G. B. OSBORN.
- +298/5. *ASPERULA ARVENSIS* L. 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1941 (sp.).
- 301/1c. *VALERIANA OFFICINALIS* L. f. *DENTATIFOLIA* (Druce) Drabble. 22, Berks. 2. Rather dry roadside bank, Tubney Wood, 1942 (sp.), P.G.B. & J.P.M.B.
- 301/3. *VALERIANA DIOICA* L. 23, Oxon. 4. On Otmoor near Beckley, 1937-8. 5. Ducklington, 1938.
- 306/2. *DIPSACUS PILOSUS* L. 23, Oxon. 4. Manor Road, Oxford, 1938-44 (sp.); probably not native here. It appears to be slowly increasing at present, but is still confined to one very limited area.
- +306/3. *DIPSACUS SATIVUS* (L.) Honck. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937.
- +306/4. *DIPSACUS LACINIATUS* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1940 (sp.).
- +318/13. *ASTER NOVAE-ANGLIAE* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1937 (sp.), with both blue-violet and reddish-purple ray florets. The capitula emit a pleasant resinous fragrance when bruised.
- 328/3. *GNAPHALIUM SYLVATICUM* L. 22, Berks. 2. Cothill, 1938.
- +333/1. *INULA HELENIUM* L. 22, Berks. 1. In immense profusion over an area of more than 500 square yards, associated with *Ligustrum*, *Rubi*, *Epilobium hirsutum*, etc., in rough, damp ground near the edge of a thicket, and spreading into neighbouring coarse grassland on the S. side of Wytham Hill, 1944 (sp.), Dr E. W. JONES & J.P.M.B. In *B.E.C. 1918 Rep.*, 459, 1919, Druce wrote:—"Wytham, abundant 1899. I was unable to see it in 1918." In view of this statement, it seems desirable to place on record the fact of its continued existence in what is quite likely to be Dr Druce's original locality.
- +351/1. *GUIZOTIA ABYSSINICA* (L.) Cass. 23, Oxon. 4. Manor Road, Oxford, 1938. 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.).

- +354/1. *GALINSOGA PARVIFLORA* Cav. 23, Oxon. 4. Manor Road, Oxford, 1938 (sp.). 6. A few plants by a rubbish heap in a field near Iffley Lock, 1944 (sp.), N.E.G.C. & J.P.M.B.
- +354/2b. *GALINSOGA QUADRIRADIATA* Ruiz & Pav. var. *HISPIDA* (DC.) Thell. 23, Oxon. 7. Shiplake and in Newtown Farm allotments, Henley, 1943, Miss HODGMAN. Specimens from both these localities are in the herbarium of the Department of Botany, Oxford University, and duplicates, for which I am very grateful to Dr Polunin, are in Herb. Brenan. Miss Hodgman informed me that in the Henley allotments referred to the *Galinsoga* was as troublesome a weed as groundsel.
- +368/1. *ARTEMIS TINCTORIA* L. 23, Oxon. 5. On the embankment of a new bridge near Wolvercote, 1938 and subsequently (sp.). 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.).
- +378/1. *ARTEMISIA ABSINTHIUM* L. 23, Oxon. 5. Several patches on a bank by a pond in an old gravel pit and by the side of the adjacent main road near Cassington, 1944, R.B. & J.P.M.B. 6. Waste ground, Jackdaw Lane, Oxford, 1940, J.N.M. & J.P.M.B.
- +383/10e. *SENECIO VULGARIS* L. var. *RADIATUS* Koch. 23, Oxon. 4. Waste ground, Jack Straw's Lane, Oxford, 1942 (sp.), J.N.M. & J.P.M.B.
- +385/2. *CALENDULA ARVENSIS* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.).
- 393/1. *ARCTIUM LAPPA* L. 23, Oxon. 6. Near Stanton Great Wood, 1942, R.B. & J.P.M.B. 7. Waste ground by the waterworks at Lambridge Wood, Henley, 1940 (sp.), J.N.M. & J.P.M.B.
- 395/2×1. *CARDUUS CRISPUS* L. × *NUTANS* L. (× *C. NEWBOULDII* H. C. Wats.). 23, Oxon. 5. Roadside between Cassington and Wolvercote, 1942 (sp.), R.B. & J.P.M.B.
- 396/1×2. *CIRSIUM BRIOPHORUM* (L.) Scop. × *VULGARE* (Savi) Airy-Shaw. 23, Oxon. 4. With an abundance of the parent species in open, dry, calcareous grassland, Stonepit Hills near Weston-on-the-Green, 1943 (sp.). Previously recorded from North Essex, and probably from Dorset and North Somerset (see J. E. Lousley in *Journ. Bot.*, 72, 171-3, 1934). I am indebted to Mr Lousley for kindly confirming my determination; he writes (*in litt.*):—"The specimens . . . are a trifle more on the side of the last named species [i.e. *C. vulgare*] than my own material. But there is no doubt about them and I think they must go under × *C. Gerhardtii*."
- +397/1. *ONOPORDON ACANTHIUM* L. 22, Berks. 2. A few plants by the roadside S.W. of Pusey, 1942, P.G.B. & J.P.M.B. 23, Oxon. 5. Waste ground by a railway bridge near Yarnton, 1941. 6. Waste ground, Jackdaw Lane, Oxford, 1940-42 (sp.), increasing there when last seen; roadside near Littlemore, 1938-44.

- 402/1. *SERRATULA TINCTORIA* L. 23, Oxon. 6. Field on the N.E. side of Stanton Great Wood, 1942, R.B. & J.P.M.B.
- 421/3. *HYPOCHAERIS GLABRA* L. 22, Berks. 2. Thinly scattered over a dry, sandy, cultivated field close to the fen at Cothill, in company with *Silene anglica* and *Filago spathulata*, 1944 (sp.), A. P. D. JONES & J.P.M.B.
- 423/15. *TARAXACUM PALUSTRE* (Lyons) DC., *sens. lat.* 23, Oxon. 5. Wet field by the toll bridge, Eynsham, 1937 (sp.).
- †425/2c. *LACTUCA SERRIOLA* L. var. *DUBLIA* (Jord.) Rouy. 22, Berks. 2. Plentiful on waste ground between Kennington and South Hinksey, 1943 (sp.), R.B. & J.P.M.B. I suspect that this will prove to be the prevalent lettuce on waste ground in and around the city of Oxford.
- 427/2b. *SONCHUS ARVENSIS* L. var. *GLABRESCENS* Günth., Grab. & Wimm., *Enum. Stirp. Phan. . . . in Silesia . . .*, 127, 1824; Bluff & Fingerh., *Comp. Fl. Germ.*, 2, 259, 1825. *S. arvensis* var. *laevipes* Koch, *Syn. Fl. Germ. Helv.*, ed. 2, 2, 498, 1844. 22, Berks. 1. Several plants of this variety (no typical *S. arvensis* seen) among sedges in marshy ground on Oxford Clay near a pond above Nealing's Copse on the S. side of Wytham Hill, 1944 (sp.), Dr E. W. JONES & J.P.M.B.

The epithet *glabrescens* appears to be the earliest for this variety; it clearly antedates *laevipes*, under which name this plant has been discussed recently. I am unable to explain "b. *laevis* (G.G.W.)," which is the nomenclature adopted by Druce in the *British Plant List*, ed. 2, 1928, unless *laevis* is an error for *glabrescens*; it may be noted that Druce used the latter epithet in the second edition of *Fl. Oxon.* published a year previously. As Günther, Grabowski and Wimmer's work appears to be uncommon, a transcription of the original description may be useful:—" *Sonchus arvensis* L. . . . β *glabrescens* nob. pedunculis calycibusque glabris. Bei Reinerz (Wiemann). Bei Einsiedel im Gesenke. Aug. 2." I am indebted to Miss G. Guiney and to the library of the Botany School, Cambridge University for enabling me to consult this work.

In view of the interesting note on this plant by J. E. Lousley in *B.E.C. 1941-42 Rep.*, 471, 1944, it may be added that the habitat on Wytham Hill must be very similar to that at Epsom. As is described for Mr Lousley's plant, the peduncles and involucre of the Wytham plant are quite glabrous.

- 427/3c. *SONCHUS ASPER* (L.) Hill var. *PUNGENS* Bisch. 23, Oxon. 6. Cultivated ground near a house in Coombe Wood, Cuddesdon, 1944 (sp.).
- 427/3d. *SONCHUS ASPER* (L.) Hill var. *GLANDULOSUS* (Coss. & Germ.) Druce. 23, Oxon. 5. Cultivated field W.S.W. of Cassington, 1942 (sp.), R.B. & J.P.M.B.

- †428/1. *TRAGOPOGON PORRIFOLIUS* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937-40 (sp.). The ground on which it grew has been since much disturbed and the plant is now no longer there.
- †435/4. *CAMPANULA RAPUNCULOIDES* L. 22, Berks. 2. Established on a hedge-bank and in a neighbouring field at Pusey, 1942 (sp.), P.G.B. & J.P.M.B.
- 460/2. *PRIMULA VULGARIS* Huds. 23, Oxon. 5. With flowers white except for a yellow "eye" at E. end of Wychwood, 1938 (sp.).
- 467/2. *ANAGALLIS ARVENSIS* L. subsp. *PHOENICEA* (Scop.) Schinz & Keller. 23, Oxon. 6. Cultivated allotment ground, Headington, 1941 (sp.). One plant with numerous branches from the base, some branches with leaves all opposite and paired at the nodes, others with paired leaves and flowers at the lower nodes and ternate leaves and flowers at the upper nodes. I have this year (1944) observed in the neighbourhood of Oxford plants of *Epilobium montanum* L. and *E. hirsutum* L. showing a similar diversity of phyllotaxis on one and the same plant. These occurrences suggest that varieties in these genera based on the character of the leaves being ternate instead of paired (*Anagallis arvensis* L. var. *verticillata* Diard, *Epilobium montanum* L. var. *verticillatum* Koch) are of little systematic importance.
- †497/1×4. *SYMPHYTUM OFFICINALE* L. × *PEREGRINUM* Ledeb. 22, Berks. 1. Roadside N.N.W. of Cumnor, 1939 (sp.). 23, Oxon. 6. Roadside near Holton, 1938 (sp.), N.E.G.C. & J.P.M.B.
- 501/1. *LYCOPSIS ARVENSIS* L. 23, Oxon. 6. By the road between Nuneham Courtenay and Dorchester, 1938.
- †506/7. *MYOSOTIS SYLVATICA* (Ehrh.) Hoffm. 23, Oxon. 6. This species was recorded from Nuneham Courtenay by the writer (*B.E.C. 1937 Rep.*, 491, 1938), but it should be added it is almost certainly not native in this locality, there being numerous other obviously introduced plants in woodland near by. I visited the locality again in 1938 in company with Mr Burn and we noticed the white-flowered form (var. *lactea* Boenn.) there as well as normal blue-flowered plants.
- †512/1. *IPOMOEA PURPUREA* (L.) Lam. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1941 (sp.).
- †517/15. *SOLANUM CAPSICASTRUM* Link. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.). The bushy pot-plant bearing large, handsome, orange-scarlet, round fruits that is so familiar in florists' and greengrocers' shops about Christmas-tide seems to belong to this species; its occurrence on tips would thus be easily explained. The inflorescences of the pot-plants seem always to be cut off, perhaps to increase the bulk of those fruits selected to mature, and thus the fact that it is a congener of our familiar nightshades is not immediately apparent.

- †518/1. *PHYSALIS ALKEKENGII* L. 23, Oxon. 4. Two large patches by the roadside S.S.W. of Gosford Bridge near Kidlington, 1944 (sp.), C. E. HUBBARD & J.P.M.B.
- †518/7. *PHYSALIS PERUVIANA* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1938 (sp.).
- †521/1. *ATROPA BELLADONNA* L. 23, Oxon. 4. One large plant among bushes by the bank of a backwater of the R. Cherwell, Manor Road, Oxford, 1938-44. Doubtless not native here.
- †522/1. *DATURA STRAMONIUM* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1941-44. 6. Waste ground, Jackdaw Lane, Oxford, 1938.
 Var. *TATULA* (L.) Torr. (var. *chalybea* Koch). 23, Oxon. 4. One plant on waste ground by roadside, South Parks Road, Oxford, 1940 (sp.); masonry was heaped on top of the plant shortly afterwards, and it has not reappeared. I must thank Mr A. J. Wilmott for kindly confirming the nomenclature of this variety, and also Miss R. Guiney for her assistance.
- 524/1. *HYOSCYAMUS NIGER* L. 22, Berks. 1. Numerous dead fruiting stems left standing from previous season on S.W. side of Long Copse on Cumnor Hill, April 1944, R.B. & J.P.M.B. 23, Oxon. 6. Jackdaw Lane, Oxford, 1938-41.
 †Var. *PALLIDUS* Waldst. & Kit. 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1941 (sp.), N.Y.S. & J.P.M.B.
- †527/5. *VERBASCUM BLATTARIA* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938 (sp.).
- †532/2. *LINARIA PURPUREA* Mill. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938. 6. Waste ground, Jackdaw Lane, Oxford, 1942, J.N.M. & J.P.M.B.
- 532/25. *LINARIA ELATINE* (L.) Mill. 22, Berks. 2. In a sandy cultivated field near the fen at Cothill, 1944, A. P. D. JONES & J.P.M.B.
- †534/2. *ANTIRRHINUM ORONTIUM* L. 23, Oxon. 4. Numerous plants on waste ground, Manor Road, Oxford, 1937-8 (sp.).
- †543/41. *VERONICA FILIFORMIS* Sm. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.). 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.).
- †558/3. *MENTHA LONGIFOLIA* (L.) Huds. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1942 (sp.), J.N.M. & J.P.M.B., det. A. L. STILL.
- †558/3b. × *MENTHA NILLACA* Jacq. var. *NEMOROSA* (Willd.). 22, Berks. 1. By the towpath at King's Weir between Wolvercote and Cassington, 1944 (sp.), N.E.G.C. & J.P.M.B.
- †558/12. × *MENTHA RUBRA* Huds. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.), J. F. G. CHAPPLE & J.P.M.B., conf. A. L. STILL, who, however, writes:—" I suppose so, on

- the long calyces, but not at all typical. Unusually hairy on calyces and apparently, in some cases, on pedicels. The 'bracts' are also not typical."
- +565/1. *MELISSA OFFICINALIS* L. 23, Oxon. 5. One plant on the canal bank between Oxford railway station and Wolvercote, 1944 (sp. in Herb. A.P.D. Jones, Aldenham), A. P. D. JONES & J.P.M.B.
- +566/6. *SALVIA SCLAREA* L. 22, Berks. 2. Waste ground near Kennington, 1941 (sp.).
- +579/1. *LEONURUS CARDIACA* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1938 and subsequently (sp.), plentiful in one small area.
- +581/2. *LAMIUM MACULATUM* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.).
- +588/1. *PLANTAGO INDICA* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.).
- +596/3. *AMARANTHUS HYPOCHONDRIACUS* L. (*A. hybridus* L. subsp. *hypochondriacus* (L.) Thell.). 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1940 (sp.). An extremely handsome and striking amaranth, in habit closely resembling *A. chlorostachys* Willd., with a densely compound purple inflorescence.
- +596/4. *AMARANTHUS CHLOROSTACHYS* Willd., *sens. lat.* 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.). The plant is immature and hence a more precise determination is impossible.
- +600/3. *CHENOPODIUM BONUS-HENRICUS* L. 22, Berks. 2. Abingdon, 1937 (sp.). 23, Oxon. 4. Beckley, 1937 and subsequently. 5. On roadside, North Leigh Heath, 1944, A. P. D. JONES & J.P.M.B.
- +600/4. *CHENOPODIUM HYBRIDUM* L. 22, Berks. 2. Has occurred sporadically for a few years on some waste ground by the roadside about half a mile S.S.E. of Cumnor.
- +600/6. *CHENOPODIUM MURALE* L. 23, Oxon. 5. Appeared again at Port Meadow in 1940 (sp.), N.E.G.C. & J.P.M.B. Its last recorded occurrence there seems to have been in 1839 (*Fl. Oxfordsh.*, ed. 2, 356).
- +600/7. *CHENOPODIUM OPULIFOLIUM* Schrad. 23, Oxon. 4. Waste ground, Jack Straw's Lane, Oxford, 1938 and subsequently (sp.). 5. Waste ground, Port Meadow, Oxford, 1944, A. P. D. JONES & J.P.M.B.; plentiful on waste ground, Binsey Lane, 1938 (sp.). 6. Abundant on waste ground near Bullingdon Green, 1939 and subsequently (sp.).
- +600/8k. *CHENOPODIUM VIRIDE* L. 23, Oxon. 4. Waste ground, Jack Straw's Lane, Oxford, 1941 (sp.), J.N.M. & J.P.M.B. 5. Waste ground, Port Meadow, Oxford, 1944 (sp.), A. P. D. JONES & J.P.M.B.

- +600/8u. *CHENOPODIUM PSEUDOSTRIATUM* Zschacke. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938 (sp.), det. Dr P. AELLEN, who writes:—"It is an alien plant, prob. not of hybrid character." The Oxford plants were robust, 7-8 dm. high, with broad leaves, and often much suffused with deep red-purple. It was in flower in the third week of October, and had scarcely set any seed by the 20th November, when the plants were killed by frost.
- +600/8(2). *CHENOPODIUM RETICULATUM* Aell. 23, Oxon. 5. I had the privilege of examining some *Chenopodia* from the herbarium of Mr P. G. Beak, and among them was a specimen of the above species collected in September 1934 in a cornfield at Bampton by P. G. Beak (no. 719). A hybrid with *C. album* L. was recorded from Oxford by Mr J. F. G. Chapple and the writer (*B.E.C. 1938 Rep.*, 54, 1939); but this is the first record of the species itself from the county, and is of interest in being from a habitat well away from any centre for alien introductions. The recent discovery and the paucity of records of this species from Britain are doubtless due in large part to the extreme difficulty of separating it from *C. album* in the field. I think it likely that its status in Europe will be found to be similar to that of *C. album*, and indeed it is possible that *C. reticulatum* would be more satisfactorily placed as a subspecies under it; however, the sculpturing of the testa—a character of high importance in this genus—is widely different in the two.
- +600/11b. *CHENOPODIUM PRATERICOLA* Rydb. var. *THELLUNGIANUM* Aell. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1936 (sp.). 5. Waste ground, Port Meadow, Oxford, 1940 (sp.).
- +600/12. *CHENOPODIUM FICIFOLIUM* Sm. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1939 (sp.).
- +600/14. *CHENOPODIUM VULVARIA* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937 (sp.).
- +600/15. *CHENOPODIUM POLYSPERMUM* L. 23, Oxon. 4. Abundant on waste ground, Manor Road, Oxford, 1938.
- +604/1. *BETA TRIGYNA* Waldst. & Kit. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1940 (sp.).
- 615/10×7. *POLYGONUM MITE* Schrank × *PERSICARIA* L. 22, Berks. 1. Wet, muddy place in a meadow at Hagley Pool between Wolvercote and Eynsham, 1941 (sp.), N.Y.S. & J.P.M.B.
- +615/19. *POLYGONUM PATULUM* M. Bieb. (*P. Bellardi* auct.). 22, Berks. 2. In a potato patch near North Hinksey, 1942 (sp. in Herb. P. G. Beak), P.G.B. & J.P.M.B. 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1940 (sp.), N.E.G.C. & J.P.M.B. 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.).

- 618/3×6A. *RUMEX CRISPUS* L. × *OBTUSIFOLIUS* L. subsp. *AGRESTIS* (Fries) Danser. 22, Berks. 1. One large plant by the R. Thames between Swinford Bridge near Eynsham and King's Weir, 1943 (sp.). 23, Oxon. 4. Manor Road, Oxford, 1939 (sp.). 5. Binsey Green, 1940 (sp.). Specimens from all three localities have been confirmed by J. E. LOUSLEY.
- 618/3×8. *RUMEX CRISPUS* L. × *SANGUINEUS* L. var. *VRIDIS* Sibth. 22, Berks. 1. A few solitary scattered intermediates among a profusion of *R. sanguineus* var. *viridis* and frequent scattered *R. crispus* in a rough meadow and marshland by the R. Thames between Swinford Bridge near Eynsham and King's Weir, 1943 (sp.), confirmed by J. E. LOUSLEY.
- 623/1. *DAPHNE LAUREOLA* L. 23, Oxon. 6. Mongewell, 1938, N.E.G.C. & J.P.M.B.
- †628/11. *EUPHORBIA CYPARISSIAS* L. 23, Oxon. 4. A large patch in a sandy field below Stow Wood, shown to me by N.E.G.C. in 1938 (sp.). I fear that this has now been exterminated through ploughing.
- †628/16. *EUPHORBIA LATHYRIS* L. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1937-8 (sp.).
- †635/1. *CANNABIS SATIVA* L. 23, Oxon. 4. Jack Straw's Lane, Oxford, 1938 (sp.).
- †646/3. *QUERCUS CERRIS* L. 22, Berks. 2. Two large trees in a wood by the R. Thames between Radley and Abingdon, 1941-2 (sp.).
- 650/5. *SALIX PURPUREA* L. 22, Berks. 2. ♀ tree at Cothill, 1938 (sp.), N.E.G.C. & J.P.M.B. 23, Oxon. 4. ♂ tree on hillside above Headington Wick copse, 1938 (sp.), N.E.G.C. & J.P.M.B.
- 650/11. *SALIX REPENS* L. ♀. 23, Oxon. 4. Otmoor, one plant, 1937 (sp.), N.Y.S. & J.P.M.B.
- 669/7. *ORCHIS LATIFOLIA* L. sec. Pugsley. 23, Oxon. 4. In a damp meadow on the E. side of the R. Cherwell N. of the Parks, Oxford, 1937 (sp.), J. F. G. CHAPPLE & J.P.M.B.
- 669/10. *ORCHIS ERICETORUM* (Linton) E. S. Marshall. 23, Oxon. 4. Damp enclosure on Otmoor N.N.W. of Beckley, 1937 (sp.).
- 669/14. *ORCHIS MASCUA* L. I have observed plants with unspotted leaves in Bagley Wood, Berks. (district 2), in 1938, and, in company with Prof. T. G. B. Osborn and Dr A. R. Clapham, in a wood overhanging the R. Evenlode N.W. of East End, Oxon. (district 5), in 1944. In the last-named locality they were connected with the normal by plants with leaves of numerous intermediate degrees of spottiness.
- 707/2. *ORNITHOGALUM UMBELLATUM* L., *sens. lat.* 23, Oxon. 5. A patch among scrub at Ranger's Lawn E. of Charlbury, 1938 (sp.). This specimen does not agree with the detailed descrip-

- tions of either *O. umbellatum* L. emend. Bor. or *O. angustifolium* Bor. given by C. E. Britton (*B.E.C. 1941-2 Rep.*, 588-9, 1944), the perianth segments being only about 1.5-1.8 cm. long; the specimen shows both 3- and 5-flowered inflorescences.
- 719/2×3(=2b). *LUZULA FOSTERI* (Sm.) DC. × *PILOSA* (L.) Willd. (× *L. BORRERI* Bromf.). 23, Oxon. 7. Lambridge Wood near Henley, 1940, R.B. & J.P.M.B.
- 727/4. *LEMNA GIBBA* L. 23, Oxon. 4. Very abundant in the Rivers Ray and Cherwell near their junction close to Islip and flowering rather freely in the latter river, 18th August 1944 (sp.), C. E. HUBBARD & J.P.M.B.
- 729/1b. *ALISMA LANCEOLATUM* With. 22, Berks. 1. In fair quantity in a marsh by the R. Thames between Swinford Bridge and Hagley Pool, 1943 (sp.).
- 753/4. *CAREX VESICARIA* L. 22, Berks. 1. By a backwater of the river, Hagley Pool near Wytham, 1939-40 (sp.).
- 753/9d. *CAREX HIRTA* L. var. *SPINOSA* Mort. 22, Berks. 2. Damp path near the fen, Cothill, 1939 (sp.); bank of R. Thames near Oxford, 1936 (sp.). In the Cothill plant the glumes are up to 17 mm. long; in that from Thames-side the ♀ spikelets are compound at the base.
- 753/12. *CAREX STRIGOSA* Huds. 22, Berks. 4. Plentiful in a damp stream valley near Padworth, 1942 (sp.).
- 753/19. *CAREX HOSTIANA* DC. 23, Oxon. 4. Plentiful in some damp enclosures on the S. side of Otmoor, 1937 (sp.). 6. Meadow on the N.E. side of Stanton Great Wood, 1942, R.B. & J.P.M.B.
- 753/19×21. *CAREX HOSTIANA* DC. × *LEPIDOCARPA* Tausch. 23, Oxon. 4. Bog under Stow Wood, 1937 (sp.), confirmed by E. NELMES.
- 753/31. *CAREX TOMENTOSA* L. This was recorded from Otmoor by the writer in *B.E.C. 1937 Rep.*, 514, 1938. It may be of interest to add that it grows in abundance over a large part of two enclosures; its habitat here—wet, alluvial pastures—is in striking contrast to its only other locality in the county, near Westwell, where it occurs in rough, dry, upland, oolitic grassland, and where it is unfortunately in small quantity. I have seen much of one of the Otmoor enclosures under several inches of water after a summer thunderstorm the previous evening. A plant from Otmoor is now growing in the Oxford Botanic Garden.
- 753/32. *CAREX PILULIFERA* L. 23, Oxon. 4. Headington Wick, 1940, Dr F. B. HORA & J.P.M.B. 7. Lambridge Wood near Henley, 1940, R.B. & J.P.M.B.
- 753/34. *CAREX PALLESCENS* L. 23, Oxon. 4. Sparingly by a damp, shady path in Pennywell Wood near Elsfield, 1944 (sp.). 6. Plentiful and robust in damp rides on Oxford Clay in Waterperry Wood, 1942 (sp.).

- 753/36. *CAREX PANICEA* L. 23, Oxon. 4. By the canal between Upper and Lower Heyford, 1937 (sp.); near Woodeaton. 5. Near Ducklington, 1938; wet, alluvial meadow near Wolvercote, 1937 (sp.).
f. *TUMIDULA* Laest. 22, Berks. 1. Wet, alluvial meadow, Hagley Pool near Wytham, 1940 (sp.).
- 753/53. *CAREX LEPORINA* L. 23, Oxon. 4. One patch on Otmoor near Beckley, 1937; in one place in a rough, dry meadow at the E. end of Prattle Wood near Noke, 1944 (sp.). 6. Stanton Great Wood, 1942, R.B. & J.P.M.B.
- 753/57 × 59. *CAREX OTRUBAE* Podp. × *REMOTA* L. (× *C. AXILLARIS* Good.). 23, Oxon. 4. One large tuft of the hybrid growing with the parent species by a damp path in Little Wood near Elsfield, 1944 (sp.). 5. Two tufts of the hybrid amid a profusion of the parent species in a damp ride in Burleigh Wood near Bladon, 1942 (sp.), R.B. & J.P.M.B. A duplicate of the last collection has been sent to Mr E. Nelmes, of Kew. It is apparently a scarce plant in Oxfordshire, for which Druce (*Fl. Oxfordsh.*, ed. 2, 465) gives but five localities.
- 753/66. *CAREX DISTICHA* Huds. 23, Oxon. 5. Alluvial meadow near Ducklington, 1938.
- 753/74. *CAREX PULICARIS* L. 23, Oxon. 4. Damp enclosure on the S. side of Otmoor, 1937 (sp.).
- +754/8. *ECHINOCHLOA CRUS-GALLI* (L.) Beauv. 23, Oxon. 4. Waste ground, Manor Road, Oxford, 1938 (sp.).
- +756/4. *SETARIA VERTICILLATA* (L.) Beauv. 23, Oxon. 5. Waste ground, Port Meadow, Oxford, 1938 (sp.).
- 775/1. *MILIUM EFFUSUM* L. 23, Oxon. 6. Coombe Wood near Cuddesdon, 1944. 7. Lambridge Wood near Henley, 1940, R.B. & J.P.M.B.
- 777/1g. *PHLEUM NODOSUM* L. 23, Oxon. 4. In profusion in rough, open, dry, calcareous grassland, Stonepit Hills near Weston-on-the-Green, 1943 (sp.). 7. Field near Lambridge Wood, Henley, 1940, R.B. & J.P.M.B.
- +794/6d. *AVENA STRIGOSA* Schreb. var. *ORCADENSIS* (Marq.) Druce. 22, Berks. 2. A single plant in a cultivated field by the footpath from Chilswell Farm to South Hinksey, 1944 (sp.), N.Y.S. & J.P.M.B.
- 795/1b. *ARRHENATHERUM ELATIUS* (L.) J. & C. Presl f. *BIARISTATUM* (Peterm.) Bertram. 23, Oxon. 4. Roadside near Marston, on the way to Elsfield, 1944 (sp.), R.B. & J.P.M.B. I am indebted to Mr C. E. Hubbard for informing me of the author for the epithet *biaristatum* in formal rank.
- 800/1. *SIEGLINGIA DECUMBENS* (L.) Bernh. 23, Oxon. 6. Field on the N.E. side of Stanton Great Wood, 1942, R.B. & J.P.M.B.

- 813/1. *MOLINIA CAERULEA* (L.) Moench. 23, Oxon. 4. Pasture on Otmoor, 1943, Dr A. R. CLAPHAM & J.P.M.B. 6. Sparingly in a field on the N.E. side of Stanton Great Wood, 1942, R.B. & J.P.M.B.
- 814/1. *CATABROSA AQUATICA* (L.) Beauv. 23, Oxon. 4. Plentiful in a marsh in a rough, open, steeply sloping pasture above Noke Wood near Beckley, 1944 (sp.), R.B. & J.P.M.B.
- 825/2×3. *GLYCERIA FLUITANS* (L.) R. Br. × *PLICATA* Fries. (× *G. PEDICELLATA* Towns.). 23, Oxon. 5. Ditch by Port Meadow, Oxford, 1941 (sp.), J.N.M. & J.P.M.B.; confirmed by C. E. HUBBARD.
- 825/3(2). *GLYCERIA DECLINATA* Bréb. 22, Berks. 2. Muddy margin of stream, Boar's Hill, 1941 (sp.), P.G.B. & J.P.M.B., confirmed by C. E. Hubbard. The record from between Oxford and Eynsham, in *B.E.C. 1939-40 Rep.*, 304, 1942, is an error and must be deleted; the plants found were merely depauperate specimens of *G. plicata* Fries.
- †827/4. *BROMUS TECTORUM* L. 23, Oxon. 6. Waste ground, Jackdaw Lane, Oxford, 1939 (sp.).
- 827/19(2). *BROMUS LEPIDUS* Holmberg. 22, Berks. 2. Pasture at the foot of White Horse Hill, 1938 (sp.); waste ground at the top of Cumnor Hill, 1939 (sp.); roadside near the top of Hinksey Hill, 1938 (sp.). 5. Shinfield Road, Reading, 1941 (sp.), Dr F. B. HORA & J.P.M.B.; plentiful on the roadside at Lodon Bridge near Maiden Erleigh, 1941 (sp.), Dr F. B. HORA & J.P.M.B. 23, Oxon. 4. By the by-pass road near Old Marston, 1939 and subsequently (sp.); roadside between Headington and Stow Wood, 1937 (sp.). 5. Roadside at Burford, 1938 (sp.); between Stanton Harcourt and South Leigh, 1943, R.B. & J.P.M.B. 6. Roadside near Benson, 1938 (sp.).
- 828/2. *BRACHYPODIUM PINNATUM* (L.) Beauv. 23, Oxon. 7. Field near Lambridge Wood, Henley, 1940, R.B. & J.P.M.B.. Curiously, this species has no records from this district in Druce's *Fl. Oxfordsh.*, ed. 2, 499.
- 830/6. *AGROPYRON CANINUM* (L.) Beauv. 22, Berks. 2. Roadside between Radley and Kennington, 1943 (sp.), R.B. & J.P.M.B. The inflorescences were intensely glaucous, and Mr C. E. Hubbard, to whom a duplicate has been given, says that it is intermediate between var. *glaucum* (Hack.) and var. *glaucescens* (Lange).
- 834/1. *NARDUS STRICTA* L. 23, Oxon. 4. A clump on a dry hillside near Headington Wick, 1938, N.E.G.C. & J.P.M.B. This is, however, not the first evidence for its occurrence there, for there is a specimen preserved in the ecological herbarium of the Department of Botany, Oxford University, from "heathy ground on calcareous grit," Headington Wick, collected on 2nd June 1921, by H. Baker.

- 836/3. *ELYMUS EUROPAEUS* L. 23, Oxon. 6 or 7? Wood above Chinnor, 1938 (sp.). 7. Lambridge Wood near Henley, 1940 (sp.), R.B. & J.P.M.B.
- 851/2. *ASPLENIUM TRICHOMANES* L. 23, Oxon. 5. Bridge over the R. Evenlode S.W. of Bladon, 1942, R.B. & J.P.M.B.
- 851/7. *ASPLENIUM RUTA-MURARIA* L. 23, Oxon. 5. Bridge over the R. Evenlode S.W. of Bladon, 1942, R.B. & J.P.M.B.
- 856/7. *DRYOPTERIS OREOPTERIS* (Ehrh.) Maxon. 23, Oxon. 3. In the E. part of Worton Wood N.E. of Sandford St Martin, 1944 (sp. in Herb. Brennan), Dr E. W. JONES. A new and welcome record for this fern, which Druce (*Fl. Oxfordsh.*) describes as "very rare and probably extinct" in the county. I have placed the locality in district 3, as Druce appears to have done so consistently, so far as I have seen, in the flora; but according to his definitions of the boundaries of the botanical districts in the introduction, it should apparently be in district 5. The lack of a map of the district boundaries in the flora is troublesome.
- 859/1. *CETERACH OFFICINARUM* DC. 23, Oxon. 5. Bridge over the R. Evenlode S.W. of Bladon, with 851/2 and 851/7, 1942, R.B. & J.P.M.B.
- 873/1. *TOLYPELLA INTRICATA* (Roth) Leonh. 23, Oxon. 4. Found by R.B. and the writer on 17th January 1943, growing in fair quantity with a sterile *Chara* (probably *C. vulgaris* L.) in water a few inches deep in a small, muddy ditch about half a mile S. of Wood Eaton by the road to Marston: an apparently unpromising time of year and locality for charophytes! The plants were heavily encrusted and extremely brittle. The writer collected specimens the following spring, but by 1944 the ditch was grown over and the charophytes had disappeared. Thus this "vegetable comet" has once again come and gone in its accustomed fashion.
- 876/3b. *CHARA VULGARIS* L. var. *LONGIBRACTEATA* (Coss. & Germ.) Kuetz. 23, Oxon. 5. Plentiful in a small pond in a gravel pit between Sutton and South Leigh, 1943 (sp.), R.B. & J.P.M.B.

**ADDITIONS AND EMENDATIONS TO THE COMITAL FLORA FOR
V.C. 30 (BEDFORDSHIRE).**

JOHN G. DONY, Ph.D.

As its title suggests, this is not intended to be a survey of the present state of the botanical knowledge of Bedfordshire, but a criticism of the records listed for the vice-county in the *Comital Flora*.

The county was fortunate in having an early written flora in Abbot's *Flora Bedfordiensis* (1798). In addition, Charles Abbot (1761-1817) made a list of further records in his own interleaved copy (2) now in the possession of Mr R. L. Hine of Hitchin. He also made a herbarium now on long loan to Luton Public Museum, but failed to give localities for his specimens. R. A. Pryor made a study of this herbarium (5) which is useful only as a check on Abbot's knowledge; but not upon his records. The next lists of Bedfordshire plants are to be found in the *Transactions of the Bedfordshire Natural History Society*, which was very active from 1875 to 1885. These include two lists by William Hillhouse (3) and (4) and two for which James Saunders (1839-1925) was mainly or wholly responsible (6) and (8). Most of Saunders' records in these lists were duplicated in a similar list in the *Journal of Botany* in 1883 (7). A herbarium made by the Society is still at Bedford; but is now, owing to bad attacks by insects, in a condition which makes it almost useless.

Saunders gave considerable study to the flowering plants from 1878 to about 1886; but later became more interested in cryptogams. His *Field Flowers of Bedfordshire*, 1911, was most incomplete and contained only a part of what he himself knew of the flora of the county.

In the meantime two botanists, William Crouch (1818-1846) and John McLaren (1815-1888), had made useful herbaria which were well annotated and are still in good condition.

John Hamson (1858-1930) in 1906 produced a small *Account of the Flora of Bedfordshire* (10) but did more useful work in compiling a list of records (13). The main fault with Hamson's work was that he kept no specimens and tended to rely upon his own identification of somewhat critical plants. The article on Botany in the *Victoria County History of Bedfordshire* (9) was well-written and was the first attempt to divide the records among sub-divisions based on river drainage. Seven such divisions were made, but the work lacked thoroughness as only one plant was recorded from one district while from another no plants at all were listed.

In recent years the county has been fortunate in the thorough study which J. E. Little (1861-1935) gave to one district. His papers on the Ivel District in the *Journal of Botany* in 1919 (12) and in this Society's *Report for 1935* (15) were the first attempts at a systematic study of botany in the county. The last-named paper was finished by Miss K. D.

Little after her father's death and is consequently less complete than he would have made it.

In 1936 the author, in collaboration with Dr V. H. Chambers, began a close study of the flora of the county, using a revision of the drainage areas. A preliminary survey of literature has been made, specimens collected widely and a study made of herbaria relating to the county. We have had much assistance from local and other botanists as the following notes indicate, but they are too numerous to list in detail. Our thanks are nevertheless due to them. Mr E. Milne-Redhead, fortunately for us stationed at Dunstable during the whole of the 1944 season, has been especially helpful.

The list which follows has presented some difficulties. The chief of these has been determining which of the early recorded species may now be considered to be extinct. The fact that no record has been made since Abbot may only mean that the plant has been overlooked, as we have found in the case of *Trifolium medium*, *Veronica montana* and *Elymus europeus*. The principle adopted has been to consider as now extinct the more conspicuous plants, and also those recorded from localities now under cultivation and from marshes long since drained, as the few remaining marshes have been well searched during the last sixty years.

In addition there are in the *Comital Flora* a few records for the county for which we can find no evidence: *Mentha rubra*, *Chenopodium opulifolium*, *C. Vulvaria*, *Allium oleraceum*, *Eleocharis acicularis*, *Eriophorum* (" *paniculatum* "), *Festuca ambigua* and *Bromus interruptus*. There are no specimens of any of these plants from Bedfordshire in Herb. Druce and it would be interesting to know upon what authority they are included in the *Comital Flora*.

There is some confusion as to the use of brackets in the *Comital Flora*, the explanation on page ix not agreeing with the practice adopted in the text. A record in brackets is stated to mean that the plant while native elsewhere is not so in the vice-county to which the record refers. This is most obviously its use in most cases in the text, e.g. 1/1, 4/1, 6/6, 9/1, 9/2, etc., which refer to species with which there can be little doubt of identity. But for many alien species, e.g. 54/20, 127/5, 754/10 and 11, brackets are omitted in the *Comital Flora*, and for these species I have therefore followed the usage of the book. It is most desirable that a ruling should be made on this and similar questions.

ABBREVIATIONS USED IN THE TEXT.

- * A vice-county record to be added to C.F.
- † Not native in the county.
- e Presumed now extinct.
- [C.] A specimen in Herb. Crouch, made by William Crouch between 1841 and 1845. Now at Luton Public Museum.
- [M.1] A specimen in Herb. McLaren, made by James McLaren between 1845 and 1886. Now at British Museum (Natural History).

- [M.2] A specimen in Herb. McLaren entered for the Royal Horticultural Society's Competition, 1864, now at Luton Public Museum.
- [S.] A specimen in Herb. Saunders, made by James Saunders between 1878 and 1925. Now at Luton Public Museum.
- [L.] A specimen in Herb. Luton Museum, begun by the author in 1936, but containing a number of specimens collected by James Saunders and Charles Crouch (1855-1944).
- [B.] A specimen in Herb. British Museum.
- [K.] A specimen in Herb. Kew.
- v.-c. 20 [Beds.] A locality in v.-c. 20 [Hertfordshire] but now in the administrative county of Bedfordshire. Similar abbreviations are used in other cases where the Watsonian vice-county does not coincide with the administrative county.
- J.McL. John McLaren.
 J.S. James Saunders.
 J.E.L. J. E. Little.
 C.C. Charles Crouch.
 V.H.C. V. H. Chambers.
 E.M.-R. E. Milne-Redhead.
 J.G.D. John G. Dony.

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+4/1. ADONIS ANNUA L. "Mrs Abbot has often brought this elegant plant in from the cornfields, and it would have been inserted in the body of the work, but from the general suspicion of its being not indigenous" (2). Pegsdon; 1930 (15): still at Pegsdon. 1944. [L.]. Add in brackets to *C.F.*

- *6/22(2). *RANUNCULUS RADIANS* Revel. Long Lane, Toddington; V.H.C., 1940; Wootton; J.G.D., 1942: both det. R. W. Butcher. Saunders' herbarium contains a specimen named "*Ranunculus* ? *trichophyllus*, small form, Charlton; 1882," which is probably this. [L.]
- 6/28. *RANUNCULUS BAUDOTII* Godr. The inclusion of this in the *Comital Flora* is probably based on Saunders' earlier records from Sundon (7) and (8). Probably on the same authority it was included in *Supplement to Top. Bot.*, 1905. It is unlikely that it would appear in an inland county and as Saunders did not include it in *The Field Flowers of Bedfordshire* and there is no specimen in his herbarium, it is very doubtful if it appeared in the county. Delete from *C.F.*
- +13/3. *DELPHINIUM GAYANUM* Wilmott (D. *ACACIS* auct. non. L.). Fields near Harlington; Mr Anstee, *J. Bot.*, 1889, p. 210 (11): Rubbish dump, Sundon; J.G.D., 1941. There are many other "old" records for "*D. Consolida*." [S.L.]. Add to *C.F.*
- 34/1. *CHEIRANTHUS CHEIRI* L. The only known record is Abbot (1): "Rare. Walls of Bedford Castle." Add "e" to *C.F.* record and remove to brackets.
- 36/5. *BARBAREA INTERMEDIA* Boreau. Flitwick; H. Phillips, *B.E.C. 1928 Rep.*, p. 724; Pegsdon; 1931 (14): Leagrave; J.G.D., 1939, det. as probably this, A. B. Jackson. [L.]. Add to *C.F.*
- *+54/20. *BRASSICA GALLICA* (Willd.) Druce. Henlow; E.M.-R. and J.G.D., 1944. [L.]. [Cardington Mill; J.Mc.L., 1885, [S.], is not this species.] No specimen in either of McLaren's herbaria.
- *+55/1. *DIPLOTAXIS TENUIFOLIA* (L.) DC. Waste ground, Luton; J.G.D., 1941. [L.].
- 88/14. *VIOLA CONTEMPTA* Jord. Barton; Clifton; Leagrave; coll. H. Phillips; H. Drabble, 1937: *B.E.C. 1936 Rep.*, p. 321: Maiden Bower, Houghton Regis; J.G.D., 1936, det. H. Drabble, "probably young plant." [L.]. Add to *C.F.*
- 88/17. *VIOLA MONTICOLA* Jord. Arlesey; H. Phillips; East Tingley Wood, Shillington; J.E.L.; H. Drabble, 1937: *B.E.C. 1936 Rep.*, p. 321. Add to *C.F.*
- *88/27. *VIOLA ANGLICA* Drabble. Maiden Bower, Houghton Regis; J.G.D., 1936, det. H. Drabble. [L.].
- 88/28b. *VIOLA DESEGLISEI* Jord. var. *SUBTILIS* (Jord.). Woburn; G. C. Druce (9): Flitwick; J.G.D., 1936, det. H. Drabble. [L.]. Add to *C.F.*
- *88/29. *VIOLA ARVATICA* Jord. Flitwick; J.G.D., 1936, det. H. Drabble. [L.].
- *100/9. *CERASTIUM TETRANDRUM* Curt. Railway, north of Dunstable; E.M.-R., 1944; railway between Westoning and Flitwick; E.M.-R. and J.G.D., 1944. [L.B.K.].

- *117/4. *MALVA ROTUNDIFOLIA* L. (*M. PUSILLA* Sm.). Gravel pit, Eaton Secor; B. Verdcourt, 1944. [L.]
- *+123/1. *TILIA PLATYPHYLLOS* Scop. Barton, planted; J.G.D., 1939, conf. A. B. Jackson. [L.]. Add in brackets to *C.F.*
- 123/3. *TILIA CORDATA* Mill. "In Bedfordshire there are woods where are thousands of (lime trees), e.g. at Chicksands (Sir Osborn's) and in other woods thereabouts." Letter from J. Aubrey to John Ray, dated 5th August 1691, *John Ray's Correspondence*, 1848, p. 237. As Ray makes it clear that there is only one lime, "*Tilia foemina*," that he knows to grow wild and as E. Milne-Redhead and I found this year (1944) a great quantity of *Tilia cordata* including many old trees at Chicksands, it is at least of long establishment. There are also many trees in King's Wood, Heath and Reach and in Aspley Wood, where Druce recorded it as planted (9). As all these woods are on or near the greensand and it almost certainly occurs in other neighbouring woods, it is probably native on the greensand ridge which crosses the county. [L.]. Remove from brackets in *C.F.*
- +127/5. *GERANIUM PHAEUM* L. Not recorded since Abbot, from whose specimen *English Botany* tab. 322 was drawn, but in Herb. Luton Museum there is a specimen from "Clophill near Kilm garden, July 1890" (coll. C. Crouch). [L.]. Remove to brackets in *C.F.*
- *+133/2. *IMPATIENS BIFLORA* Walt. Leighton Buzzard; V.H.C., 1940: Billington; V.H.C. and J.G.D., 1940: Stevington; A. W. Guppy, 1941: Turvey; R. Turner, 1941: Bromham; B. West, 1941: Harrold; J.G.D., 1943. [L.]
- *+133/3. *IMPATIENS PARVIFLORA* DC. Flitwick Moor; J.G.D., 1919: where it remained until 1923, det. A. J. Wilmott. [L.]
- +153/4b. *MEDICAGO DENTICULATA* Willd. Leighton Buzzard; A. Poulton (4). There is, however, no specimen in the herbarium of the Bedfordshire Natural History Society. Add to *C.F.*
- +154/4. *MELILOTUS INDICA* (L.) All. Between Edworth and Langford; J.E.L., 1914 (12). Add to *C.F.*
- *+163/1. *GALEGA OFFICINALIS* L. Wymington; 1940: Marston Thrift; 1943; J.G.D. [L.]
- +170/1. *CORONILLA VARIA* L. Wateroft Lane, Sharpénhoe; Miss D. M. Higgins (11): Roxton; A. West, 1928 (13): Cardington; L. W. Wilson, 1936, still there 1944. [S.L.]. Add to *C.F.*
- 178/1. *LATHYRUS LATIFOLIUS* L. The record in the *Comital Flora* is no doubt based on Abbot's record (1) "Hawnes: Bromham." *English Botany*, tab. 1108, was also supposed to have been drawn from a specimen sent by Abbot in 1802. A specimen named *L. sylvestris latifolius* in Abbot's herbarium is, however, *L. sylvestris* L. (5). It is interesting to note that *L. sylvestris* still grows at Hawnes. It would appear doubt-

- ful if Abbot knew *L. latifolius*. *Lathyrus latifolius* now occurs as an introduced plant, e.g. Battlesden: 1944, E.M.-R. and J.G.D. [L.]. Remove to brackets in *C.F.*
- *191/2. *AGRIMONIA ODORATA* (Gouan) Mill. Tilbrook, v.-c. 30 [Hunts.]; Swineshead; Rushmere, Heath and Reach; E.M.-R. and J.G.D., 1944. [L.B.].
- 194/7. *ROSA SQUARROSA* Rau. Clapham; Ampthill; Maiden Bower, Houghton Regis; Bromham; as var. *Carioti* (Chamb.) Rouy, coll. H. Phillips (16). Add to *C.F.*
- *194/12. *ROSA AFZELIANA* Fr. Deadmansea Wood, Whipsnade; V.H.C. and J.G.D., 1941: det. E. B. Bishop. [L.].
- 194/18. *ROSA OBTUSIFOLIA* Desv. Woburn, etc., coll. H. Phillips (16). Great Hayes Wood, Podington; J.G.D., 1941: det. as "probably var. *capucinensis* Rob. Kell" by E. B. Bishop. [L.]. Add to *C.F.*
- *194/19. *ROSA TOMENTOSA* Sm. Deadmansea Wood, Whipsnade; V.H.C., 1941: det. as var. *dimorpha* (Bess.) Desegl. by E. B. Bishop. [L.].
- +195/16. *PYRUS GERMANICA* (L.) Hook. f. East Hyde Park; Tingrith Park; probably planted (11). [S.]. Add in brackets to *C.F.*
- 213/1. *DROSER A ANGLICA* Huds. The only known record is by Abbot (1): "Extremely rare. Ampthill Bogs." A specimen in his herbarium is correctly named (5). Remove from brackets in *C.F.* and add "e."
- *220/6. *EPILOBIUM LAMYI* F. Schultz. Deadmansea Wood, Whipsnade; V.H.C., 1940: Warren Wood, Clophill; J.G.D., 1941: East Hyde; J.G.D., 1941: Aspley Wood; J.G.D., 1943, all det. G. M. Ash. [L.].
- *220/9. *EPILOBIUM LANCEOLATUM* Seb. & Maur. Aspley Wood; V.H.C., 1943, conf. G. M. Ash. [L.].
- 250/3. *CARUM PETROSELINUM* (L.) B. & H. Southill; J.E.L., 1912 (12). There is a specimen in Saunders' herbarium from Flitwick, 1887. [S., M.2]. Add to *C.F.*
- *+302/1. *CENTRANTHUS RUBUR* (L.) DC. Potton; Abbot, 1798 (2): railway bank, East Hyde; J.G.D., 1936. [L.].
- 334/2. *PULICARIA VULGARIS* Gaertn. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- *+383/7. *SENECIO SQUALIDUS* L. Harrold; J.G.D., 1943: Henlow; Sundon; Yelden; Milton Ernest; Luton; J.G.D., 1944; Totternhoe; E.M.-R., 1944: Bedford; C. C. Foss, 1944. [L.B.].
- *+383/8. *SENECIO VISCOSUS* L. Bedford; L. W. Wilson, 1936: Battlesden; Skimpot, Dunstable; Luton; J.G.D., 1942: Aspley Wood; V.H.C., 1943: Leighton Buzzard; V.H.C., 1944; Ampthill; J.G.D., 1944: Tilbrook, v.c. 30 [Hunts.]; J.G.D., 1944. [L.].

- †399/1. *SILYBUM MARIANUM* (L.) Gaertn. Sandy; Bedford; Abbot (1): Ampthill Park (6); Ford End, Bedford; J. McLaren: Flitwick; south of Luton (11): Southill Station (14); Bedford; L. W. Wilson, 1936. [L., M.1, M.2]. Add to *C.F.*
- †405/15. *CENTAUREA CALCITRAPA* L. "Rare, Biddenham; Eaton Soccon"; Abbot (1): Wilbury Hill; J.E.L., *B.E.C. 1913 Rep.*, 1914, p. 476. Delete "e" in *C.F.*
- †425/2. *LACTUCA SERRIOLA* L. Stagsden; Abbot (2): as var. *dubia* Jord., J.E.L., *B.E.C. 1932 Rep.*: Sundon; J.G.D., 1936, becoming increasingly common throughout the county. [L.]. Add to *C.F.*
- 439/1. *OXYCOCCUS QUADRIPETALUS* Gilib. Ampthill Bogs; Potton Marshes; Abbot (1). There is no specimen in Abbot's Herbarium (5) but this is a species scarcely likely to be misidentified. Add with "e" to *C.F.*
- 446/1. *ERICA CINEREA* L. Pepperstock; J.S., 1900 (11). There is also a specimen in the Crouch Herbarium gathered by Miss Crouch (no date) from "a heath near Markyate Street." These two stations are probably the same and may be in Hertfordshire or v.c. 20 [Beds.]. [C.S.]. Add with ? to *C.F.*
- 480/8. *GENTIANA GERMANICA* Willd. Chalton Cross (11): Sundon; Studham (v.c. 20 [Beds.]); J.G.D., 1943. [S.L.B.]. Add to *C.F.*
- 480/9. *GENTIANA CAMPESTRIS* L. It is doubtful if this ever occurred in Bedfordshire. *Gentiana fugax*, *Autumnalis elatior*, *Centaurea minoris foliis*. A *Gentianella fugax quarta* Clus? was recorded by Parkinson *Theatr. Novarum*, p. 407, from two localities. "On the Barton hills upon a waste chalky ground and as you go out of Dunstable way towards Gorek hambury" (c.f. Gerard's earlier citations). Abbot (1) probably on the authority of Parkinson recorded it from Barton Hill; but his herbarium contained no specimen (5). Of doubtful identity. [? perhaps *G. anglica* Pugsl.—A. J. Willmott.] Add ? in *C.F.*
- †482/1. *NYMPHOIDES PELTATA* (S. G. Gmel.) Rend. & Br. "Stanbridge Ford"; S. A. Chambers, 1894 (11). Specimen in Herb. Lousley labelled "Eggington." Add to *C.F.*
- *†486/1. *POLEMONIUM CAERULEUM* L. Well established by side of Flitwick Moor; E.M.-R. and J.G.D., 1944. [L.].
- †500/1. *ANCHUSA SEMPERVIRENS* L. There is a specimen in the Crouch herbarium from Silsoe Park, 1845: Aspley (3): Leighton Buzzard; J.G.D., 1944. [C.L.B.]. Add to *C.F.*
- *506/3. *MYOSOTIS SECUNDA* A. Murray (*M. repens* G. & D. Don). Luton Hoo; J.G.D., 1936: The Litany, Totternhoe; Roxton; J.G.D., 1941. [L.].
- †527/5. *VERBASCUM BLATTARIA* L. Hart Hill, Luton; F. Wiseman, *J. Bot.*, 1883: Cardington; J.McL. [S.M.1]. Add to *C.F.*

- 548/5. *RHINANTHUS STENOPHYLLUS* Schur. Given for v.c. 30 by Druce in his *Flora of Buckinghamshire* with no details. His herbarium contains no Bedfordshire specimen. Add with ? to *C.F.*
- †549/2. *MELAMPYRUM ARVENSE* L. Stagsden Hill Farm; Miss D. M. Higgins, 1904 (*Wats. E.C. 1904-5 Rep.*, 1906, 21; *B.E.C. 1936 Rep.*, 1937, p. 272): between Stagsden and Astwood; J. Lane, 1914 (13): Bromham; Miss A. Wooding, 1942. Houghton Regis; W. D. Coales, 1944: Turvey; A. W. Guppy, 1944. [L.]. Add to *C.F.*
- 550/10. *OROBANCHE MINOR* Sm. Recorded by Hillhouse with no locality (3): Amphill; Flitwick; Harlington; J.S., *J.Bot.*, 1889, p. 211; Ridgmont; Pulloxhill; Henlow; C.C. (11): Holwell, in clover; J.E.L. (14): Bushmead; Col. Battcock, 1937: Bromham; Chalton Cross; J.G.D., 1942: Clophill; B. Verdcourt, 1943. [L.]. Add to *C.F.*
- †558/4. *MENTHA SPICATA* Huds. "Galley Hill, Sutton; 1932, ? remains of cultivation" (14). Add to *C.F.*
- 558/6. *MENTHA PIPERITA* L. var. The *Mentha citrata* of *English Botany*, tab. 1025, was "drawn from" a specimen sent by Abbot from Bedford, 1802; but cf. 178/1. ? Add to *C.F.*
- *562/7. *SATUREIA NEPETA* (L.) Scheele. "Ravensden; Edgar Evans, 1913, named by Kew" (13).
- †565/1. *MELISSA OFFICINALIS* L. Wootton; Woburn (3): Battlesden, as garden escape; J.G.D., 1942. [L.]. Add to *C.F.*
- 577/6. *STACHYS ARVENSIS* L. Near Dunstable (2): Barton Hills; J.S. (6): There is no specimen in Saunders' herbarium and he did not include it in his *Field Flowers of Bedfordshire*. Add ? to *C.F.* record.
- 586/4. *TEUCRIMUM CHAMAEDRYIS* L. "Warden; Rare" (1): The specimen in Abbot's herbarium is correct (5). Add with "e" to *C.F.*
- *†613/1. *SALSOLA KALI* L. Waste ground, Luton; E.M.-R. and J.G.D., 1944. Probably var. *tenuifolia* Tausch. [L.]. Add in brackets to *C.F.*
- *615/10. *POLYGONUM MITE* Schrank. Goldington; B. Verdcourt, 1944: *P. MITE* × *P. PERSICARIA*, Fenlake; E.M.-R. and J.G.D., 1944, det. W. B. Turrill. Fenlake is near to Goldington, closer search will probably reveal the plant in neighbouring parishes. [L.].
- 618/12. *RUMEX PALUSTRIS* Sm. Warden Abbey; J.E.L., 1913 (12). [S.]. Add to *C.F.*
- †622/1. *ARISTOLOCHIA CLEMATITIS* L. The *C.F.* record is probably Saunders (11). It was, however, undoubtedly planted, as Saunders himself admits, in the Flower Garden Wood at Luton Hoo. [S., L.]. Add ? to *C.F.* record.

- *†628/9. *EUPHORBIA VIRGATA* W. & K. Roadside, Thrale's End, Hyde; J.G.D., 1917: near Kempston; L. W. Wilson, 1936: Rubbish dump, Sundon; J.G.D., 1943: Luton Hoo, Hyde; W. D. Coales, 1944: Roxton; H. B. Souster, 1944; Leighton Buzzard; E.M.-R. and J.G.D., 1944: all det. A. J. Wilmott. [B., L.].
- 628/11. *EUPHORBIA CYPARISSIAS* L. Not recorded definitely since Abbot (2), from whose specimen *English Botany*, tab. 840, was drawn. Other reported discoveries are probably for *E. virgata*. Add "e" to *C.F.* record.
- *†628/16. *EUPHORBIA LATHYRIS* L. There is a specimen in Saunders' herbarium collected by J. McLaren at Cardington in 1885: Battlesden; J.G.D., 1936: Souldrop; J.G.D., 1943: Bromham; A. W. Guppy, 1941. [S., L., M.2].
- †637/3. *URTICA PILULIFERA* L. Shefford, Hamson (13): Cardington; J.McL., see *J.Bot.*, 1884, p. 250. [S., M.1]. Add in brackets to *C.F.*
- *642/2. *BETULA PUBESCENS* Ehrh. Liddington; V.H.C. and J.G.D., 1942: Washer's Wood, Tingrith; J.G.D., 1942; King's Wood, Heath and Reach; A. J. Wilmott, 1943 (first definite record): Aspley Wood; J.G.D., 1943: Melchbourne; J.G.D., 1943: Studham; E.M.-R., 1944. [L.].
- 659/1. *HAMMARBYA PALUDOSA* (L.) Kuntze (*MALAXIS PALUDOSA* (L.) Sw.). Not recorded since Abbot (1), who found it at Potton Marshes, which have since been drained. Add "e" to *C.F.* record.
- 668/1. *EPIPACTIS PALUSTRIS* (L.) Crantz. The *C.F.* record is apparently based on Abbot (1). There is also a specimen in the Crouch herbarium collected at Gravenhurst in 1842, since when it has not been reported. [C.]. Add "e" to *C.F.* record.
- 669/18. *HIMANTOGLOSSUM HIRCINUM* (L.) Koch (*Orchis hircina* (L.) Crantz). Dunstable Downs; Miss S. Tearle, *J.Bot.*, 1932, p. 114, and *B.E.C. 1932 Rep.*, 1933, pp. 117 and 674. Add to *C.F.*
- 672/2. *OPHRYS SPHEGODES* Mill. Not recorded since Abbot (1), who only recorded it from "old sand and gravel pits," Southill, on the authority of P. Walker. Add ? and "e" to *C.F.* record.
- †684/3. *NARCISSUS BIFLORUS* Curt. Heath; G. C. Druce, 1929, *B.E.C. 1929 Rep.*, 1930, p. 139. Add to *C.F.*
- †685/1. *GALANTHUS NIVALIS* L. "Sandy hills, Rare"; Abbot (1): Southill; J.McL. (4). There is a specimen in Saunders' herbarium from Flitwick Park, 1884: Rowney Warren, Shefford; V.H.C., 1939: Tingrith; J.G.D., 1943. [L., S., M.1, M.2]. Add to *C.F.*
- *†686/2. *LEUCOJUM AESTIVUM* L. Tingrith Park; J.G.D., 1918: Bolnhurst; R. Turner, 1941. [L.]. Add in brackets to *C.F.*

- +703/1. *MUSCARI RACEMOSUM* DC. Leagrave; Miss Lye, 1909 (11). Add in brackets in *C.F.*
- +708/1. *LILIUM MARTAGON* L. Recorded by Hillhouse with no locality (4). Pavenham; Miss G. H. Day, 1943. It has been known at Pavenham some years and is probably the source of Hillhouse's record. [L., B.]. Add to *C.F.*
- + 710/1. *TULIPA SYLVESTRIS* L. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- 713/1. *COLCHICUM AUTUMNALE* L. Not recorded as a wild plant since Abbot (1). Add "e" to *C.F.* record.
- + 714/1. *NARTHECIUM OSSIFRAGUM* (L.) Huds. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- 719/3. *LUZULA FORSTERI* (Sm.) DC. Hamson wrote "there is one doubtful record for Marston" (10). In his notes (13) he attributes this to Miss Ada Stimson, 1878. This record is now confirmed, the author having found the plant at Marston Thrift in 1943. [L., B.]. Add to *C.F.*
- 737/27. *POTAMOGETON TRICHOIDES* Cham. & Schlecht. Southill Park Lake; J.E.L., *J.Bot.*, 1938, p. 166. Add to *C.F.*
- 744/1. *CYPERUS LONGUS* L. Well established on an island in the river at Bedford, where it may have been originally planted; E.M.-R. and J. E. Dandy, 1944. [L.]. Add in brackets to *C.F.*
- 748/2. *RHYNCHOSPORA ALBA* (L.) Vahl. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- 749/1. *SCHOENUS NIGRICANS* L. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- + *753/1. *CAREX PSEUDO-CYPERUS* L. Battlesden; E.M.-R., 1944. [K.L.].
- + 753/4. *CAREX VESICARIA* L. Saunders (*J.Bot.*, 1889, p. 212) attributed the discovery of this at Flitton Moor to J. McLaren, while his *Field Flowers of Bedfordshire* also gives McLaren as his authority and North Bedfordshire (with no station) as the only details. There is no specimen in Saunders' herbarium, and a plant named *C. vesicaria* from Shefford is represented in McLaren's herbarium [M.2] by *C. rostrata* (det. E. Nelmes, 1945). A specimen in Charles Crouch's collection of plants "per J.S.," i.e. received from Saunders and collected in North Bedfordshire by McLaren, is *C. riparia*. In McLaren's other herbarium [M.1] there is a specimen of *C. vesicaria* from Ar. Bennett labelled "Cophorhe" which is not in Bedfordshire (? Sussex). Delete from *C.F.*
- + 753/12. *CAREX STRIGOSA* Huds. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- + 753/17. *CAREX DISTANS* L. Stevington, rare; Abbot (1). The specimen in Abbot's herbarium was, however, referred to *C. binervis* by Pryor (5). It is likely with non-acid soils at

- Stevington that the plant here was *C. distans* and not *C. binervis*. Chorlton (? Chalton), 1882; Streatley, 1883; Totternhoe, 1884; J.S. as *(C. fulva)* but *C. distans*, det. E. Nelmes, 1945. Fancott; A. J. Wilmott, 1942. [L.S.]. Add to *C.F.*
- + 753/21. *CAREX LEPIDOCARPA* Tausch. A specimen in Saunders' herbarium from Totternhoe, 1884, named *C. flava* is referred to this by Mr Nelmes. [S.]. Add to *C.F.*
- A 753/22. *CAREX SEROTINA* Mérat (*C. Oederi* auct. non Retz.). I have been unable to find any evidence for the *C.F.* record: but there is a specimen in McLaren's herbarium [M.1] which is this (det. A. J. Wilmott) labelled "Flitwick, Potton" and named *C. flava*.
- + 753/57×59. × *CAREX AXILLARIS* Good. Fenlake; J. McL., 1884 (10). [S., M.2]. Add to *C.F.*
- +754/10. *PANICUM SANGUINALE* L. "Pulloxhill; C.C." (11). There is a specimen in Saunders' herbarium collected by Mr Green at Luton, 1916. [S.L.]. Add to *C.F.*
- *+754/11. *PANICUM ISCHAEMUM* Schreber. There is a specimen in Herb. McLaren, "a garden weed, Cardington." [M.1]. Add to *C.F.*
- *780/2(2) ["3 var."]. *AGROSTIS GIGANTEA* Roth. (*A. capillaris* L. var. *nigra* (With.)). Heath and Reach; J.G.D., 1943, det. C. E. Hubbard. [L.].
- + *+782/1. *POLYPOGON MONSPELIENSIS* (L.) Desf. Gravel pit, Eaton Socon; B. Verdcourt, 1944. [L.].
- +808/1. *CYNOSURUS ECHINATUS* L. Bedford; 1916 (13): Flitwick Moor; J.G.D., 1917: Ridgmont; C.C., 1921 (15): Leagrave; J.G.D., 1922; Amptill; C.C., 1922 (15): Potton; J.G.D., 1942. [S., L.]. Add to *C.F.*
- + *825/3(2) ["2 (bis)"]. *GLYCERIA DECLINATA* Bréb. Heath and Reach; C. E. Hubbard, 1944: Woodside; J.G.D., 1944. [L., K.].
- *827/19(2) ["30"]. *BROMUS LEPIDUS* Holmberg (*B. britannicus* Williams). Heath and Reach; A. J. Wilmott, 1943, conf. C. E. Hubbard: Knotting; J.G.D., 1944, det. C. E. Hubbard. [B., K., L.].
- 829/2. *LOLIUM TEMULENTUM* L. Not recorded since Abbot (1). Add with "e" to *C.F.*
- + 844/3. *EQUISETUM SYLVATICUM* L. Not recorded since Abbot (1). Add with "e" to *C.F.*
- 844/7. *EQUISETUM HYEMALE* L. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- +856/2×3 ["2 bis"]. × *DRYOPTERIS ULIGINOSA* Newman. "Flitwick Marsh," 12/9/84 and 8/10/85, J.S. (as *spinulosa* var.), in Herb. Saunders [S.], where Mr J. G. Baker writes:—"Spinulosa slides gradually into *uliginosa*. This will scarcely do for the latter; teeth too deep and sharp." Two fronds in Herb.

- McLaren [M.1] are referred by A. H. G. Alston to *D. dilatata* and *D. spinulosa* respectively, the latter frond matching those in Hb. Saunders. It is interesting to note that *D. cristata* (L.) A. Gray is not recorded.
- 856/8. *DRYOPTERIS THELYPTERIS* (L.) A. Gray. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- † 864/1. *OSMUNDA REGALIS* L. "Aspley Wood. Found by Mr George Dixon of Eversholt. Rare"; Abbot (1). Recent records are for naturalised plants, e.g. Tingrith Park; J.S., *J.Bot.*, 1889, p. 212. [S.]. Remove to brackets in *C.F.*
- † 865/1. *BOTRYCHIUM LUNARIA* Sw. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- 870/6. *LYCOPodium INUNDATUM* L. Not recorded since Abbot (1). Add "e" to *C.F.* record.
- *876/17. *CHARA DELICATULA* Ag. Rushmere, Heath and Reach; E.M.-R. and J.G.D., 1944, det. G. O. Allen. [L.].

ADVENTIVE FLORA OF BURTON-ON-TRENT.

R. C. L. BURGESS.

In the B.E.C. Report for 1931, p. 465, a list of 188 adventive plants found at Burton was compiled by Sir Roger Curtis, who was usually accompanied by Dr Druce in his visits to the waste ground in and about the maltings.

During the past ten years more than half of these adventives have been seen by myself, and although the war has greatly restricted my visits there is abundant evidence that Burton is still a prolific field for aliens.

It will be noticed both in Sir R. Curtis' list and the additions listed at the end of these notes that the great majority of these plants came from the Mediterranean region. I believe that the explanation of this is the undoubted fact that the grain sacks from North Africa and Syria contained a much greater quantity of refuse than those from California and Chile, where presumably more modern methods of cleaning the barley are in operation. Barley has not been obtained from North Africa for a good many years before the war, and some of the older workmen at Worthington's maltings were very contemptuous about the contents of the sacks from this part of the world. In the years immediately preceding the war, I believe that most of the foreign barley used at Burton came from California and Chile. The Californian poppy, *Eschscholzia californica* Cham., I feel sure, came from this source, and now it can always be found at one or more of the maltings.

The aliens from America, with the above exception, do not seem to last more than one season, and the more permanent plants all come from the Mediterranean region.

Needless to say, no foreign barley has been imported since the war, and so the plants that are to be found now will be, with a few exceptions, either perennials which can live through our winters or annuals which can set seed successfully. The finding of *Trigonella aurantiaca* Boiss. in 1943 can only be accounted for by the assumption that the seed must have lain dormant in some corner of the malting for many years, and been thrown out with more recent waste onto the adjoining allotments. The four main localities that have been worked are:—

(1) Bass's Brewery, Shobnall Road. The vast expanse of waste ground behind and around Bass's Brewery was in all probability the most prolific area explored by Sir R. Curtis and Dr Druce. It consists of railway lines, allotments, a large area between the sheds covered by loose ash, and at the back of the main buildings waste sandy gravel. In view of the great improvements in dealing with the waste products from the maltings not many fresh aliens have been found here, but it contains several interesting established plants.

Herniaria hirsuta L. has been seen since 1936 and is now greatly extending its range: for the last two years it has been found both on the gravel bank at the back of the main buildings, where I first found it, and also all over the loose ash and between the railway sleepers.

Several interesting species of *Lepidium* are to be found, notably *L. Draba*, *L. chalepense*, *L. virginicum*, and *L. neglectum*; these last two have probably been introduced with the timber for the barrels. Further study in this difficult genus is likely to add to this list.

In the allotments opposite the coopering yards are four weeds which have appeared consistently for the past eight years: *Galium spurium* L. var. *Vaillantii* DC., *Senecio vulgaris* L. var. *radiatus* Koch, *Veronica agrestis* L. var. *Garckiana* D. Fourn., and *Mercurialis annua* L.

Chenopodium glaucum L. is usually to be found growing along the railway tracks, together with *Atriplex patula* L. var. *bracteata* Westerl. and var. *angustissima* G. & G.

(2) Worthington's Maltings S.W. of the main L.M.S. station and the railway sidings at Wetmoor Road N.E. of the station. These two sites, with very similar conditions for the growth of aliens, both lie beside the main L.M.S. line from Derby to Birmingham, and they have provided the majority of the casual aliens seen. The presence of a chicken run, allotments and a ditch which is dry in summer, all a stone's throw from the malting house, are the chief reasons for the frequency of aliens in these sites. The main block of aliens were all found in 1936 and 1937 growing from a load of waste dumped by the side of the railway line. A brief description of the vegetative growth on a typical dump will, I think, not be out of place. By the side of the railway on a bank approximately five feet high a load of waste from the maltings was dumped, covering an area of 6 yards by 3 yards and having a maximum depth of about 3 to 4 feet. When I first saw it in the autumn of 1935 it consisted of a mass of chaff and other waste products from the maltings and looked just like the present fowl balancer meal. In 1936 an abundance of aliens appeared, their growth aided considerably by the heat generated in the middle of the heap. They were massed very closely together, and it was a simple process to sit on the heap, and both inspect and gather the plants at one's ease. In 1937 there were still a goodly number of aliens, but they were finding it difficult to compete with the persistent native grasses, and by 1938 almost all the alien plants had disappeared.

On the waste ground round the maltings and in the grass between the sidings are several alien plants which have persisted to my knowledge for the past ten years, and obviously had been present for many years before I began to visit Burton regularly. A list of these is given for they may be regarded as reasonably permanent, as they are unlikely to be lost, unless drastic alterations take place in and about the railway sidings.

Silene anglica L. is fairly frequent on the permanent way. *Astragalus odoratus* Lam. forms three separate patches, each occupying several

square yards. This plant is most difficult to eradicate, as one local botanist, who introduced it to his garden, learnt to his cost. It is able to survive burning and the competition of native vegetation. One patch has just re-appeared after having been entirely covered for several years by a huge dump of coal. *Coronilla varia* L. is on the railway bank.

Medicago falcata L. and *Medicago sativa* L. are both fairly common growing together with many intermediate forms. There is one patch of *Lathyrus tuberosus* L. growing by the main railway bank at Wetmoor Road.

Scattered about are several robust plants of *Salvia verticillata* L., and there is one small patch of what is probably *Salvia sylvestris* L. by the main line at Wetmoor Road. *Polygonum cognatum* Meissn. cannot, I think, be a grain alien; but as there is a timber yard nearby, it seems likely that this was the method of introduction.

In and about the chicken run and allotments are usually to be found *Medicago hispida* Gaertn. var. *denticulata* Willd. and var. *apiculata* Willd., *Melilotus indica* (L.) All., *Vicia narbonensis* L., *Vicia calcarata* Desf., *Centaurea solstitialis* L., *Centaurea melitensis* L., and *Anagallis foemina* Mill. The above I have seen almost every year since 1933, and, in addition, the following plants have recurred fairly frequently: *Glaucium corniculatum* (L.) Curt., *Vicia tenuifolia* Roth., and *Althæa hirsuta* L. The last named was first seen in 1930 by Sir Roger Curtis, and by myself in 1934 and 1943.

(3) Railway sidings by Trent Bridge. The most interesting alien found here is *Alyssum incanum* L., which has appeared regularly for the past ten years, but there are only a few plants, and its hold must be considered precarious. Scattered about the platform and adjoining waste ground are *Sisymbrium altissimum* L., *Sisymbrium orientale* L., *Epilobium roseum* Schreb., *Epilobium adenocaulon* Hausskn., *Senecio viscosus* L., *Senecio squalidus* L., and *Erigeron canadensis* L.

In addition to the above, on any suitable waste ground in and about the town grow *Reseda lutea* L., *Melilotus alba* L., *Scabiosa arvensis* L., *Artemisia Absinthium* L., *Centaurea Scabiosa* L., *Cichorium Intybus* L., and other cornfield weeds.

LIST OF ADDITIONS TO THE 1931 LIST.

- 28/1. *ESCHSCHOLTZIA CALIFORNICA* Cham.—Calif.
 32/13. *FUMARIA PARVIFLORA* Lam., det. J.E.L.
 32/14. *FUMARIA AGRARIA* Lag., det. J.E.L.—S. Eur.
 38/1. *MICROSISYMBRIUM LASIOPHYLLUM* (Hook. & Arn.) O. E. Schulz,
 det. J.P.M.B.—N.W. Am.
 42/9. *ALYSSUM INCANUM* L.—Eur.
 55/3. *DIPLOTAXIS ERUCOIDES* DC., det. J.F.G.C.—S. Eur.
 72/1. *MYAGRUM PERFOLIATUM* L., det. J.F.G.C.—Eur.
 74/1. *BUNIAS ORIENTALE* L., det. J.F.G.C.—Eur.

- 76/4. RAPISTRUM LINNAEANUM Boiss. & Reut., det. J.E.L.—Eur.
 85/2. RESEDA LUTEA L.
 115/2. ALTHAEA HIRSUTA L., det. J.E.L.
 116/5(2). LAVATERA PUNCTATA All., det. J.F.G.C.
 117/7. MALVA NICAENSIS All., G. C. Druce in *B.E.C. 1930 Rep.*, 339—
 S. Eur.
 126/1. TRIBULUS TERRESTRIS L., det. J.P.M.B.—S. Eur.
 152/14. TRIGONELLA ARABICA Delile, det. J.F.G.C.—Arabia.
 152/20. TRIGONELLA AURANTIACA Bois., 1943, det. J.E.L.—As. Min.
 153/19. MEDICAGO TUBERCOLATA Willd., det. J.P.M.B.—Medit.
 153/27. MEDICAGO LACINIATA Mill., det. P.A.—S. Eur.
 153/34(2). MEDICAGO BLANCHEANA Boiss., det. J.P.M.B.
 169/2. SCORPIURUS SUBVILLOSA L., det. J.P.M.B.—S. Eur.
 169/4b. SCORPIURUS MURICATUS L. var. LAEVIGATUS (Sibth. & Sm.) Boiss.,
 det. J.P.M.B.
 172/3. HIPPOCREPIS UNISILIQUOSA L., det. J.F.G.C.—S. Eur.
 173/3. ONOBRYSCHIS CRISTA-GALLI Lam., det. J.F.G.C.—Medit.
 176/2. VICIA TENUIFOLIA Roth., det. R.M.—Eur.
 176/6. VICIA DASYCARPA Ten., J.F.G.C.—Eur.
 176/9b. VICIA LUTEA L. var. CAERULEA Archang.
 176/13c. VICIA ANGUSTIFOLIA (L.) Reichard var. SEGETALIS Koch.
 176/16. VICIA BENGHALENSIS L. (*V. atropurpurea* Desf.), det. R.M.—Eur.
 176/21. VICIA CALCARATA Desf., det. P.A.—Medit.
 178/17. LATHYRUS ANNUUS L., det. J.F.G.C.—Medit.
 178/20. LATHYRUS HIEROSOLYMITANUS Boiss., det. J.P.M.B.—Syria.
 178/24. LATHYRUS AMOENUS Fenzl.—Syria.
 180/3. PISUM HUMILE Boiss. & Noë, det. J.F.G.C.—Palest.
 220/7(2). EPILOBIUM ADENOCALYX Haussk., det. G.M.A.
 220/8. EPILOBIUM ROSEUM Schreb., det. G.M.A.
 249/1b. AMMI MAJUS L. var. GLAUCIFOLIUM (L.) Noul., det. J.P.M.B.—
 S. Eur.
 249/2. AMMI VISNAGA (L.) Lam.—S. Eur.
 252/1. FALCARIA VULGARIS Bernh. (*F. Rivini* Host).
 283/1. CAUCALIS LEPTOPHYLLA L., det. J.E.L.—Eur.
 296/12b. GALIUM VAILLANTII DC., det. J.F.G.C.
 320/3. ERIGERON CANADENSIS L.—N. Amer.
 335/1. BUPHTHALMUM SPECIOSUM (Schreb.) Druce, 1943, det. J.E.L.—
 Eur.
 354/1. GALINSOGA PARVIFLORA Cav.—S. Amer.
 368/5. ANTHEMIS COTA L. (*A. altissima* L.).—Eur.
 383/10e. SENECIO VULGARIS L. var. RADIATUS Koch.
 396/13. NOTOBASIS SYRIACA (L.) Cass., det. J.F.G.C.—Medit.
 405/35b. CENTAUREA sp. (*C. PALLESCENS* Delile var. *HYALOLEPIS* Boiss.,
 det. J.F.G.C.).
 405/42. CENTAUREA VERUTUM L., det. J.F.G.C.—Asia Minor.
 407/1. CARTHAMUS LANATUS L.—S. Eur.
 408/1. SCOLYMUS HISPANICUS L.—S. Eur.

- 412/1. RHAGADIOLUS EDULIS Gaertn., det. J.P.G.C.—Eur.
 425/2. LACTUCA SERRIOLA L.
 428/6. TRAGOPOGON HYBRIDUS L., det. J.F.G.C.—S. Eur.
 467/2. ANAGALLIS ARVENSIS L. subsp. PHOENICEA (Scop.) Schinz & Keller, det. F.E.W.
 500/2. ANCHUSA ITALICA Retz.—Eur.
 512/1. IPOMOEA PURPUREA (L.) Lam., det. J.F.G.C.—Trop. Amer.
 513/2. CONVULVULUS ALTHABOIDES L., 1943, det. J.E.L.—S. Eur.
 513/5. CONVULVULUS PENTAPETALOIDES L., det. J.F.G.C.—Asia Min.
 517/7. SOLANUM ROSTRATUM Dunal.—Mexico.
 518/7. PHYSALIS PERUVIANA L.—S. Amer.
 524/1. HYOSCYAMUS NIGER L.
 532/3. LINARIA REPENS (L.) Mill.
 543/19c. VERONICA AGRESTIS L. var. GARCKIANA D. Fourn., det. J.F.G.C.
 553(2)/1. MARTYNIA LOUISIANA Mill., det. P.A.—Amer.
 566/12. SALVIA SYLVESTRIS L. (Determined by P.A. as *S. elata* Host = *S. pratensis* L. × *sylvestris* L.)
 588/11. PLANTAGO PSYLLIUM L., det. J.F.G.C.—Eur.
 596/9. AMARANTHUS ALBUS L.—N. Amer.
 600/8(2). CHENOPODIUM RETICULATUM Aellen, det. J.P.M.B.
 615/25. POLYGONUM COGNATUM Meisn., det. P.A.—Himalaya.
 618/2. RUMEX DOMESTICUS Hartm., G. C. Druce in *B.E.C. 1932 Rep.*, 109.
 619/1. EMEX SPINOSA Campd., det. J.F.G.C.
 628/9b. EUPHORBIA VIRGATA W. & K. f. ESULIFOLIA Thell.
 630/1. RICINUS COMMUNIS L.—Trop.
 635/1. CANNABIS SATIVA L.—Asia.
 765/7b. PHALARIS PARADOXA L. var. PRAEMORSA Coss. & Dur., det. C.E.H.
 784/1. GASTRIDIDIUM LENDIGERUM (L.) Gaud.
 827/13. BROMUS UNIOLOIDES H.B.K., det. J.P.M.B.—Amer.
 827/20. BROMUS MOLLIFORMIS Lloyd.
 828/3. BRACHYPODIUM DISTACHYON (L.) Beauv.

Almost all the above have been seen by myself *in situ*. I am very grateful to Messrs P. Aellen, G. M. Ash, J. P. M. Brenan, J. F. G. Chapple, C. E. Hubbard, J. E. Lousley, R. Melville, and F. E. Weiss, without whose expert assistance the identification of most of the above alien plants would have been impossible.

AUTUMN BOTANISING AT LOCHINVER (WEST SUTHERLAND).

A. J. WILMOTT and M. S. CAMPBELL.

The fishing village of Lochinver, at the head of the sea loch of the same name, lies remote in the south-west corner of Sutherland. Through it runs a coast road south via Inverpolly to Ullapool and north via Stoer and Drumbeg to Kylestrome. Inland a road runs near the R. Inver to Loch Assynt (which the river drains) and Inchnadamph. The magnificent country of rocky hill and moorland is dominated by the towering mass of "The Grey Castle," Suilven, and on fine days the open views from eminences have for backcloths the fine mountains Quinag, Canisp, Cùl Mòr, Stac Polly, and even Ben More Coigach. Every turn in the road unfolds a scene worthy of an artist's brush. The rock is for the most part grey Lewisian Gneiss, but there are considerable areas of the red Torridonian Sandstone, and some of the mountains, which rise suddenly from the moorland, are capped by a layer of Cambrian quartzite.

Geologically the district was recently described by Macgregor and Phemister (1937: 8): "The Lewisian gneiss forms an undulating plateau with an elevation that varies, as a rule, between 500 and 1000 ft., showing an endless succession of ridges and low hills of bare rock among which lie innumerable lochs. Above this plateau rise the great piles of nearly horizontal Torridonian sediments which build up the detached mountain masses of Quinag (2653 ft.), Canisp (2779 ft.), Suilven (2399 ft.), and Cùl Mòr (2786 ft.)," on which "white Cambrian Quartzites . . . produce gleaming escarpments and long dip slopes—as on the eastern face of Quinag, Canisp, and Cùl Mòr—in striking contrast to the dark red Torridonian sandstones and to the grey hummocky gneiss." The 1" Geological Survey map (107) of 1881 shows the Stoer Peninsula to be composed of Torridonian rocks. The coastal sands are botanically important as they are strongly calcareous from comminuted shells. About two miles to the north of Lochinver, a branch road leads to the fine sandy bay at Achmelvich, and other extensive accumulations of sand exist at Clachtoll, Stoer, and Clashnessie, all of which we examined. The map shows another sandy bay at Balchladich, but when we enquired for it we were told that it had been completely removed by one of those severe Atlantic storms to which the coast is subject.

This paper, a contribution towards a Flora of West Sutherland, originates from an invitation from Mrs Campbell to spend the latter part of September 1943 at Lochinver. As the district has been little visited by botanists, and the vice-county as a whole is very incompletely known, a list was made on the journey north of all species not recorded in the *Comital Flora* for vice-county 108 which had been recorded from one or other of the (better worked) neighbouring vice-counties. The result of keeping a special look-out for these species was so far success-

ful in filling several gaps (in some measure due to the fact that no note had previously been made of some common species) that a similar plan is recommended to anybody wishing to assist in the revision of the *Comital Flora* (now in hand, see Editor's Report, p. 637). A subsequent invitation permitted further collections to be made in 1944, somewhat earlier in September.

The collections were made on a series of short journeys by bicycle from Lochinver, such habitats as looked interesting being fairly intensively worked. No attempt was made to ascend any of the mountains. On a few occasions it was possible to go further afield, owing to the availability of vacant seats in cars making essential journeys.

To avoid unnecessary printing of the year of collection, a summary is given of the excursions made; for places visited both years the date 1943 is to be presumed unless 1944 is stated, as the majority of the specimens were collected in 1943. The place-names used are in accordance with the 1" Ordnance Survey Map of Scotland, War Revision 1940, Popular Edition sheet 15. Some expeditions took us into West Ross (v.-c. 105), and a list of plants collected in that vice-county is given after the West Sutherland list. Individual discoveries are initialled.

In 1943 the rocks above Loch Culaig (just south of Lochinver) were first explored, and the adjacent hillside above them. The *Hieracia* collected were abnormal second growths to which Mr Pugsley could not (being away from collections) give definite names, but one of them may be the species he recently described as *H. pollinarium* (collected by Mr Hanbury at Lochinver), and these rocks may be the type locality as Hanbury would almost certainly have examined them. Their extent is very limited; collecting there in the future should be severely restricted. The roadside northwards to the top of the divide towards Stoer produced few specimens of interest, but still further north plants were later collected in Loch an Ordain, in a gorge above Port Alltan na Bradhan (where *Vicia Orobus* was locally abundant), and near the sea at Clachtoll (where *Desmazeria loliacea* was found on sand-covered Torridonian coastal rock). The hillsides on both side of Lochinver Bay were examined, and also some distance up the R. Inver. The amount of scattered *Quercus Robur* (not previously recorded for v.-c. 108) in the birchwoods was surprising, and seedlings were noted in heather near the R. Inver, as well as seedlings of *Fagus sylvatica* from trees planted by the bridge. A visit to Drumbeg showed that *Quercus Robur* also occurred in the birch-woods there; the small salt marsh where the road crosses the Oldany River was examined, and *Osmunda* was collected by Loch Eilannach. Rocks on the east side of Clashnessie Bay a little north of Imirfada produced nothing exciting. Perhaps our most interesting discovery—*Cephalanthera longifolia*—was made by the side of the Achmelvich road not far from Achadantuir, where some basic rocks bore *Sanicle* and *Woodruff*, *Carex pallescens*, *Vicia Orobus*, and an *Epipactis* too withered for critical determination. A midden at Feadan bore *Arctium vulgare*, and near Achmelvich *Vicia Orobus* was collected again. *Coelo-*

glossum viride was seen at the edge of Achmelvich Bay. As we returned from an excursion southwards into West Ross an interesting *Viola* was collected between Inverkirkaig and Strathan.

In 1944 several visits were made to Achmelvich Bay and vicinity, where there is a fine development of machair. Remains of Orchids indicated the need for further collections earlier in the year. *Gentiana septentrionalis* spangled the sward, *Ophioglossum* was occasionally seen, and *Coeloglossum* was abundant, though not as much so as in Harris and Lewis. South of Lochinver, a rocky gully north-east of Inverkirkaig below Loch Bad-na-Muirichinn produced a fine aphyllipodous *Hieracium*. A near-by hill bore a narrow-leaved variety of *Arctostaphylos Uva-ursi* and a beautiful lemon-yellow coloured *Narthecium*. An excursion to Stoer and Balchladich led to the discovery of several Potamogetons at the edge of the lochan held up by the sand at Stoer Bay: *Sagina nodosa* lined the slight bank at the edge of the lochan. Another visit to Clashnessie Bay produced an interesting hybrid rose, and *Juncus macer* was found by the roadside a little distance from the coast. A short time was spent on the lower slopes of Creag Mhor, Quinag. A loch between Lochinver and Ardroe contained *Sparganium minimum* and interesting sedges. Plants which appeared to be hybrids between *Juncus conglomeratus* and *J. effusus* were collected by the roadside at Lochinver.

The area is one which merits further examination in other seasons. There is considerable variety of habitat, a fair amount of birch wood, several lochs to be dragged, and fine mountains to be ascended. A reason for rather extensive collecting was to compare with specimens from the same geological formations across the Minch in the Outer Hebrides.

In concluding this introduction, we wish to thank Mrs Campbell for her hospitality, Dr Turner of Lochinver for taking us further afield than bicycles permitted, and the following for assistance in identifications:—

- Mr W. C. Barton (*Rubus*).
 Messrs J. E. Dandy and G. Taylor (*Potamogeton*).
 Dr W. O. Howarth (*Festuca*).
 H. W. Pugsley (*Hieracium*, *Euphrasia*).

The following publications will be found useful by those visiting the district:—

- Ling, W. N., and Corbett, J. R.: 1936: The Northern Highlands (*Scottish Mountaineering Club Guide*).
 MacGregor, M., and Phemister, J.: 1937: *Geol. Excurs. Guide to the Assynt District of Sutherland* (Edinburgh Geol. Soc.), pp. 62 (2/-).

- 2/2(3). *THALICTRUM MONTANUM* Wallr. Coastal rocks, Clachtoll.
 6/3. *RANUNCULUS ACER* L. Clachtoll, the usual fine-flowered short machair form which is nearest var. *tomophyllus* (Jord.); with narrower leaf segments at Stoer, 1944 (M.S.C.).

- [*]6/22. *RANUNCULUS TRICHOPHYLLUS* Chaix ap. Vill. ? Lochan at Stoer; without flower and needing confirmation.
- 8/1. *TROLLIUS EUROPAEUS* L. Gorge above Port Alltan na Bradhan; coastal rock ledge at Clachtoll; rocky valley at Achmelvich (M.S.C.).
- 32/10. *FUMARIA OFFICINALIS* L. Weed in garden of Culag Hotel, Lochinver.
- 39/4. *CARDAMINE FLEXUOSA* With. South of Lochinver; roadside ditch between Lochinver and Stoer; stamens 6.
- 39/5. *CARDAMINE HIRSUTA* L. Garden weed, Culag Hotel (1944).
- 45/6. *COCHLEARIA SCOTICA* Druce. On a tiny extent of salt marsh below the church, Lochinver (1944: A.J.W.); sea rocks, Balchladich Bay.
- 80/1c. *RAPHANUS RAPHANISTRUM* L. var. *AUREUS* Wilmott. Drumbeg.
- 88/4. *VIOLA RIVINIANA* Rehb. In flower between Achadantuir and Feadan.
- 88/11. *VIOLA PALUSTRIS* L. With small but shortly pointed leaves between Lochinver and Stoer, and with large acute leaves like those of *V. Juressi* K. Wein (*V. epipsila* auct. angl. non Ledeb.; see Wilmott in *Bab. Manual*, ed. x, 574) in the rill running down to Lady Constance Bay from the hill south of Lochinver.
- *88/21. *VIOLA ORCADENSIS* Drabble. Potato patch near Inverkirkaig.
- 89/1. *POLYGALA SERPYLLIFOLIA* Hose. Gully near Inverkirkaig, still in flower, 11th September 1944.
- 98/4. *LYCHNIS DIOICA* L. var. A coarse fleshy plant. Among bushes near the Oldany River west of Drumbeg; coastal rocks, Clashnessie.
- 103/1. *SAGINA NODOSA* L. Fringing the edge of Stoer Pond (M.S.C.); Achmelvich (M.S.C.).
- 103/2. *SAGINA SUBULATA* (Sw.) Presl. Gorge above Port Alltan na Bradhan.
- 105/3. *SPERGULARIA SALINA* J. & C. Presl. Salt marsh by Oldany River, west of Drumbeg.
- 109/1. *MONTIA FONTANA* L. em. Neck. (*M. lamprosperma* Cham.). Glen Canisp near Canisp Lodge.
- *127/9. *GERANIUM DISSECTUM* L. Garden weed, Culag Hotel, Lochinver, 1944 (M.S.C.).
- 136/1. *ILEX AQUIFOLIUM* L. Lower rocks, Creag Mhor, Quinag (M.S.C.).
- *149/2. *ULEX GALLII* Planch. Hillside south of Lochinver, towards Lady Constance Bay.
- 176/3. *VICIA CRACCA* L. Coastal rocks, Imirfada.
- 176/4. *VICIA OROBUS* DC. Rock face between Achadantuir and Feadan: rock ledge near Achmelvich: abundant on rocks in gorge above Port Alltan na Bradhan: also seen further north towards Stoer.

- 176/8. *VICIA SEPIUM* L. Drumbeg.
- 178/6. *LATHYRUS PRATENSIS* L. Edge of marsh near Drumbeg.
- 178/25. *LATHYRUS MONTANUS* Bernh. South foot of Creag Mhor, Quinag, with ordinary medium-broad leaves (M.S.C.): rocks on east side of Clashnessie Bay, with very broad leaves (M.S.C.).
- 183/7. *PRUNUS SPINOSA* L. A dense thicket by road between Lochinver and Stoer (1943).
- *185/35. *RUBUS VILICAULIS* Koehl. ["aggr."] det. W. C. Barton. Roadside, Achmelvich (A.J.W.). This was collected because *Rubus fruticosus* L. was not given for v.-c. 108 in the *Comital Flora*. Rogers, however, records (1900: *Handbook of Brit. Rubi*, 101, 102) both *R. villicaulis* and *R. danicus* Focke (as *R. hirtifolius* var.), so the omission should not have occurred. "The only two entries of *R. fruticosus* for v.-c. 108 in Rogers's *Rubus Record Book* are *R. villicaulis* from Lochinver, E. S. Marshall, 16th July 1890, and *R. danicus* from Tongue, F. J. Hanbury, 27th July 1887; specimens of both gatherings from Herb. Rogers are now in Herb. Barton. The former gathering was recorded by Marshall in *Journ. Bot.*, 1891, 111 ("teste Focke"); the Tongue gathering was recorded in *Journ. Bot.*, 1894, 45, sub nomine *R. mollissimus*."—W. Barton *in litt.*
- 185/154. *RUBUS SAXATILIS* L. Rocks south of Lochinver: Achmelvich (1944: M.S.C.).
- 188/2. *FRAGARIA VESCA* L. Roadside bank, Achandantuir.
- 189/25. *POTENTILLA PALUSTRIS* (L.) Scop. A form with narrow leaflets in a ditch north of Lochinver on the way to Stoer, by Loch Eilannach; also in rocky valley at Achmelvich (M.S.C.).
- 190/4. *ALCHEMILLA PSEUDO-MINOR* Wilmott. Roadside ditch between Achandantuir and Feadan: also further north by the road to Stoer: south foot of Creag Mhor, Quinag.
- 190/4(2). *ALCHEMILLA FILICAULIS* Buser. Stream-bank near Achandantuir (1944); normally hanging over the water, but submerged after heavy rain. This plant was less than 100 yards from one of *A. pseudo-minor* by a roadside ditch, and raises the question whether the more glabrous *A. filicaulis* may be only a state of *A. pseudo-minor* produced by very damp air, but on the other hand, normally hairy *A. pseudo-minor* is often found in very wet meadow land in the Highlands of Scotland.
- 190/19. *ALCHEMILLA ALPINA* L. South foot of Creag Mhor, Quinag, c. 600'.
194. *ROSA* L. These specimens were named with the assistance of Dr Melville, from Wolley-Dod's account in the *Supplement to the Journal of Botany*, 1931.
- *194/6n. *ROSA CANINA* L. var. *GLOBULARIS* (Franch.) Dum. Achmelvich road near Achandantuir (1944); hips still green, smooth: not collected elsewhere, but thought to have been seen scattered about the district.

- 194/71. *ROSA CANINA* L. ? var. *SCHLIMPERTI* (Hofm.), but the styles are distinctly hispid, and the leaflets are more often 7 and 5. Rocky slope south of Lochinver (1943)—a plant with extremely large leaflets.
- 194/12e. *ROSA AFZELLANA* var. *GLAUCOPHYLLA* W.-Dod (see *Journ. Bot.*, 69, 104: 1931). Lochinver, north side of the bay (1944).
- 194/13g. *ROSA CORIFOLIA* Fr. var. *setigera* (W.-Dod) comb. nov. Rocky slope south of Lochinver (1943): side of Achmelvich road near Achadantuir (1944), hips then red, hispid. This appears to be the commonest rose in the district, and although the plant collected in 1943 was less setigerous than the others collected in 1944, it does not match the southern specimens of var. *Bakeri* (Déségl.) W.-Dod, under which Wolley-Dod distinguishes his f. *setigera*, and it seems probable that these plants represent a distinct variety which sometimes is less setigerous than usual. Also collected in 107, E. Sutherland, at Invershin Station (A.J.W.).
- *194/19a. *ROSA TOMENTOSA* Sm. var. *TYPICA* W.-Dod (1931: 86). Side of Achmelvich road near Achadantuir.
- 194/6×13? ×*ROSA* (*R. canina* × *corifolia*). Two plants by Clashnessie Bay, with large globular brilliantly coloured fruits, at the time thought to be, perhaps, hybrids of *R. spinosissima*, are thought by Dr Melville to be probably hybrids between the two commonest roses of the district, viz., 194/6n × 13g. They need further study.
- 194/23. *ROSA SPINOSISSIMA* L. Above Loch Eilannach.
- 199/1. *SAXIFRAGA AIZOIDES* L. Low roadside rocks south-west of Knochan.
- 207/1b. *RIBES UVA-CRISPA* L. var. *GROSSULARIA* (L.). In boulder scree of gorge above Port Alltan na Bradhan.
- 213/1. *DROSERA ANGLICA* Huds. Achmelvich (1943).
- 216/2. *MYRIOPHYLLUM ALTERNIFLORUM* DC. Loch an Ordain, between Lochinver and Stoer.
- *219/1. *LYTHRUM SALICARIA* L. Growing on the brick wall of the garden of the Culag Hotel, Lochinver: rocky valley, Achmelvich (1944: M.S.C.).
- 220/7. *EPILOBIUM OBSCURUM* Schreb. Garden weed, Culag Hotel, Lochinver (1944).
- 220/10. *EPILOBIUM MONTANUM* L. Weed in Culag Hotel garden, a large-leaved form.
- 220/14. *EPILOBIUM PALUSTRE* L. Ditch north of Lochinver, with a mass of seedlings about 1½ inches high.
- 225/3. *CIRCAEA ALPINA* L. In the crevices of a roadside stone wall about a mile north of Lochinver (1944).

- 241/1. *SANICULA EUROPAEA* L. Wooded rocky slope between Achadantuir and Feadan: south foot of Creag Mhor, Quinag (1944: M.S.C.).
- *265/3. *OENANTHE CROCATATA* L. Drainage channel by sea in bay south of Strathan (M.S.C.).
- 271/1. *LIGUSTICUM SCOTICUM* L. Achmelvich Bay (1944).
- 282/1. *DAUCUS CAROTA* L. Thinly locally scattered over the district: Achadantuir: seeds sent for cultivation at the John Innes Horticultural Institution from Achmelvich (including short forms on the machair) and Stoer.
- 284/1b. *HEDERA HELIX* L. var. *BOREALIS* Druce. Rocks south of Lochinver: gully near Inverkirkaig, with variable leaves, some certainly "var. *borealis*" but some leaves as broad as long: lower rocks, Creag Mhor, Quinag.
- 291/1. *LONICERA PERICLYMENUM* L. Rocks south of Lochinver, the normal thin-leaved pubescent form; some basal leaves = "var. *quercifolia* Ait.," a worthless variety.
- 296/1. *GALIUM BOREALE* L. Rocks in the R. Inver, Lochinver.
- 296/11. *GALIUM APARINE* L. On the beach at Clashnessie, a similar habitat to those in Uig (Lewis); is this its truly native habitat?
- 298/1. *ASPERULA ODORATA* L. Wooded slope between Achadantuir and Feadan.
- 328/3b. *GNAPHALIUM SYLVATICUM* L. Slope south of Lochinver: mostly with capitula dark as in var. *nigrescens* Gren., but not extreme in darkness, and some rather pale. One plant (dark) to 24 in. high. Leaves narrow, not broad as in the var., but the plant not precocious as in var. *praecox* F. Schultz (cf. Rouy; 1903: *Fl. France*, 8, 185-6).
- *370/13. *CHRYSANTHEMUM PARTHENIUM* L. Garden outcast on the shore above high water mark, but subject to much spray—several plants outside the garden wall, Culag Hotel, Lochinver.
- *393/2. *ARCTIUM VULGARE* (Hill) Evans. In a midden at Feadan.
- 396/3. *CIRSIUM HETEROPHYLLUM* (L.) Hill. Among rocks at the south foot of Creag Mhor, Quinag.
- 405/8. *CENTAUREA NIGRA* L. (*C. obscura* Jord.). Variable at Achmelvich (1944) where both the entire-leaved form and f. *pinnatifida* (C. E. Britton; 1922: *B.E.C. 1921 Rep.*, 409) occurred and also the f. *longiflora* (C. E. Britton; 1922: 408), together with a plant which appears to fit the description of the "var. *subnemorialis* f. *longiflora* (C. E. Britton; 1922: 410)."
419. *HIERACIUM*. Phyllopodous species were only in untypical late growth, a second flowering. Mr H. W. Pugsley refers most of them to *H. vulgatum* Fr., but gatherings near Lochinver (rocks by road to the south) and at the top of the divide between Lochinver and Stoer, may be *H. pollinarium* Pugsley.

- 419/233. *HIERACIUM RETICULATUM* Lindeb. ? Rocky valley, Achmelvich (1944: M.S.C.).
- 419/240. *HIERACIUM STRICTIFORME* (Zahn) Roffey. Rocky gully N.E. of Inverkirkaig.
423. *TARAXACUM*. A peculiar species (or perhaps two): bare sandy edge of machair, Clachtoll; sanded cracks of sloping coastal rocks at Balchladich Bay.
- 441/1. *ARCTOSTAPHYLOS UVA-URSI* (L.) Spreng. Hill south of Lochinver: near Inverkirkaig (1944: M.S.C.; with a specimen evidently the "var. *angustifolia* Druce (1929: 1928 *Rep.*, *Suppl.* 52; M.S.C. 450911 Ab.).
- 466/1. *GLAUX MARITIMA* L. Lochinver, in salt marsh on north side of bay.
- 480/9. *GENTIANA CAMPESTRIS* L. A curious tufted much-branched dwarf small-flowered plant on roadside bank on south side of Stoer.
- 480/5. *GENTIANA SEPTENTRIONALIS* Druce. Abundant on parts of the machair at Achmelvich (1944) (M.S.C.).
- 497/1b. *SYMPHYTUM OFFICINALE* L. var. *PURPUREUM* Pers. (1805: *Synops.*, 1, 161). *S. patens* Sibth. (1794: *Fl. Oxon.*, 70). By stream below cottage, Inverkirkaig.
- [*]506/1. *MYOSOTIS SCORPIOIDES* L. emend. Hill. In a ditch running below houses at Inver (Lochinver), presumably introduced at some time.
- 506/3. *MYOSOTIS SECUNDA* A. Murray (*M. repens* "G. & D. Don"). Feadan.
- 506/4. *MYOSOTIS CESPITOSA* F. Schultz. North end of Balchladich Bay.
- 506/8. *MYOSOTIS ARVENSIS* (L.) Hill. Garden weed, Culag Hotel, Lochinver.
- 535/4. *SCROPHULARIA NODOSA* L. Strathan (1944); two forms, one with much anthocyan, leaves dark green, calyx blackish-purple, the other with light green leaves and without blackish calyx.
- 537/1d. *MIMULUS GUTTATUS* DC. var. *YOUNGEANA* (Hook.) Druce. Ditch between Strathan and Inverkirkaig: ditch on north side of Stoer (1944: M.S.C.).
- 543/3. *VERONICA OFFICINALIS* L. Gully near Inverkirkaig.
- 543/4. *VERONICA CHAMAEDRYIS* L. Culag Hotel garden, Lochinver.
- 543/18. *VERONICA PERSICA* Poir. Culag Hotel garden, Lochinver.
- 543/19. *VERONICA AGRESTIS* L. Culag Hotel garden, Lochinver.
545. *EUPHRASIA*. Det. H. W. Pugsley.
- 545/3. *EUPHRASIA BREVIPILA* Burn. & Greml. Rocky slope south of Lochinver ("perhaps f. *tenuiformis* Pugsley.").
- 545/10. *EUPHRASIA OCCIDENTALIS* Wettst. Mound by Culag Hotel, Lochinver (1944: A.J.W.).

- 545/15. *EUPHRASIA MICRANTHA* Rchb. A specimen on a slope south of Lochinver bore a tiny flower only 4 mm. long in the axil of the first leaf above the cotyledons, the corolla being only as long as the calyx. This flower approaches in its small size a tiny flower obtained by me from the ice-age (so-called "Arctic") bed at Barnwell near Cambridge.
- 545/18. *EUPHRASIA CONFUSA* Pugsl. Roadside bank north of Stoer (M.S.C.: "f. *albida*," Pugsl.).
- 546/5. *BARTSIA ODONTITES* Huds. Lane side near Balchladich.
- 548/6. *RHINANTHUS SPADICEUS* Wilmott. Remains of what appeared to be this species were seen in a gully near Inverkirkaig and on a rock slope near Achmelvich.
- 549/3f. *MELAMPYRUM PRATENSE* L. var. *ERICETORUM* D. Oliver. In heather on hill south of Lochinver.
- [*]552/2. *UTRICULARIA NEGLECTA* Lehm. ? Lochan at Stoer; without flower but probably this species, the usual one in the north, according to P. M. Hall.
- 553/4. *PINGUICULA LUSITANICA* L. Hillside flush on the divide north of Lochinver towards Stoer: Inver (Lochinver), 1944.
- 558/2. *MENTHA LONGIFOLIA* Huds. Balchladich—a "throw-out" or escape.
- [558/6. × *MENTHA PIPERITA* L. Given us at Balchladich as the culinary mint used there, when enquiry was made about the preceding species.]
- [*]558/10h. *MENTHA GENTILIS* L. var. *VARIEGATA* (Sole) Sm. Escaped among houses at Stoer, and cultivated in garden at Balchladich.
- 561/10. *THYMUS NEGLECTUS* Ronniger. Rocky gully north-east of Inverkirkaig (M.S.C.).
- 572/1. *SCUTELLARIA GALERICULATA* L. A belt several feet long among stones at the top of the beach, Clashnessie Bay, where the water comes down from a small marsh above.
- 581/4. *LAMIUM HYBRIDUM* Vill. Garden weed, Culag Hotel, Lochinver.
- 581/5. *LAMIUM MOLUCELLIFOLIUM* Fr. Garden weed, Lochinver.
- 586/1. *TEUCRIUM SCORODONIA* L. Rocks south of Lochinver: gully near Inverkirkaig (M.S.C.).
- 588/3. *PLANTAGO CORONOPUS* L. Salt marsh north side of bay, Lochinver: coastal rock-slopes, Balchladich.
- 588/8. *PLANTAGO LANCEOLATA* L. var. (small with spherical spikes). Top of sand-covered coastal rock, Clachtoll.
- 606/7a. *ATRIPLEX GLABRIUSCULA* Edmondst. var. *VIBESCENS* (Lange) Moss & Wilmott. Salt marsh north side of bay, Lochinver, a very small form: sand-covered cracks and depressions on coastal rocks, Balchladich Bay, a peculiar form.
- *615/9. *POLYGONUM HYDROPIPER* L. Feadan.

- 637/1e. *URTICA DIOICA* L. var. *HORRIDA* (Wedd.) Rouy. (With ovate-orbicular thick coarse-toothed leaves.) Stoer.
- 642/2b. *BETULA GLUTINOSA* Wallr. Dominant in the woodlands, from Drumbeg to Lochinver. As Fries says, this, the common northern species, does not seem to be the same as the common more southern species, *B. pubescens* Ehrh.
- 645/1. *CORYLUS AVELLANA* L. Common in birch woods south of Drumbeg; common and sometimes a local dominant in birch-woods around Lochinver.
- *646/1. *QUERCUS ROBUR* L. Scattered in birch-woods; Inver (Lochinver); more abundant just south of Drumbeg.
- *647/1. *CASTANEA SATIVA* Mill. A small tree on hill south of Lochinver by the track to Lady Constance Bay [?planted but no evidence].
- 649/1. *FAGUS SILVATICA* L. Self-sown in heather by the R. Inver from trees planted by the bridge, Lochinver.
- 650/1. *SALIX PENTANDRA* L. Only seen near houses and presumably planted; Strathan and thence south to the border of West Ross, but not seen in that vice-county, for which it is not recorded.
- 650/7. ×*SALIX SMITHIANA* Willd. Lochinver, by stream going over to Lady Constance Bay.
- 650/9×10. ×*SALIX CHARRIERI* Chass. (see *B.E.C. 1934 Rep.*, 985; *S. atrocineria* Brot. × *S. aurita* L.). Rocky hillside between Lochinver and Stoer.
- 650/10c. *SALIX ATROCINEREA* Brot. var. *OLEIFOLIA* (Sm.). By path over hill from Lochinver to Lady Constance Bay; with very long stiff leaves.
- 651/2. *POPULUS TREMULA* L. *Glabrous* young browsed shoots (c. 6" above ground only) in gorge above Port Alltan na Bradhan.
- 652/1. *EMPETRUM NIGRUM* L. Hill top south of Lochinver: coastal slopes Inverfada (1944).
- *667/3. *CEPHALANTHERA LONGIFOLIA* (Huds.) Fritsch. Wooded rocky slope between Achadantuir and Feadan; a ripe fruit seen 1943, but none in 1944, although several more plants were seen then. Presumably one of the basic sections of the Lewisian Gneiss is responsible for the numerous calcicoles seen on this rocky slope. An interesting extension of range.
- 668/2. *EPTACTIS HELLEBORINE* (L.) Cr. emend. Rend. & Brit. Wooded rocky slope between Achadantuir and Feadan, flowers too withered for critical determination, but apparently not *E. atropurpurea* Rafin.; the broadest leaves varied from large 1½ times as long as broad to smaller more than twice as long as broad (?more than one form).
- 669/9. *ORCHIS PURPURELLA* T. & T. A. Steph. On machair Achmelvich Bay.

- 669/10. *ORCHIS ERICETORUM* (Linton) E. S. Marshall. Lochinver. Achmelvich.
- 674/4. *COELOGLOSSUM VIRIDE* (L.) Hartm. Locally abundant on coastal grass, Achmelvich.
- 714/1b. *NARTHECIUM OSSIFRAGUM* Huds. var. *luteum* Campbell & Willmott. var. nov. (Caulibus, tepalis, capsulisque colore aurantiaco deficit, ergo) caulibus luteo-viridibus, tepalis capsulisque luteis vel luteo-viridibus (vel tepalis apicem versus colore aurantiaco paululum tinctis). Hill east of Inverkirkaig, 1944: M.S.C. (Ref. 440911Bb). A beautiful clear yellow plant, growing with the normally coloured form.
- 718/3. *JUNCUS CONGLOMERATUS* L. Common everywhere: collected at Inver (Lochinver) with what appeared to be hybrids with the next species (1944).
- 718/4. *JUNCUS EFFUSUS* L. Uncommon (? rare); roadside at Inver (Lochinver) (1944).
- *718/16. *JUNCUS MACER* S. F. Gray. Roadside runnel north of Clashnessie.
- 719/4. *LUZULA MULTIFLORA* (Retz.) DC.
- 722/5. *SPARGANIUM MINIMUM* Fr. Edge of Loch (46.5/60.99) above Badidarroch (Lochinver).
737. *POTAMOGETON* L., det. J. E. Dandy.
- 737/2. *POTAMOGETON POLYGONIFOLIUS* Pourr. Muddy flush on hill north of Lochinver: outlet stream from Bad-na-Muirichinn.
- *737/5. *POTAMOGETON ALPINUS* Balb. Edge of lochan at Stoer.
- 737/9. *POTAMOGETON GRAMINEUS* L. Edge of lochan at Stoer.
- 737/9×16. ×*POTAMOGETON NITENS* Weber. Edge of lochan at Stoer.
- 737/16. *POTAMOGETON PERFOLIATUS* L. Loch an Ordain: Bad-na-Muirichinn.
- *737/23. *POTAMOGETON BERCHTOLDII* Fieb. Edge of lochan at Stoer.
- 737/30. *POTAMOGETON FILIFORMIS* Pers. Edge of lochan at Stoer.
- 745/3. *ELEOCHARIS MULTICAULIS* (Sm.) Sm. Lochside above Badidarroch, Lochinver.
- 746/8. *SCIRPUS PAUCIFLORUS* Lightf. Roadside runnel north of Clashnessie.
- 746/11. *SCIRPUS SETACEUS* L. Lochinver.
- 748/2b. *RHYNCHOSPORA ALBA* (L.) Vahl var. *SORDIDA* Bab. Roadside bog south of Creag Mhor, Quinag (M.S.C.).
- 753/8. *CAREX LASIOCARPA* Ehrh. Edge of loch (46.5/60.9) above Badidarroch, Lochinver (M.S.C.).
- *753/21. *CAREX LEPIDOCARPA* Tausch. South of Lochinver towards Lady Constance Bay.
- 753/22. *CAREX SEROTINA* Mérat. Clashnessie Bay.
- 753/34. *CAREX PALLESCENS* L. Rock ledge between Achandantuir and Feadan: by Loch above Badidarroch: rocks at south foot of Creag Mhor, Quinag.

- 765/11. *PHALARIS ARUNDINACEA* L. Achmelvich (M.S.C.): coastal rocks, Clashnessie.
- 780/2j. *AGROSTIS STOLONIFERA* L. var. *PALUSTRIS* (Huds.) Farwell (det. W. Philipson). Weed in Culag Hotel garden, Lochinver: garden weed at Stoer.
- 780/3h. *AGROSTIS TENUIS* Sibth. var. *HISPIDA* (Willd.) Philipson. Small salt marsh by the Oldany River.
- 813/1. *MOLINIA COERULRA* (L.) Moench var. *ARUNDINACEA* Asch. Above Loch Eilannach.
- *820/1. *DESMAZERIA LOLIACEA* (Huds.) Nyman. Coastal rocks, Clach-toll.
- 826/7a. *FESTUCA RUBRA* L. var. *VULGARIS* Gaud. Mound outside Culag Hotel, Lochinver, very rare.
- 826/10(2). *FESTUCA VIVIPARA* (L.) Sm. Forms of this species are common on the lowland rocks throughout the district, and nearly all of them are similar to the commonest form found across the Minch on the Atlantic seaboard of Lewis, i.e. ssp. *norvegica* (Turess.) Wilmott (in Campbell 1945: *Fl. Uig*, 53 & 54). As in Uig the glumes vary in shape and ciliation, and although in most specimens the bulbils are only about 25 mm. long, in some they reach 40 mm. In two gatherings from Lochinver itself glume IV was at least twice as long as glume II, and these specimens would by the key (in *Fl. Uig*), be referable to ssp. *killinensis* (Turess.) Wilmott. But until authentic material of the latter has been seen it is undesirable to make a definite identification since the relative length of glumes II and IV is variable within the "ssp. *norvegica*" and the two gatherings mentioned are not otherwise obviously distinct.—A. J. W.
- 828/1. *BRACHYPODIUM SYLVATICUM* (Huds.) R. & S. Rock ledge between Achandantuir and Feadan; Clashnessie.
- 829/1. *LOLIUM MULTIFLORUM* Lam. Garden weed, Lochinver (1944).
- 844/3. *EQUISETUM SYLVATICUM* L. Rocky gully north-east of Inverkirkaig; burnside by road, Achmelvich (1944).
- 844/9. *EQUISETUM VARIEGATUM* L. Roadside bog south of Creag Mhor (M.S.C.).
- 850/1. *PHYLLOITIS SCOLOPENDRIUM* (L.) Newm. On wall of Culag Hotel garden, Lochinver.
- 851/1. *ASPLENIUM MARINUM* L. Coast rocks, Balchladich Bay.
- 851/2. *ASPLENIUM TRICHOMANES* L. Rocks at south foot of Creag Mhor, Quinag.
- 851/5. *ASPLENIUM ADIANTUM-NIGRUM* L. Wall at Drumbeg, and on bridge over Oldany River about two miles west of Drumbeg: Rocks at south foot of Creag Mhor, Quinag.
- 851/7. *ASPLENIUM RUTA-MURARIA* L. Perpendicular rocks of gully near Inverkirkaig.

- 853/1. *ATHYRIUM FILIX-FOEMINA* (L.) Roth. Rocks at south foot of Creag Mhor, Quinag.
- 854/3. *POLYSTICHUM LOBATUM* (Huds.) Woyнар. Rock ledge between Achandantuir and Feadan: rocks at south foot of Creag Mhor, Quinag.
- 854/4. *DRYOPTERIS DILATATA* (Sw.) Asa Gray. (*D. aristata* B.P.L.) Rocks by Loch an Ordain, between Lochinver and Stoer.
- 856/9. *DRYOPTERIS PHEGÓPTERIS* (L.) C. Chr. Gully near Inverkirkaig: rocks at south foot of Creag Mhor, Quinag.
- 856/10. *DRYOPTERIS LINNEANA* C. Chr. Lochinver.
- 857/4. *CYSTOPTERIS FILIX-FRAGILIS* (L.) Bernh. Roadside wall, Lochinver (M.S.C.).
- 858/1. *POLYPODIUM VULGARE* L. Roadside wall north of Lochinver (1944).
- 864/1. *OSMUNDA REGALIS* L. By Loch Eilannach.
- *866/1. *OPHIOGLOSSUM VULGATUM* L. Machair at Achmelvich (M.S.C.).
- 870/7. *LYCOPODIUM SELAGO* L. By Loch an Ordain, between Lochinver and Stoer: rocky gully near Inverkirkaig.
- 876/17. *CHARA DELICATULA* Ag. (det. G. O. Allen). Pool by R. Inver, Lochinver.

PLANTS COLLECTED IN WEST ROSS.

In 1943 the road southwards from Lochinver was taken as far as Loch an Eisg Brachaidh. On rocks above the sea a small patch of *Calamagrostis epigeios* was discovered. By the bridge above Inverkirkaig a *Senecio* was collected which looked intermediate between *S. aquaticus* and *S. Jacobaea*.

In 1944, traversing the same road, we reached Loch Call an Uidhean, above which *Ajuga pyramidalis* was found, and *Calamagrostis epigeios* was seen on hill slopes above the locality found in 1943. A round trip to Knochan via Inchnadamp and back round Stac Polly showed *Ulex Galii* to be plentiful along the road below Creag Dubh.

- *149/2. *ULEX GALLII* Planch. Below Creag Dubh along the road between Knochan and Loch Lurgainn (M.S.C.).
- 190/4. *ALCHEMILLA PSEUDO-MINOR* Wilmott. Roadside runnel on hill north of Loch Eisg Brachaidh (1944: A.J.W.).
- 271/1. *LIGUSTICUM SCOTICUM* L. By Loch Eisg Brachaidh (1944: M.S.C.).
- 312/1. *SOLIDAGO VIRGAUREA* L. Large branching large-flowered plants by Loch Eisg Brachaidh (1944).
- 383/3×5^p. ×*SENECIO OSTENFELDII* Druce? (*S. aquaticus* × *Jacobaea*?). With putative parents just across the bridge above Inverkirkaig; the specimens collected are apparently sterile.

- 393/6. *CIRSIUM HETEROPHYLLUM* (L.) Hill. By the coast road opposite Loch Eisg Brachaidh (1944: M.S.C.).
- 419/240. *HIERACIUM STRICTIFORME* (Zahn) Roffey (det. H. W. Pugsley). Roadside rocks on hill north from Loch Eisg Brachaidh (1944: A.J.W.).
- 587/2. *AJUGA PYRAMIDALIS* L. Slope north of Loch Call an Uidhean (M.S.C.): very rare in W. Ross and not seen there by Druce (1929: *Fl. W. Ross*, 68).
- 642/2b. *BETULA GLUTINOSA* Wallr. This seems to be the dominant tree in the scattered woodlands; collected opposite Loch Eisg Brachaidh and farther south in Allt Gleann an t-Srathain, where there is an extensive woodland.
- 643/1. *ALNUS GLUTINOSA* (Mill.) Gaertn. By woodland stream, Allt Gleann an t-Srathain. (Generally rather uncommon.)
- 718/15. *JUNCUS GERARDI* Lois. Salt marsh at south end of Loch Eisg Brachaidh.
- 737/1. *POTAMOGETON NATANS* L. Loch an Arbhair (south of Inverkirkaig).
- 753/19. *CAREX HOSTIANA* DC. Ditch near Inverpolly.
- 753/22. *CAREX SEROTINA* Mérat. Roadside runnel south of Knochan.
- 753/34. *CAREX PALLESCENS* L. Roadside rocks opposite Loch Eisg Brachaidh.
- 780/2j. *AGROSTIS STOLONIFERA* L. var. *PALUSTRIS* (Huds.) Farwell (det. W. Philipson). Shore at Loch Eisg Brachaidh, with a diseased form (nematode worms in ovary).
- *783/1. *CALAMAGROSTIS EPIGEIOS* (L.) Roth. Sea cliff and near-by slope, by Loch Eisg Brachaidh.
- 826/7e. *FESTUCA RUBRA* L. var. *GLAUDESCENS* (Heget. & Hoer) Richt. Rocky coast, Loch Eisg Brachaidh. ("ad var. *arenaria* vergens"; det. W. O. Howarth.)
- 828/1. *BRACHYPODIUM SYLVATICUM* (Huds.) R. & S. Rocks by coast road, Loch Eisg Brachaidh.

OBSERVATIONS ON VARIETIES OF VIOLA ODORATA L.

S. M. WALTERS.

Viola odorata L. exists in the wild state in Britain in a number of more or less clearly-defined varieties, the most generally recognised of which are the type, the var. *praecox* Greg., the colour-vars. *subcarnea* (Jord.) Parlatores and *dumetorum* (Jord.) Rouy & Foucaud, and the var. *imberbis* (Leighton) Henslow. It is with the last two that I wish chiefly to deal in this paper, which makes no pretence to be more than the results of preliminary observation and collection over two seasons only.

In N. Somerset, where the abundance of *V. odorata* forms is so striking and where most of my study has taken place, the commonest variety is undoubtedly the white-flowered var. *imberbis* Leight., a plant which Gregory preferred to call var. *dumetorum* forma *imberbis* (see below). Leighton's original descriptions of this plant as *Viola imberbis* (1835: in Loudon's *Mag. of Nat. Hist.*, 8, p. 277) or *V. odorata* var. *imberbis* (1835: *Flora of Shropshire*, pp. 115-6 and 514), leave no doubt that he realised that the character of beardless lateral petals from which he derived the name is only one of several characters distinguishing this plant from var. *alba* auct. plur. non Besser (i.e., var. *dumetorum* (Jord.) R. & F.). He did not, however, give an adequate comparative description of the two, and few botanists in the succeeding century have considered *imberbis* a good variety, preferring to accord it the status of forma and applying it to all beardless colour-varieties of *odorata*. Thus Gregory, on a specimen of Roper's in Herb. Univ. Cantab. labelled var. *imberbis*, wrote "Yes, forma *imberbis*; I think this scarcely deserves varietal rank"; and P. M. Hall wrote (1914: quoted by Gregory on a specimen in Herb. White, Bristol): "In March and April of this year I paid particular attention to forma *imberbis* Leighton. I found that each var. of *V. odorata*—i.e., type, *praecox*, *subcarnea* and *dumetorum*—has a corresponding '*imberbis*' form." More recently, Hall (1939: in Martin & Fraser, *Flora of Devon*, p. 124) recorded var. *dumetorum* and its forma *imberbis*.

A study of white-flowered *odorata* has convinced me that the two types are perfectly distinct, differing in a number of obvious characters and worthy of equal varietal rank. Moreover, both differ constantly in habit, hairiness, leaf-shapes, etc., from the violet-flowered type or types, though a further study of the coloured forms will be necessary before worthwhile conclusions can be drawn.

Rouy and Foucaud's descriptions of var. *dumetorum* and var. *subcarnea* (1896: *Flore de France*, 3, p. 25) are interesting in that, neglecting the flower-colour difference, the descriptions would fit well British material of var. *dumetorum* and var. *imberbis*. Thus, for var. *dumetorum*, Rouy and Foucaud give: "péduncules fortement hispides, sépales étroitement oblongs, éperon d'un violet pâle, capsules subglobu-

leuses," and for *subcarnea*: "tiges latérales allongées, la plupart radicales; pédoncules glabres ou glabrescentes, pétales largement ovales-arrondies, capsules . . . plutôt ovoïdes."

Observations by Gregory (*British Violets*, p. 7): "Mr Hunnybun and I have noticed a more rounded appearance in the flower of this form" (i.e., *imberbis*), and by Moss (quoted by White; 1912; *Flora of Bristol*, p. 171): "The large white violet of parts of Somerset seems to differ from the smaller white one of Cambridgeshire," reveal the fact that the distinctness of the two types had been casually noticed by these authorities, although no one apparently pursued the investigation further.

I have seen live material and herbarium specimens of var. *dumetorum* from a number of different localities during 1943 and the spring of 1944, and in none of these cases was there any outstanding departure from type although, as might be expected, size of plant and flower vary and may prove to be at least in part hereditarily determined (cf., size characters in *Viola Riviniana*, . . . in which connection see Valentine; 1941: "Variation in *Viola Riviniana*," *New Phyt.*, 60, 3). Thus var. *dumetorum* from upland limestone in N. Yorks is smaller in all its parts than specimens from Cambridge or N. Devon. Specimens of var. *imberbis* from a number of different sources in the South prove to be quite remarkably uniform. In N. Somerset, intermediates, presumably of hybrid origin, have been found where the ranges of the two varieties meet; a description of such a plant is given later.

A comparative description of the two varieties will reveal the more obvious characters which can be used to distinguish them:—

Var. *dumetorum* (Jord.) R. & F.

1. *Habit.*

Well-grown plant usually has distinct central stock with rather leafy stolons, rooting at the nodes and often producing in spring open flowers in the leaf-axils before rooting

2. *Leaf-shape.*

Leaves, especially summer leaves, rather pointed and triangular in outline, with widely-open sinus. Stipules lanceolate-acuminate.

3. *Hairiness.*

Whole plant strongly hairy, particularly obvious on peduncles, petioles and young leaves.

4. *Flower.*

Petals white, with a variable quantity of violet suffusion on the outer surface. Spur violet. Lateral petals bearded. Sepals rather narrow and acuminate, with small "pinched-up" appendages.

Var. *imberbis* (Leight.) Henslow.

1.

Stolons are usually more vigorous and bear fewer leaves along their length, forming a distinct "rosette" plant readily rooting at the end. Flowers on young unrooted stolons rare.

2.

Leaves rounded in outline, with a more closed sinus. Stipules broader and rather blunt.

3.

Plant much less hairy; young leaves often rather shiny and with an almost glabrous upper surface. Peduncles more or less glabrous.

4.

Petals white, with a variable amount of reddish-purple suffusion on back. Spur deep red-purple. All petals tend to be broader than in *dumetorum*. Laterals quite beardless. Sepals broader and blunter (cf., stipules) with large conspicuous appendages.

5. *Fruit and Seed.*

(Information incomplete.) Capsule more or less spherical.

5.

Probably capsule more oval in shape. The larger sepal-appendages (which persist in both varieties) further distinguish it.

Information from local Floras concerning the distribution of the two varieties is on the whole rather scanty and unreliable, due partly to the prevalent treatment of *imberbis* as a mere forma, unworthy of careful record, and occurring in all colour-varieties. Such as there is, however, coupled with personal observation, makes it clear that var. *imberbis* is the commonest *odorata* variety over the southern chalk and limestone. On the Oolite of the Cotswolds in S. Gloucestershire, and the Oolite and Carboniferous Limestone of N. Somerset, var. *dumetorum* seems to be completely absent, and *imberbis* is the abundant white violet of the hedgerows. I have little doubt that *dumetorum* will prove to be absent similarly from the upland Hants. and Wilts. chalk. On the other hand, *imberbis* has not to my knowledge been recorded in the North at all (though its northern limit is as yet unknown to me) and is apparently absent and its place taken by var. *dumetorum* on the non-limestone soils of S. Somerset and N. Devon (e.g., Wellington, Minehead, Bridgwater), on the lowland coastal alluvium of Somerset (recorded from several localities between Burnham and Clevedon), and north of Bristol on the Gloucester road. Each type clearly has definite climatic and edaphic requirements, and appears to overlap the other very little in its range. The distribution of var. *dumetorum*, which appears to be confined to limestone in the North whilst becoming progressively more tolerant of non-basic soils towards the south-west, is paralleled by a number of other species (e.g., *Primula vulgaris* Huds., *Alchemilla pseudominor* Wilmott); the completeness with which var. *imberbis* replaces it on south-west limestone is, however, quite remarkable. (See Appendix for complete list of personal and other records of distribution.)

The intermediate plants mentioned above were among material collected in March 1944 at Compton Bishop and near Uphill, in N. Somerset; in both these localities var. *imberbis* is abundant on the limestone hill, whilst var. *dumetorum* occurs on the alluvial soils below. A description of one of these intermediates, from a hedgerow, Compton Bishop, follows:—

Habit of *imberbis*, with long stolon and distinct rooted plant at end. Leaf-shape of *imberbis*, particularly in closed sinus. Hairiness of *dumetorum*. Flowers have bearded laterals and violet colour of *dumetorum*; the colour is rather pronounced as a suffusion and shows, particularly in the bud, a reddish tinge. Sepals of *imberbis* rather than *dumetorum* (broad and blunt, appendages quite large).

The Uphill plant had the spur-colour and flower-bearing stolon character of *dumetorum*, with the beardless laterals, leaf-shape and slight hairiness of *imberbis*. One might hazard the guess that it was the occurrence of such intermediates in the vicinity of her Weston home which prevented Mrs Gregory from realising the distinctness of the two varieties. Her description of var. *dumetorum* in *British Violets* is sufficiently

vague to cover both types, though that of Rouy and Foucaud could hardly be stretched to fit *imberbis*.

The frequent "*× Viola permixta*" of N. Somerset, which there is good evidence to believe is the F.1. hybrid of *V. odorata* and *hirta*, occurs most commonly in situations such as the edge of open limestone woodland where a population of var. *imberbis* meets a *V. hirta* population (see, in this connection, Snow & Chattaway; 1930: "Artificial Cross between *Viola hirta* and *V. odorata*"; *J. of B.*, 68, pp. 115-6). A similar "*× V. permixta*" with putative var. *dumetorum* parent has been collected near Long Stowe in Cambridgeshire, and differs, as might be expected, from the N. Somerset plants in having a hairier and more triangular leaf.

Other white-flowered *odorata* plants occur which cannot be referred to either of the two types or their putative hybrid, but of which more observation and study are required. One of these is a plant closely resembling var. *imberbis* in everything except a much deeper almost *dumetorum*-like spur-colour, a colour present also as a large but very variably-developed suffusion of the white petals. This plant may be the var. *variegata* DC. (P. M. Hall; 1939: in Martin & Fraser, *Flora of Devon*, p. 125). Three plants of this type have been collected in the vicinity of Winford, N. Som. The complete absence of var. *dumetorum* from the immediate neighbourhood, as also the fact that in no other character does the plant resemble *dumetorum*, make it unlikely to be a *dumetorum* hybrid. The fertility of *odorata-hirta* and intraspecific *odorata* crosses would be expected to yield a bewildering variety of forms, and this plant may well turn out to be a hybrid product in which var. *imberbis* figures as one parent. Another white-flowered plant resembles var. *dumetorum*, but differs considerably in habit and general appearance. It is as yet only known in one locality (near Wrington, N. Som.), where it is growing with typical var. *imberbis*, a *V. hirta* var., and the hybrid "*permixta*." A plant of this kind might possibly result from a back-cross of "*permixta*" with *imberbis*. A description of a white-flowered "*× V. sepincola*" in Gregory's *British Violets* seems to fit the plant quite well. The hybrid nature of the plant is substantiated by its inability under cultivation (July 1944) to produce more than a couple of malformed capsules from cleistogamous flowers.

The status of the other varieties of *Viola odorata* might briefly be considered in connection with the white-flowered ones. In N. Somerset the frequent var. *subcarnea* Parl. appears to be a constant colour-variety of *imberbis* (i.e., it is identical with var. *imberbis* in everything except flower-colour, which is usually the same as that of the spur of *imberbis*) and occurs within the *imberbis* range, growing, for example, side by side with *imberbis* in hedgerows on Potter's Hill and on the S. slopes of Dundry Hill above Winford and the River Chew, N. Somerset. As mentioned above, Rouy and Foucaud's description of var. *subcarnea*, though omitting the bearded or beardless character, would apply in all characters except flower-colour to var. *imberbis*. There are other pink or

lilac-flowered plants, some partly or fully bearded, which do not seem to have the clear varietal status of the N. Somerset *subcarnea*; it is probable that some of these are hybrids of the white vars. with the typical ("violet"-flowered) plant. This is almost certainly true of a plant growing with *imberbis*, *subcarnea* and the typical plant in a hedgerow near Winford, N. Somerset, in which, although the flowers are pink, there is no possibility of confusion with the true *subcarnea* nearby. Thus the whole flower is narrower (thinner petals, characteristic of the type), the laterals are distinctly bearded, and the pink colour of the flower is rather streaky and variable in intensity. In leaf, too, this putative "*imberbis* × typical" hybrid shows intermediate characters. A similar intermediate, of a streaky pale lilac-flower colour, was found growing with *dumetorum* and typical plant in the Long Stowe (Cambs.) locality previously mentioned. Such hypotheses can, of course, only be verified by artificial cross-pollination and production of the hybrid from the presumed parents. From the records of County Floras it seems probable that *subcarnea* forms are more or less confined to the *imberbis* range (i.e., southern chalk and limestone); although I have seen specimens of var. *subcarnea* apparently identical with the N. Somerset plant, but collected with var. *dumetorum* at Minehead, S. Somerset.

The "violet"-flowered typical plant, which occurs apparently throughout the range of the species in the country, is generally far less abundant than *imberbis* over the range of the latter, though towards the east and north it appears to become more common with respect to *dumetorum*. Like *dumetorum*, it seems to be fairly constant, though probably varying in size and hairiness over its range; but a much fuller study is required before a full description can be made. A N. Somerset plant which grows in quantity with var. *imberbis*, e.g., at Hartcliff Rocks Wood, near Winford, is characterised by a rather narrow flower, with thin petals and laterals strongly bearded, leaves smaller and more pointed (though not approximating to a triangular outline as in var. *dumetorum*), and in whole habit neater and less vigorous than var. *imberbis*. It is also quite markedly earlier in flower; flowers were just opening at a W. Harptree (N. Somerset) locality 27/2/44, and in the Winford locality 3/3/44, when *imberbis* plants growing close by were not in full bud. This early flowering is also shown by a beardless violet-flowered plant growing with *imberbis* near Plaster's Green, N. Somerset (in flower 25/2/43 and 11/3/44, when *imberbis* was still in bud). Although this beardless type is less frequent in N. Somerset than the bearded one described above, and also in Cambridgeshire and Bedfordshire, from which I have only seen the latter, Purchas recorded (1889: in Purchas and Ley, *Flora of Herefordshire*, p. 33) that in Herefordshire "the blue-flowered plant seems as frequently to have beardless flowers as the white." In part the form described above answers to the description given by Gregory of her var. *praecox* (*British Violets*, p. 2) and specimens in Herb. White passed by Gregory as var. *praecox* support this.

It is hoped that in future seasons further evidence may be gained from observation, cultivation and crossing of varieties of *Viola odorata* so that a fuller account of the species in Britain may be compiled. In the meantime I feel that these notes may be of some value to any other students of the species.

DISTRIBUTION RECORDS.

- (A)—Personal observation and collection.
 (B)—Herbarium specimens personally verified.
 (C)—Reliable records in County Floras, herbaria, etc.

- I. *Viola odorata* var. *dumetorum* (Jord.) R. & F.
- 4, N. Devon; hedgerow near Cullompton, 1943, (A): near Wellington, on Somerset boundary, 1944, (A).
 - 5, S. Som.; Minehead, 1943 and 1944, (A): Nether Stowey, near Bridgwater, 1944, (A).
 - 6, N. Som.; frequent in coastal lowlands; specimens from:—Berrow, Loxton, Compton Bishop, Weston, Cleeve, Clevedon, 1944, (A).
 - 17, Surrey; Shere (in *Herb. Univ. Cantab.*), (B).
 - 20, Herts.; Hitchin (in *Herb. Univ. Cantab.*), (B).
 - 27, E. Norf.; near Thetford, 1944, (A).
 - 28, W. Norf.; roadside near Castle Acre, 1944, (A).
 - 29, Cambs.; from several localities, e.g. Long Stowe, abundant, 1944, (A), (also in *Herb. Univ. Cantab.*, (B)).
 - 30, Beds.; several localities, 1943 and 1944, (A).
 - 34, W. Glos.; Clifton side of Avon Gorge, Bristol; small patch in *imberbis* area, 1943, (A): side of Bristol road, c. 5 miles S. of Gloucester, with *imberbis*, 1944, (A).
 - 40, Salop.; vicinity of Shrewsbury, Leighton, 1835 (*Herb. Univ. Cantab.*), (B): also Leighton; 1835: *Flora of Shropshire*, pp. 115-6, (C).
 - 62, N.E. Yorks.; oolite S.E. of Middlesbrough, 1944, (A): near Thirsk, 1944, (A).
- II. *Viola odorata* var. *imberbis* (Leighton) Henslow.
- 3, S. Devon; Torquay, and several localities near Plymouth: Hall in Martin & Fraser (1939: *Flora of Devon*, p. 124), (C).
 - 4, N. Devon; Ilfracombe; Hall in Martin & Fraser (1939: *Flora of Devon*, p. 124), (C).
 - 6, N. Som.; abundant on limestone and basic lias soils, (A).
 - 7, N. Wilts.; near Somerset border east of Bath, 1944, (A): near Salisbury, abundant, 1944, (A).
 - 11, S. Hants.; open chalk woodland S.E. of Winchester, abundant, 1944, (A): near Wickham (? garden escape), 1944, (A).
 - 12, N. Hants.; Odiham: Herb. C. E. Palmer, (C).
 - 13, W. Suss., and 14, E. Suss.; records by Hall (1937: in Wolley-Dod, *Flora of Sussex*, p. 53), (C).
 - 17, Surrey; several records in Salmon (1931: *Flora of Surrey*, p. 156), (C).
 - 22, Berks.; several records in Druce (1897: *Flora of Berks.*, p. 53), (C).
 - 23, Oxon.; Druce (Gregory; 1912: *British Violets*, p. 8), (C).
 - 24, Bucks.; Druce (Gregory; 1912: *British Violets*, p. 8), (C).
 - 29, Cambs.; chalky railway embankment near Devil's Dyke, Newmarket, 1944, (A).
 - 32, Northants.; Druce (Gregory; 1912: *British Violets*, p. 8), (C).
 - 34, W. Glos.; Cotswold oolite north-east of Bristol, 1944, (A): abundant in Bristol district, (A).
 - 35, Monm.; Wye Valley near Chepstow, 1943, (A).
 - 36, Heref.; "occurs at various places round Ross," Purchas and Ley (1889: *Flora of Hereford*, p. 33), (C).
 - 40, Salop.; vicinity of Shrewsbury (*Herb. Univ. Cantab.*), (B): see also Leighton (1835: *Flora of Shropshire*), (C).

FLORAL VARIATIONS IN STELLARIA HOLOSTEA L.

J. P. M. BRENNAN and J. EDWARD LOUSLEY.

Stellaria Holostea L., the Greater Stitchwort, is one of our commonest and most widely distributed spring flowers. Variations in the conspicuous starry corollas might be expected to attract immediate attention and the comparative rarity with which they have been observed indicates the great constancy of the normal corolla of the species. When floral variations have been observed in this country in the past they have often been recorded with short and often inaccurate descriptions and this has obscured the fact that a number of quite distinct variants have been noticed which it is the purpose of this paper to bring to the notice of British botanists.

In the account which follows the more important variants are treated as varieties although both the writers would have preferred from the purely taxonomic point of view to have given them the status of forms. It seems, however, that they are likely to have a genetic basis in most cases, that they are unlikely to be ecological variants, and it is known that var. *laciniata* is not subject to a seasonal fluctuation. Moreover, an additional change of name would have been necessitated if it had been decided to regard them as forms and it is felt that with our present state of knowledge of matters deciding their true grade it is preferable to give them the higher rank for the time being and to leave future workers the opportunity of reducing them if necessary.

The species was described by Linnaeus in 1753 as "foliis lanceolatis serrulatis, petalis bifidis" (*Sp. Pl.*, 422) and it seems that in almost all cases where the petals are developed they are fundamentally \pm bifid. There is a gathering by James Groves in Herb. Mus. Brit. and Herb. Univ. Cantab. collected from a thicket near Snaresbrook, S. Essex, 28th May 1881, which is a possible exception. The collector states on the label of the British Museum sheet that it is a "form with petals emarginate" and on that of the Cambridge sheet that it is a "var. with petals but slightly notched," and it seems from the dried material that the petals are almost entire. We have no other evidence that such a variation has occurred in Britain and it is not possible to be sure of its nature on the material available. Penzig (*Pflanzen-teratologie*, 1, 303-4, 1890; ed. 2, 155, 1921) mentions a form with undivided petals on the authority of Wigand.

Under war-time conditions it is not practicable to inspect the Linnaean type and we have presumed that the typical plant has the corolla characters of the dominant British and European form, which has petals 8 to 12 mm. long, more or less symmetrically divided into two narrow (1.5 to 2.5 mm. wide) slightly divergent obtuse lobes separated by a sinus 4.5 to 5 mm. deep, the width of the petal at the junction of the

lobes being 3 to 4 mm. We have also presumed that the sepals of the typical plant are entire and not serrulate above.

The following remarkable variations from the normal plant have been observed:—

A. PETALS LACINIATE

(i.e., divided into deep, narrow, irregular or regular segments).

- b. var. *laciniata* Bromfield in *Phytologist*, 3, 340, 1848; Bromfield (ed. Hooker & Salter), *Fl. Vectensis*, 69, 1856.

Petals equalling or shorter than the sepals, laciniate, of variable form, bilobed (sometimes with one of the lobes \pm undeveloped), usually with a small tooth of varying shape at or near the base of the sinus; or \pm deeply trilobed with the central segment linear-lanceolate; outer lobes usually with 1-3 \pm coarse teeth on their inner margin. Sepals distinctly but rather irregularly serrulate on the upper part of their margins.

This has occurred in Britain as follows:—

- 10, I. of W.; Quarr Copse, Binstead, May 1838, Bromfield, *loc. cit.*
 16, W. Kent; Hedgebank along the Postern Lane between Tonbridge and Devil's Bridge (in district 8 of Hanbury & Marshall's *Fl. Kent*), 1st May 1934 and 27th April 1936, J. P. M. Brenan (Hb. Brenan, Nos. 507 and 1700).
 33, E. Glouc.; Birdlip Hill, 18th April 1920, J. W. Haines, comm. H. J. Riddelsdell (Hb. Druce, Hb. Univ. Cantab., Hb. Kew)—*B.E.C. 1920 Rep.*, 216, 1921, and *1927 Rep.*, 302, 1928.
 35, Monmouth; Near Pont-y-Pool, 1842, James Bladon in *The Phytologist*, 1, 264, 1842.

The important characters which distinguish this variety from the two variants to be described next are:—(1) the small size of the flowers, (2) the presence of a tooth between the two main lobes of the petals, and (3) the presence of serrulations on the sepals. The petals are at first shorter than the sepals, then accrescent and elongating, being finally slightly shorter, or subequalling but never exceeding them. This development is well shown in drawings of dissections of two flowers of Brenan's 1934 Tonbridge plant, where the petals of a flower with unripe anthers measured only 2.5-3.5 by 2-2.5 mm., while those of a mature flower measured 6-6.5 by 2.75-3.75 mm. The careful description given by Bladon (*loc. cit.*) describes the character of the sinus tooth very well indeed and there can be little doubt that Bromfield's specimens were very similar, as indeed he suggested. Sometimes this tooth is very small and occasionally it is almost large enough to be regarded as a third lobe, and the size may vary even in the petals of a single flower. Similarly there is great variation in the teeth on the outer lobes.

The presence of serrulations on the sepals does not appear to have been previously noticed in *Stellaria Holostea* but it seems to be constant in this variety. The serrulations are conspicuous enough under the lens,

though the white mounting paper generally used does not provide a suitable background to render them obvious.

Riddelsdell, commenting on Haines' Birdlip plant in *B.E.C. 1920 Rep.*, 216, 1921, says "The sepals apparently have a rather stronger tendency to ciliation than the type, but the latter difference is slight." The cilia to which he refers are genuine cilia and not the serrulations we have referred to above, and they are strongly developed in the Birdlip plant. In Brenan's Tonbridge specimens cilia are fairly frequent on the margins in the median portions of the sepals. A few cilia are occasionally developed on the sepals of normal *S. Holostea* and our experience does not suggest that they are likely to be a constant feature of var. *laciniata* though there would appear to be a tendency for their greater development in this variety.

Although the descriptions are inadequate the following continental references may apply to a similar plant:

Var. *laciniata* Rostrup in *Bot. Tidsskr.*, 10, 250, 1879; Asch. & Gr., *Fl. Nordostd. Flchl.*, 310, 1898; Murbeck in *Bot. Not.*, 203, 1899; Graebner in Asch. & Gr., *Syn. Mitteleur. Fl.*, 5, i, 543, 1916; forma *laciniata* (Rostrup) Hegi, *Ill. Fl. Mittel-Eur.*, 3, 355, 1912.

The only diagnostic character given by Rostrup is that the petals are deeply four-lobed and Murbeck and Hegi follow the original description. In the British plants we have cited as var. *laciniata* of Bromfield the two main lobes of the petals are sometimes coarsely toothed and it is conceivable that extreme examples might be described as four-lobed though this could not be said to be characteristic of the plant as known to us. Ascherson and Graebner characterise the variety as having very narrow tips to the petals and do not mention the division into four lobes. It remains doubtful whether any of these continental authors had in mind material similar to that which we have described from Britain, but in any case Rostrup's varietal name is a later homonym of Bromfield's and therefore invalid.

A further name to be considered if the variant is to be treated as a form arises out of a note by G. C. Druce in *Fl. Berks.*, 94, 1897, where he writes "A plant with laciniate petals was noticed between Arborfield and Finchampstead (*forma laciniata*)." There is no specimen so labelled in Herb. Druce and the description equally covers not only forma *Lousleyi*, which he described much later (see below) when he presumably regarded it as a different plant, but also the new variety we describe below. Druce's name must therefore fail through uncertainty of application.

James Bladon states that 8 or 10 "rather large lushes" of var. *laciniata* occurred near Pont-y-Pool and that he intended to try to grow the variation from seed, but unfortunately there is no record of the result of any such experiment. Bromfield found "a good many specimens." Brenan collected the variety from the same spot near Tonbridge in 1934 and again in 1936. It is thus evident that it is not a seasonal variation and the remarks of the two earlier finders suggest that it may perhaps be transmitted by seed.

c. var. *Lousleyi* (Druce in *B.E.C. 1927 Rep.*, 302, 1928, as forma) Brenan & Lousley, *comb. nov.*

Petals exceeding the calyx, equalling or exceeding those of typical *S. Holostea*, deeply bilobed, the lobes entire, narrower and acute, not rounded-obtuse at apex. Sepals entire, eciliate.

Type: 17, Surrey; Roadside near Woldingham, 1st May 1927, J. E. Lousley in Hb. Lousley.

Druce described the new form as follows: "Differs in its much narrower linear petals, 3 mm. wide as against 5 mm. in the type, the petals, too, are more deeply cleft and the segments acute, not obtuse as in the type. The peduncles are much more hairy." This description was based on notes supplied by the finder and no specimen is now to be found in Herb. Druce, although the relative correspondence and notes are mounted on a herbarium sheet. The last sentence in Druce's description is misleading—it happened that the specimens of normal *S. Holostea* collected at the same time as type var. *Lousleyi* had less pubescent peduncles but further experience shows that this is by no means generally so. Druce at first proposed to describe the new form as f. *Louslei* (*in litt.* to J. E. Lousley, 9th May 1927), but published the spelling we have given above.

The variety has occurred as follows:—

- 6, N. Somerset; Near Keynsham, Aug. (sic), 1941, Ivor Evans, Hb. C. Sandwith and recorded in *Proc. Bristol Nat. Soc.*, 4th series, 9, 287, 1942, where a descriptive sentence was added which does not agree at all with the dried material. Mr N. Y. Sandwith informs us that these remarks referred to his Suffolk plant which is discussed by us under the next variety and not to the Keynsham plant which is alone mentioned in the note.
- 17, Surrey; Valley End, Chobham, June 1891, J. D. Hooker (Hb. Kew); Woldingham as above.
- 22, Berks.; A fairly large patch on a bank by a ditch on margin of a cultivated field between Hid's Brake and Saddle Copse near Cumnor, 30th April 1944, J. P. M. Brenan and R. Burn (Hb. Brenan, No. 6969).
- 24, Bucks.; Wycombe, May 1865, ex Herb. Eliz. Chandler (Hb. Mus. Brit.).
- 36, Hereford; Sellack, May 1873, A. Ley (Hb. Mus. Brit., Hb. Univ. Cantab.)—see Purchas & Ley, *Fl. Herefordsh.*, 45, 1889, where it is stated that this occurred "in 1872 and subsequent years."
- 44, Carmarthen; Ferryside, J. W. Haines, *B.E.C. 1927 Rep.*, 302, 1928. In Hb. Druce there are specimens of this gathering but they are so miserably prepared that determination is impossible—one of them may be only normal *S. Holostea* which was perhaps sent for comparison. Fortunately the letter from Haines pointing out the differences between the Ferryside and Birdlip (*vide supra*) plants is attached and we rely on this for citing the record.

The variety has thus been found in April, May, June and August, and has proved persistent in at least one station.

d. var. *schizopetala* Brenan et Lousley, var. nov.

A var. *laciniata* Bromf. sepalis integris petalis sepala manifesto excedentibus, a var. *Lousleyi* (Druce) Brenan et Lousley petalis latioribus inaequaliter laciniato-lobatis plane differt.

Planta pulchra, flores magnos gerens. Sepala integra, eciliata, 9-9.5 mm. longa. Petala 11-15 mm. longa, 6-7 mm. lata, in eodem flore conspicue heteromorpha, bilobata, lobis nunc fere ad eorum basim iterum fissis, laciniis lobi saepe inaequalibus, nunc apice \pm breviter vel satis profunde bilobulatis, nunc etiam integris deinde lingulatis apice \pm rotundatis (more *S. Holostea* normalis nec var. *Lousleyi*). Aliter ut in *S. Holostea* normali.

This variety differs from var. *laciniata* by the entire sepals and by the petals manifestly exceeding the sepals; from var. *Lousleyi* by the wider and irregularly laciniate-lobate petals. It is a very beautiful plant with large flowers. Sepals entire, eciliate, 9-9.5 mm. long. Petals 11-15 mm. long, 6-7 mm. wide, conspicuously heteromorphic in one and the same flower, bilobed, with the lobes sometimes again cleft almost to their base into often unequal divisions, sometimes \pm shortly or fairly deeply bilobulate at the apex, and sometimes even entire and then lingulate and \pm rounded at the apex (as in normal *S. Holostea* but not var. *Lousleyi*). Otherwise as in normal *S. Holostea*.

Type specimen: 25, E. Suffolk; Blythburgh, by disused railway track, 10th May 1940, M. M. Whiting & N. Y. Sandwith—ut *S. Holostea* L., forma (Hb. Kew).

This very striking and handsome plant is very distinct from all the other material we have seen. The deep segmentation of the petals often results in them becoming irregularly and deeply four-cleft and they might thus be said to agree with Murbeck and Hegi's description of Rostrup's *laciniata*. If, however, they had actually had this remarkable plant in mind it is difficult to believe that they would have been content to give such a brief description confined to a single character. As stated above, Rostrup's varietal name is in any case invalid.

Nothing is known as to the persistence of the variety—a large clump was observed at the time of collection.

We have been unable to ascertain to which of the above varieties the plant with deeply laciniate petals found sparingly near Dulverton and recorded by R. P. Murray (*Fl. Somerset*, 51, 1896) belongs.

B. PETALS ABSENT OR VERY SMALL.

e. var. *apetala* [Rostrup in *Bot. Tidsskr.*, 14, 118, 1884—*nomen nudum*—ex] Asch. & Gr., *Fl. Nordostd. Flachl.*, 310, 1898; Graebner in Asch. & Graebn., *Syn. Mitteleur. Fl.*, 5, 1, 543, 1916: forma *apetala* [Rostrup] Murbeck in *Bot. Notiser*, 203, 1899; Hegi, *Ill. Fl. Mittel.-Eur.*, 3, 355, 1912.

Petals completely absent, or very rarely a few of the anthers may be converted into contorted petaloid structures or extremely rarely an odd petal may be present.

Apetalous plants have been found as follows:—

- 6, N. Somerset; Roadside near Lancherley Cross, near Wells, 21st May 1883, R. P. Murray in *Fl. Somerset*, 51, 1896.
- 17, Surrey; Roadside south of Netherne House, near Farthing Downs, in Merstham parish, 28th May 1902, C. E. Britton (Hb. Mus. Brit., Hb. Kew.)—Salmon, *Fl. Surrey*, 184, 1931; Wisley, 16th May 1928, Turner (Hb. Sth. Ldn. Bot. Inst.).
- 36, Hereford.; Ewias Harold (=Ewyas Harold), 9th May 1848 (Hb. Benth. in Hb. Kew.).
- 37, Worcs.; Malvern Link, 11th May 1908, S. H. Bickham & R. F. Towndrow (Hb. Druce, Hb. Marshall in Hb. Univ. Cantab., Hb. Sth. Ldn. Bot. Inst.)—*Watson B.E.C.*, 1908-9 *Rep.*, 177, 1909, and *B.E.C. 1908 Rep.*, 363, 1909.
- 48, Merioneth; "floribus constanter per multos annos apetalis," Aberdovey, Mr Pugh ex herb. T. Salwey & M. C. Cooke (Hb. Mus. Brit.).

This apetalous variant appears to be rare on the continent—it is given by Rostrup and Murbeck for Denmark, and Hegi gives it as rare, giving only near Godesberg on the Rhine as a locality.

Britton states on his labels that his plant grew over a space of "two or three yards," and that it proved fertile. From Pugh's note we know that the plant remains constant for a number of years.

Before leaving the named variants there is one further name which should be mentioned. F. Svanlund in a paper on the flora of the Swedish province of Blekinge described a var. *micropetala* from "Wämmö" as having the petals equalling the calyx or shorter (*Bot. Not.*, 1886, 6). Hegi (*Ill. Fl. Mittel-Eur.*, 3, 355, 1912) reduces this to a form. There is a gathering from Sweden collected by Johan Erikson in June 1932 in Hb. Lousley. The locality is difficult to read but looks like "Blecingia: Vamó" and is very probably the one cited by Svanlund when he described his new variety. Some of the flowers agree with the description but the specimens seem to be of a starved plant and there is a tendency towards the production of abortive flowers.

The following variants have also been mentioned in British literature or are represented by herbarium material:—

A. *Fl. pleno*. The only double-flowered specimens we have seen are in *Herb. Hookerianum*, which is incorporated in the general collection at Kew, and are localised vaguely as "Sussex." We are not aware of the particular form taken by the "doubling," which is not clearly shown by the specimen.

B. *Lusus*, in which the flowers are almost all replaced by successive pairs or whorls of sepaloid organs, the lowest often separated by distinct internodes. This was distributed by T. R. Archer Briggs from:—

- 3, S. Devon.; Hedgebank on the Plymouth and Tavistock road near Fancy, 25th May 1871, 13th May 1873, and 30th May 1877, T. R. Archer Briggs (Hb. Mus. Brit., Hb. H. C. Watson in Hb. Kew,

Hb. Druce, Hb. Univ. Cantab.)—*B.E.C. 1871 Rep.*, 13, 1872; Briggs, *Journ. Bot.*, 10, 240, 1872; Briggs, *Fl. Plymouth*, 50, 1880; Keble Martin & Fraser, *Fl. Devon.*, 154, 1939.

A very similar plant has been found more recently:—

5, S. Somerset; Milverton, 1925 and 1927, W. Watson (Hb. Mus. Brit.)—*Proc. Linn. Soc.*, 139th session, 12th May 1927, p. 45, 1927.

C. A very curious plant described as "A var. with yellow petals, broader and half as long as the calyx; anthers very large and yellow. Side of the canal at Exeter," E. Parfitt in T. F. Ravenshaw, *Flow. Plants & Ferns . . . of Devon*, 12, 1860, and Keys, *Fl. Devon & Cornw.*, 37, 1866. We have no further information about this remarkable discovery, which is not mentioned in the recent *Fl. Devon*.

Finally, we wish to express our appreciation of the facilities which have been placed at our disposal by the custodians of the various herbaria cited, and to Mrs Sandwith and Mr N. Y. Sandwith for the loan of material and for useful notes.

SUMMARY.

We have presumed that typical *S. Holostea* is the common British and European plant with petals 8-12 mm. long, exceeding the sepals, and divided into two sub-equal narrow entire obtuse lobes, and sepals entire, eciliate or only sparsely ciliate and not serrulate above. From this we distinguish the following:—

A. Varieties with laciniate petals.

- b. var. *laciniata* Bromfield. Petals equalling or shorter than the sepals, with two outer coarsely toothed lobes with a tooth or third lobe at the base of the sinus between them. Sepals serrulate on their upper margins, usually (? always) ciliate.
- c. var. *Lousleyi* (Druce) Brenan & Lousley. Petals exceeding the sepals, divided into two narrow (c. 3 mm.) entire, acute lobes. Sepals entire, eciliate.
- d. var. *schizopetala* Brenan & Lousley. Petals much exceeding the sepals, longer and wider than in normal *S. Holostea* (11-15 × 6-7 mm.), deeply and very irregularly cleft, heteromorphic in each individual flower. Sepals entire, eciliate.

B. Variety with petals absent. Sepals normal.

- e. var. *apetala* [Rostrup ex] Asch. & Gr. Petals absent, but flowers fertile and otherwise normal.

In addition, the following variants are noticed:—

- A. *Fl. pleno*.
- B. *Lusus* with "foliaceous panicle" in which the flowers are replaced with pairs or whorls of sepaloid organs.
- C. A variant with short yellow petals and very large yellow anthers.

**THE DISTRIBUTION OF CRATAEGUS MONOGYNA JACQ. AND
CRATAEGUS OXYACANTHOIDES THUILL. AND A STUDY OF
THE MORPHOLOGY OF THE FRUITS.**

DR STANISLAW BATKO.

I. PREVIOUS INVESTIGATIONS.

A. HISTORY OF NOMENCLATURE AND GENERAL REMARKS ON THE DISTRIBUTION
OF C. MONOGYNA AND C. OXYACANTHOIDES.

The word *Crataegus* itself is of very old origin. It was applied by early botanists to various different plants. So in W. Smith's Latin-English Dictionary (London, 1860, p. 263) the following reference is given: "crataegon, onis, or crataegus, i, m = Κραταηγόν, a plant called in pure Lat. aquifolia. Its identification is very uncertain. In Pliny it is referred to the Krataegon of Theophrastus, which seems to have been *Crataegus Azarolla* Griseb. or *Pyrus torminalis* Linn.: Plin., 27, 8, 40." Dodoens says (*Pempt.*, p. 758, cap. xx, De Agrifolio [about *Ilex*]): "Plinius autem lib. xxvii, cap. xxviii, Agrifolium interpretatur Κραταηγόν." . . . The word *Oxyacantha* (*Oxyacanthus*) was used by ancient botanists, e.g., Galenus, Theophrastus, Dioskorides, Serapio to distinguish various spiny plants. The word *monogyna* is derived from μένος = alone, single, γυνή = a woman, the female sex, and was applied to one-styled *Crataegus* by Jacquin. For the history of the English name Hawthorn see F. N. Williams (1916: 197, 198). During the Middle Ages *Crataegus Oxyacantha* L. was known in Poland under a number of different Latin and Polish names. An index of these has been compiled by Rostafinski (1900: 190).

In so far as Linnaeus' description in *Genera Plantarum* (1737: 143) is concerned, there is evidence in the Linnaean Herbarium and in the herbarium of the *Hortus Cliffortianus* that Linnaeus knew one-styled *C. curvisepala* Lindm. and *C. monogyna* Jacq. According to Mr Dandy, the satisfactory determination of the type of the name *C. Oxyacantha* L. (1753: 477) is impossible at the present time, but a statement on the present position by Mr Dandy follows this article. In the present paper the nomenclature well known in this country will be used, i.e., *C. oxyacanthoides* Thuill. (= "*C. Oxyacantha* L. em. Jacq.") for the two-styled plant, and *C. monogyna* Jacq. for the one-styled plant.

N. J. Jacquin (1775: 50) was the first to give satisfactory descriptions of *C. monogyna* and *C. oxyacanthoides* (his *C. Oxyacantha*). He says¹: "The two shrubs, which are extremely distinct from one another in appearance, have been completely confused by botanists or have been separated so carelessly on different occasions that I thought it worth while to figure them on the same plate so that the difference might be more easily seen and established. Each of them grows in the

¹This is a translation of Jacquin's Latin.

country round Vienna; *C. monogyna* everywhere and in abundance, *C. Oxyacantha*, on the other hand, nowhere in the neighbourhood of the city. In *C. Oxyacantha* the leaves are somewhat villous on the mid-rib and the main dorsal nerves, and so for the most part are the peduncles and petioles, but these hairs are more easily seen under a lens than with the naked eye. They are obtuse, unequally serrate throughout the whole circumference, only in the upper part obsolete three-lobed and with a few deep incisions. There are 2 styles, rarely 3, and in extremely few flowers I have seen 4. . . . The fruit contains 2, 3 or 4 stones, according with the number of styles in the flower; . . . On the other hand, in *C. monogyna* the leaves are quite glabrous and more shining; at the same time, most of them are very deeply cut into 5 or 3 acute lobes which are quite entire or, towards the apex, serrate with a few teeth. The peduncles are not villous. . . . There is constantly a single style rising from the centre of the ovary. I have never seen more than one in any flower; and thus the fruit also constantly bears only a single seed." . . . It is interesting to notice that in Jacquin's description peduncles of *C. Oxyacantha* are described as commonly villose, while those of *C. monogyna* are glabrous. This description of peduncles differs from the English descriptions of the peduncles of the two species.

C. monogyna, according to Hegi, belongs to the euro-sibirc element of the Eurasian Flora, being more adaptable to various habitats than *C. oxyacanthoides*. It extends much further to the south, to the north and to the east, and also ascends to higher altitudes than the latter species. Northwards it extends to Great Britain, Norway (as far as Nordmøre), Sweden (to Gestrkland and Wermland), Åland, Abo, Ingermanland, eastwards to Central Russia, Kasan, Orenburg, from the Caucasus to Armenia, Himalaya, Syria, North Africa (Hegi, 1923: 736).

It should be emphasised that according to the new treatment of *Crataegus* by Pojarkova (1939: 455→ in the U.S.S.R. Flora) the Eastern area of true *C. monogyna* is rather small. It is restricted to European Russia (Upper Dnieper district, Czernichów district, Middle Dnieper district, Southern Don, Upper Crimea, some part of the Caucasus). The south-eastern boundary of *C. monogyna* is not so clear. There are in Herb. Kew specimens of *C. monogyna* from Syria, Asiatic Turkey, Iran and Afghanistan. A special reference to the Russian and to the Indian specimens of *Crataegus* at Kew will be given later.

The general distribution of *C. monogyna*, according to Tansley (1939: 260), agrees with that given by Hegi.

C. oxyacanthoides Thuill. ["*C. oxyacantha* L. em. Jacq.""] was regarded by Hegi as a european species with distinctly marked sub-Atlantic character. It differs in its distribution from *C. monogyna*, being restricted to suboceanic regions with a local climate characterised by relatively slight temperature range and corresponding humidity of the air.

General distribution, according to Hegi (1923: 733):—Europe, northwards to Great Britain, in Norway introduced but not indigenous, South and Central Sweden, Courland; it has been recorded from South Finland.

The general distribution, according to Pojarkova (1939: 437), comprises the whole of Central Europe, extending eastwards to the Baltic Sea countries, Poland and Southern Scandinavia. The significance of this distribution will be discussed below. The species grows in the Balkan Peninsula (Halácsy, 1901: 546; Beck, 1927: 169), as well as in Roumania (Prodan, 1923: 555). Szafer (1923: 242) is of the opinion that all records of *C. oxyacanthoides* in Courland and S. Finland require re-examination.

More recently a report has been published by Starcs (1925: 232) on the distribution in Latvia (Courland). This species is rare in Latvia. An attempt has been made to confirm Hegi's reference to its occurrence in Southern Finland. The record (Lindberg, 1906: 9) is as follows: "Af *Crataegus Oxyacantha* L. förvaras i finska samlingen endast en liten Kvist från en odlad buske i Brunnsparken, Helsingfors (24, 7. 1877, leg. Th. Saellan). Bestämningen godkänd of Lector Lindman." This may be rendered: "Only a small sample from one shrub cultivated in Brunnsparken, Helsingfors." This merely confirms Szafer's doubts about its occurrence in Finland. The distribution in Esthonia has been given by F. J. Wiedeman and E. Weber (1852: 260): "*C. Oxyacantha* L. . . . In E.: Surrup (Törmer), Walküll! Ebbafer'scher Berg! . . ." while localities for Lithuania have been recorded by B. Hryniewiecki (1933: 214). The Lithuanian localities are a very important link between those of Latvia and Poland. Szafer (1923: 241) agrees with Wierdak (1920)² that *C. oxyacanthoides* extends eastwards as far as Poland. The opinion of both Polish scientists is supported by Pojarkova (1939: 437).

Batko (1933) worked up the distribution of *C. oxyacanthoides* in the district of Przemysl and Dobromil. It extends nearly to the town of Jaroslaw (Kidalowice Forest, I saw it, July 1939) in the Roztocze Hills (near to the villages of Mokrotyn, Batko, 1935) and Glińsko (I saw it, July 1939). The author has also seen at Roztocze both *C. curvisepala* Lindm. and *C. monogyne*. The stations of *C. oxyacanthoides* in Roztocze represent one of the most eastern extensions of its range. The details of the distribution of *C. oxyacanthoides* in Poland are still insufficiently known, while those of the U.S.S.R. Flora were recorded in 1939. From the U.S.S.R. Flora (Pojarkova, 1939: 437) we may conclude that *C. oxyacanthoides* has at present no authentic records from European Russia, the Crimea and the Caucasus, but there has been confusion here with other 2-3-stoned species from the groups *Ambiguae* and *Erianthae* and hybrids of *C. pentagyna* and *C. kyrtostyla* (usually from the European part of Russia)

²More recently new stations in Sandomierski Lowland and on the south-eastern edge of Malopolski Plateau were reported by Wierdak (1925).

This point of view, that *C. oxyacanthoides* only reaches as far East as Poland and the Baltic countries, is quite new. The south-eastern boundary of *C. oxyacanthoides* is less clear. It was recorded from India by J. D. Hooker (1879: 383) but the description of the leaves does not fit. None of the Kew specimens I have seen (1944) from the Orient (including India) labelled "*Crataegus oxyacantha*" is *C. oxyacanthoides*. It is hoped to give some further information about these specimens later. The only recent note concerned with the distribution of "*C. oxyacanthoides*" in Asia I have seen is by Bouloumoy (1930: 118): "*Crataegus Oxyacantha* L. . . . Vallées du Liban et de Antiliban et inté., Damas." Schneider (1906: 781) expressed the view that the occurrence of *C. oxyacanthoides* in Asia is very doubtful. If it grows there at all, it appears to be rare.

We can now understand why the general distribution of *C. oxyacanthoides* has often been reported insufficiently or even wrongly (e.g., Ascherson & Graebner, 1906; Hegi, 1923; Druce, 1932; Stoianoff & Stefanoff, 1925; etc.).

THE DISTRIBUTION OF *C. MONOGYNA* AND *C. OXYACANTHOIDES* IN THE BRITISH ISLES.

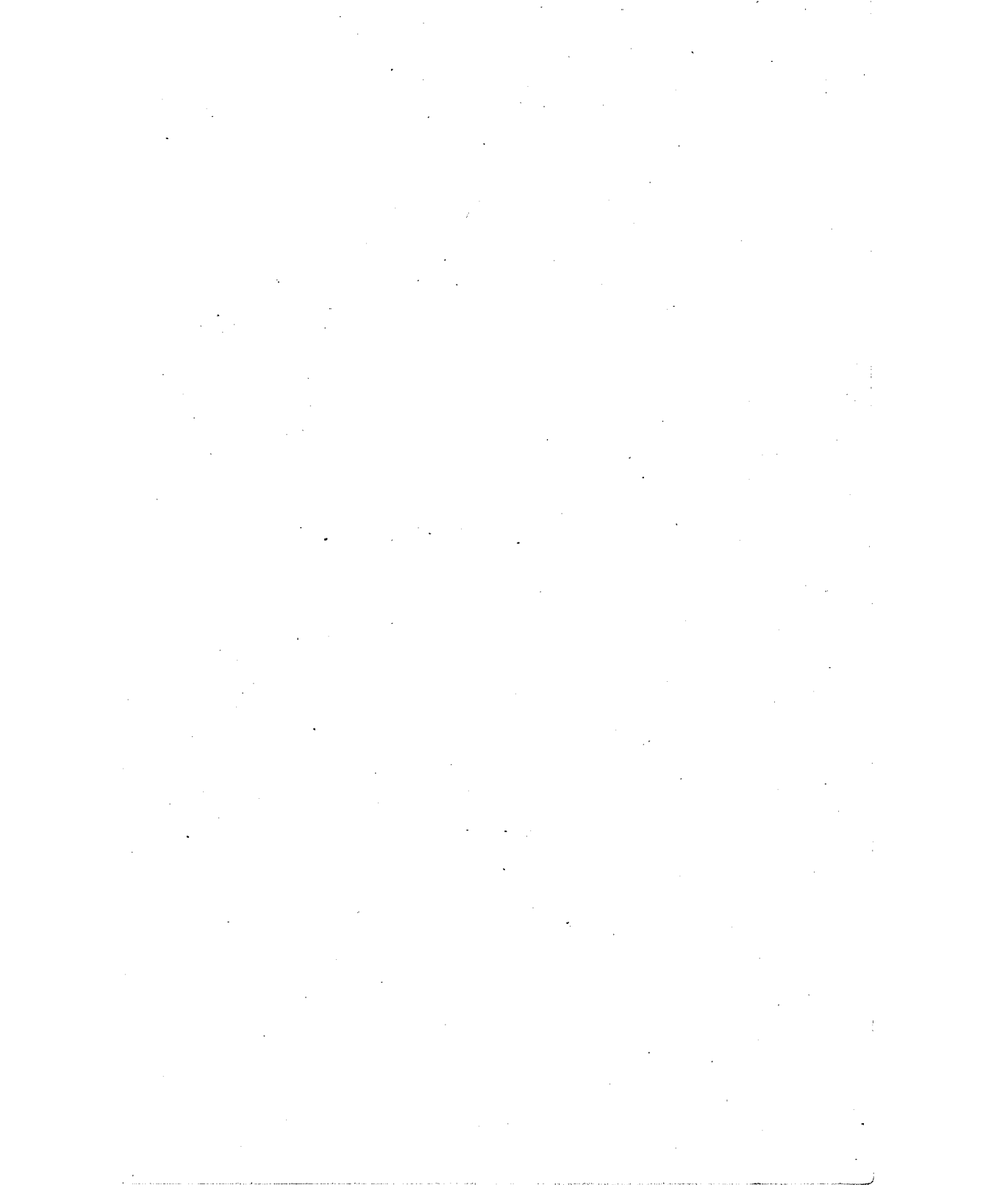
The distribution of Hawthorn has been summed up by Druce in the *Comital Flora* (1932: 112):

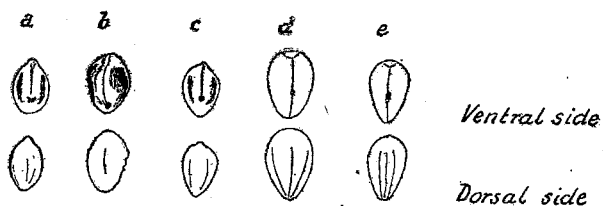
1—*C. monogyne* Jacq. Septal. British. Thickets, woods, hedges. Common and generally distributed. Small tree. Lowland to 1800 ft. in Yorks; 1700 ft. in Carnarvon; 1600 ft. in Tipperary. Very variable and hybridises with 2. . . . 112. H.40. S. Throughout the British Isles, but perhaps planted in 111 and 112.

2—*C. oxyacanthoides* Thuill. Septal. English. Hedges, chases, woodlands. Usually in damper places than *monogyne*, and more local. Small tree. Lowland. Variable. . . . 32. H?.

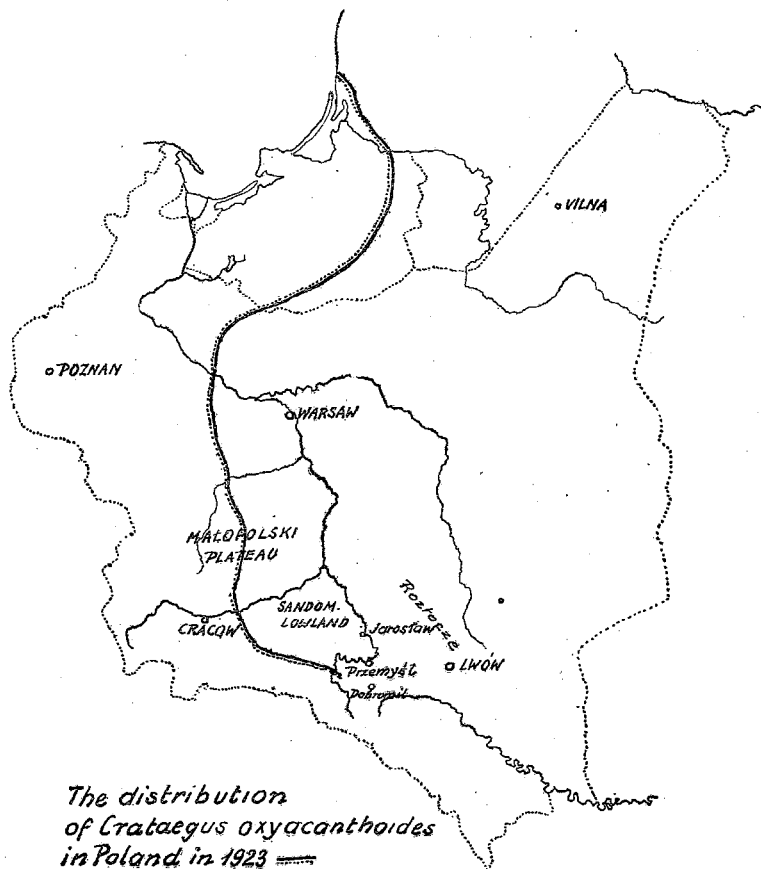
To the vice-counties there given the following should be added: 11 and 12 (*B.E.C. 1933 Rep.*, 561), 13 (Wolley-Dod 1937: *Flora of Sussex*, 176-7), 14 (*J.B.*, 1909, 24), 36 (*B.E.C. 1941-2 Rep.*, 488, 535), 41 (*B.E.C. 1933 Rep.*, 705), 44 (*B.E.C. 1912 Rep.*, 211), 50 (*J.B. 1911 Suppl.*, 21), 56 (*J.B.*, 1909, 136), 59 (*B.E.C. 1918 Rep.*, 379), 70 (*B.E.C. 1914 Rep.*, 143), 94 (*J.B.*, 1904, 17) [3 (Martin & Fraser 1939: *Fl. of Devon*), 96 (*J.B.*, 1904, 17)].

The distribution in Ireland has been recorded by R. L. Praeger (1934: 508). A very interesting report on the northern outpost of *C. oxyacanthoides* in the Outer Hebrides has been given by J. W. Heslop Harrison et al. (1939: 2)—"*Crataegus Oxyacantha* L. Almost certainly native on cliffs on the northern shores of Loch Boisdale." This identification has been confirmed by Prof. Harrison in a letter kindly sent to me. I myself saw *C. oxyacanthoides* in scrub near Killearn, West Stirlingshire, Scotland, either indigenous or introduced. *C. oxyacanthoides* had been reported many years ago by Stirling and Kid-





The structure of the stones of *Crataegus*:
a. monogyna, *b. oxyacanthica*, *c. curvisepala*
d. calycina, *e. microphylla*



The distribution
of *Crataegus oxyacanthoides*
in Poland in 1923
according to Szafer
adapted by S. Batko

ston (1891: 10)—“534a. *Crataegus Oxyacantha* L. var. *oxyacanthoides* Thuill. Distr. No. 3x.” But the indigeneity of that species was not discussed there.

In Tansley's standard work, *The British Islands and their Vegetation* (1939: 260), we find general notices on the distribution of Hawthorns. From this book we conclude that *C. oxyacanthoides* is nearly confined in England to the south-east, where it is quite local, while *C. monogyna* is by far the most abundant and widespread species of Hawthorn in Great Britain. *C. monogyna* is very rare in the north of Scotland, and there is much less of it even in southern Scotland than in England. Generally speaking, *C. oxyacanthoides* is rarer (even within its area of distribution) than *C. monogyna*.

I must add that it is difficult to assess accurately the distribution of Hawthorns in the British Isles because they are commonly planted as components of hedges.

THE DISTRIBUTION OF HAWTHORNS IN POLAND.

It is difficult to give an account of the distribution of *C. monogyna* and *C. oxyacanthoides* in Poland by references to the older Polish records and descriptions, because at that time the species were not properly distinguished. Since about 1920 much attention has been devoted to Hawthorns in Poland. Lindman's classification (1918) was widely adopted there. *C. monogyna* has been further split by Lindman into³:

1. *C. monogyna* Jacq. (sensu stricto). Leaves more or less cut, with more or less acute lobes, the margin usually entire or only with a few teeth at the tip of the lobes, with domatia in the axils of veins and, often, long petioles. Calyx with sepals 1-2 times as long as broad, usually obtuse and adpressed. Fruit (av. size: 9 mm. long, 7 mm. broad) with a stone having on the ventral side two longitudinal shallow furrows with blunt borders.⁴ This occurs commonly in the Polish Lowlands, rarely in the mountains.

2. *C. curvisepala* Lindm. Leaves distinctly serrate with narrower and acute lobes. Fruit large (av. 15 mm. by 10 mm.). Fruit with one stone. Stone large (9 mm. by 6 mm.) with furrows on the ventral side similar to those of *C. monogyna*, but with distinctly marked intervening ridge, longitudinally ribbed on the dorsal side. The ventral furrows of the stones are sometimes very shallow⁵ and then the stone resembles

³The following descriptions are according to Lindman, but adapted by Szafer, W. (1923).

⁴The stones of specimens collected by me in this country sometimes have slightly marked furrows.

⁵I have myself only to confirm Szafer's descriptions. I examined at Kew two stones of *C. curvisepala* from Switzerland (Gebüsch an der Wiese in den Langen Erien; coll. 19.9.1931 by Paul Aellen). On the ventral side they bear two longitudinal furrows (like those of *C. monogyna*), while two examined stones of *C. curvisepala* from Sweden (Uppland: Stockholm, Experimentalfältet; coll. 15.9.1927, by Erik Asplund) are almost smooth (without furrows) on the ventral side.

that of *C. calycina*. Sepals acute, several times as long as broad, adpressed or ascending. *C. curvisepala* seems to take the place of *C. monogyna* in the lower regions of the Carpathians, being rare in the Polish Lowlands.

3. *C. calycina* Peterm. em. Lindm. Leaves similar to those of *C. curvisepala* but bright green with thin blades. Fruit cylindrical (up to 15 mm. long and 10 mm. broad) with sepals erect and connivent. Fruit with one stone about 8 mm. by 4.5 mm. on the ventral side smooth (without furrows), longitudinally ribbed on the dorsal side.⁶ Common throughout the Polish Lowlands and in the lower regions of the Carpathians.

4. *C. lagenaria* Fisch. et Mey. Leaves with short crenate lobes. Calyx short, loosely erect with curved sepals. Fruit with one stone. Stones (according to Schneider) without distinct furrows. I examined two specimens of "*C. microphylla* Koch." (= *C. lagenaria* Fisch. et Mey.) in Herb. Kew. The first was collected in Azerbaidzhan (U.S.S.R.) "In sylvis ad pagum Rva distr. Lenkoran (Talysh. S.L.), 10.v.1915, leg. N. Pastuchov." The two stones had slight longitudinal ribs on the dorsal side, and on the ventral side the first was entirely smooth, the second almost so. The second specimen was collected by Cowan and Darlington in N. Persia, Ghazagheli, Aotara Pass, 15.vi.29. One stone was smooth on both sides. General distribution: Sweden (according to Lindman), European part of Russia, Crimea, Caucasus, Balkan Peninsula, Turkey (Lazistan), Iran (Pojarkova, 1939: 461). The distribution in Poland (according to Szafer) is still uncertain.

The group including *C. oxyacanthoides* Thuill. has been divided by Lindman into two species:

1. *C. oxyacanthoides* Thuill. (his *C. oxyacantha* L. em. Jacq. sensu stricto). Shrub 2-4 m. high. Leaves without domatia, glossy, 2.5-4 cm. long. Fruit 7-12 mm. long. Sepals as long as broad, adpressed. Fruit with two stones (rarely less or more). Stone on the ventral side with two longitudinal deep furrows bordered with sharp ridges.

2. *C. Palmstruchii* Lindm. Usually taller. Leaves larger, 3-5 (-7) cm. long, with domatia. Fruits larger 10-12 (-15) mm. long. Sepals twice as long as broad, spreading-ascending. Stones (according to my observations) larger than those of *C. oxyacanthoides* with the same structure as those of the preceding species. Grows in Sweden equally well wild or cultivated (according to Lindman). It was recorded from Poland (S. Batko, 1935B), from Esthonia (Lippmaa, 1935), and from Denmark (Raunkiaer, C., 1934), there with hairy ovaries. The writer's specimen from Ruislip has glabrous calyx-tubes.

It should be emphasised that Lindman's species have been successfully identified not only in Poland but in Czecho-Slovakia (Domin & Podpera,

⁶The structure of the stones of *C. calycina* seems similar to that of *C. microphylla* Koch and *C. pinnatifida* Lange (Schneider, 1906: 785-86). *C. calycina* was even allocated to the group 7. *Microphyllae* A. Pojarkova (1939: 458).

1928: 315), Denmark (Raunkiaer, 1934), Latvia (Starcs, 1925: 226), Esthonia (e.g., Lippmaa, 1931), Finland (e.g., Lindberg, 1906; Cederkreutz, 1927; Eklund, 1934).

Pojarkova (1933: 450) puts *C. curvisepala* Lindm. as a synonym of *C. kyrtostyla* Fingerh. (if it is correctly interpreted?). The distribution of the latter is as follows: Upper Dnieper district, Middle Dnieper distr., Wolga-Don distr., Lower Don distr., Czernichów distr., Upper Crimea, Caucasus. General distribution of *C. kyrtostyla* (according to the U.S.S.R. Flora) is as follows: Central Europe, southern Scandinavia, southern Balkan Peninsula and Asia Minor.

Hegi assumed (1923: 739) that Lindman's species in many instances should be regarded as an occasional segregation of hybrids frequently occurring in this genus; this assumption, however, proved to be ill founded.

II. ORIGINAL INVESTIGATIONS.

A. INTRODUCTION.

Special attention has been paid to the size of the fruits, since I regard them, with Lindman and Szafer, as an important feature for distinguishing the species and forms. The material on which the present study is based consists of the following: (1) specimens collected by myself in the London area (the Thames riverside between Richmond and Twickenham, Ruislip Common, Ruislip Lido Common, Wimbledon Common, Petersham Road); (2) hawthorns kindly sent me by Mrs B. C. Mitchell of Killearn, Stirlingshire; (3) specimens sent me by Lieut. A. Środoń from Northumberland and Stanford Le Hope, Essex; (4) material from the following Herbaria: (a) Royal Bot. Gard. Kew; (b) British Museum (Nat. Hist.); (c) G. C. Druce's Herbarium at Oxford.

As far as I am aware, no paper dealing with the fruits of Hawthorns has appeared in this country. J. W. White (1912: 300) gives a short reference to the size of the fruits of *C. monogyna* var. *splendens* Druce: "A most handsome form, with the fruit about four times heavier than that of the type. Six ripe fruits weighed seven grammes, while six ordinary haws of average size were under two grammes. The measured dimensions averaged 15 mm. by 12 mm., against 9 by 8 in type *monogyna*." Druce's varieties and forms are mainly based on the shape of the leaves. He distinguished according to the fruits the following varieties: (1) *C. monogyna* [var.] *splendens* (Druce) Druce (1928: 42), previously described by Druce (1906: 29-30) as *C. Oxyacantha* var. *splendens*. "Distinguished from *C. oxyacantha* by the much larger fruit, and by the more wedge-shaped leaves, which are of a pale yellowish

¹In Denmark the genus *Crataegus* has been carefully investigated by C. Raunkiaer (1934). He described the following new species: *C. Schumacheri*, *C. eremitagensis*, *C. raavadensts*, but nothing is yet known about these species in this country.

green. It is a one-styled plant, showing no evidence of the presence of *C. oxyacanthoides*, and therefore cannot be referred to *C. oxyacanthoides* var. *macrocarpa*, Heg. . . . The fruit is twice the size of the normal Hawthorn," . . . This proportion is not quite accurate, as will be shown later. (2) *C. monogyna* [var.] *subcristata* Druce (1928: 42) originally described (1916: 196) as: *C. Oxyacantha* L., vel. *C. monogyna* Jacq., var. vel forma *subcristata*. "Differs from the type by its small 8-10 × 5 mm. narrow one-styled fruit, in which the calyx lobes, instead of being recurved more or less, and closely applied to the fruit, are spreading or erect. The leaves are mostly trilobed," . . . Related to this variety is: "*C. monogyna* Jacq., var. *urceolata* Hobkirk, in *Nat.*, 3, 19, 1867. Fruit twice as long as broad, leaves deeply divided and not so generally serrated as type. Thirsk, York, J. G. Baker" (*B.E.C. 1915 Rep.*, 197). An interesting note on *C. monogyna* Jacq. var. vel monstr. is given in the *B.E.C. 1931 Rep.*, 556: "In this instance the well-formed haws retain their petals permanently until the fruits begin to change colour, so at a short distance it suggests that the plant is flowering. Torberry Hill, South Harting, W. Sussex, July 1931, E. B. Bishop and W. Biddiscombe. A most interesting state."

Syme (1864: 237) says that the fruit of *C. monogyna* is smaller than that of *C. oxyacanthoides*, which Tansley (1939: 260) repeats. No special attention is paid to the size of the fruits in the various editions of Babington's *Manual*, Bentham & Hooker's *Handbook*, or Hayward's *Botanists' Pocket-Book*.

Only a general report on the size of the fruits was given by Hegi. He says (1923: 732, 735) that the fruit of *C. monogyna* Jacq. is 7-10 mm. long, while that of *C. oxyacanthoides* is up to 12 mm. long. The size of the fruits was inadequately treated by Ascherson and Graebner (1906). Pojarkova (1939: 437, 454) generally assumes that the fruit length of *C. oxyacanthoides* is up to 12 mm., but that of *C. monogyna* is not recorded there. It should be added that Szafer (1923: 237-8) described a new form of *C. monogyna* found in Poland which had large fruits (13 × 9 mm.) and typical leaves and called it f. *macrocarpa*, which seems to be related to Druce's var. *splendens*. So far as I am aware, the variability of the fruits of *Crataegus* spp. in Poland has not yet been fully noted. The fresh Hawthorn material collected by myself and that kindly sent me proved more valuable than the dried specimens in Herbaria, because the berries had not shrunk through drying. Measurements have been mainly based on material of this sort. The material of *C. monogyna* collected by myself or sent to me by correspondents came from 419 shrubs and that of *C. oxyacanthoides* from 91 shrubs. Owing to war-time restrictions the facilities for field work were somewhat limited, and this investigation should not be regarded as exhaustive.

B. BIOMETRICAL ANALYSIS OF CRATAEGUS MONOGYNA.

The means of length and breadth of fruits of *C. monogyna* have been based on 419 specimens. From 362 shrubs only one fruit from each was

examined. Special care was taken that the fruit selected should represent the average size for the twig collected from each shrub (as far as this was possible by visual observation). From 57 shrubs a larger number of fruits was taken (up to about 100 from each specimen). To some of these 57 specimens more attention was paid because their fruits were of unusual size or shape from the average size or having different proportions of length to breadth. Several biometrical constants such as the mean, the standard deviation, the coefficient of variation, their standard errors and the correlation coefficient of length to breadth of fruits for the 419 specimens have been specially calculated. The results are given in the table below.

Crataegus monogyna Jacq.

Length of Fruits.			Correlation coefficient	Breadth of Fruits.		
Mean	Standard	Coefficient	of	Mean	Standard	Coefficient
mm.	deviation	of variabil.	length to	mm.	deviation	of variabil.
	mm.	%	breadth.		mm.	%
8.7±0.21	4.38±0.15	50.07±2.11	+0.42	7.5±0.22	4.47±0.15	59.29±2.65

The average values of the means of the fruits are as follows: For length of fruits, lm. = 8.7 mm. (say 9.0 mm.); for breadth of fruits, bm. = 7.5 mm. (say 7.0 mm.). It should be emphasised that the mean of length and breadth of fruits in this country agrees with that for Polish *C. monogyna* (Szafer, 1923: 237), i.e. 9 × 7 mm.

Average length of fruits, mm.	Number of fruits (class of frequency).	% of frequency.	Average breadth of fruits, mm.	Number of fruits (class of frequency).	% of frequency.
6	9	2.1	5	9	2.1
7	39	9.3	6	53	12.6
8	131	31.2	7	139	33.2
9	150	35.8	8	138	32.9
10	62	14.8	9	70	16.7
11	18	4.3	10	9	2.1
12	8	1.9	11	1	0.2
13	2	0.5			
Total	419	99.9	Total	419	99.8

The data for the frequency curves of the variation in size are also shown. In the Hawthorn material three types of specimens have been distinguished: (1) With small fruits; (2) with typical mean; (3) with large fruits. All intermediates between these groups have been met with.

The colour of the fruits of *C. monogyna* is very variable also; they may be: bright coral red, coral red, dark coral red, cherry red, dark cherry red, while sometimes berries are almost black (especially during late autumn). The dark colours generally predominate. Attention has also been paid to the sepals. The sepals in the majority of specimens are obtuse, but the proportion of length to breadth varies. They may

be: 1:1, 1.5:1, 2:1. Elongate and acute sepals several times as long as broad are only rarely to be met, for example in *C. monogyna* var. *pteridifolia* Loud. The sepals in the majority of specimens are adpressed, but sometimes they may be partly adpressed, partly ascending and divergent (not convergent like those of *C. calycina*). Fruits are, as a rule, one-stoned; occasionally two-stoned. While the ripe fruits are generally glabrous some specimens have hairy fruits. The stones of one-stoned fruit are furnished on the ventral side with two longitudinal shallow furrows, which are sometimes slight. The presence of an inner friable layer of fruit pulp in *C. monogyna* has been pointed out by Ascherson et Graebner (1906: 27). This layer, however, was not always equally developed in the fruits examined, sometimes it was quite distinct, sometimes less so.

Leaves. Less attention was paid to the leaves, but the following observations may be useful. The leaves examined usually have more or less cuneate bases. The margin is generally entire or slightly toothed; the lobes are obtuse, rarely acute. These characteristics are similar to those of the leaves examined by Lindman and Szafer. Sometimes leaves are deeply cut (forma *fissa* Poir. = f. *laciniata* Stev. = "f. *pinnatifida*" Lindm. = *C. laciniata* Lodd. *Cat.*). The leaves on "Lammas shoots" and suckers, however, are more variable. On two specimens of *C. pteridifolia* Lodd. (*Cat.*) = *C. monogyna* var. *pteridifolia* Loud. (Druce: 1928) investigated the leaves were similar to those of *C. monogyna* var. *laciniata*. The author has not found this in Poland. Occasionally leaves are found which resemble those of *C. lagenaria* Fisch. & Mey. Moreover, the petioles of some specimens are very long (about to 4 cm. l.). [The length of petiole of *C. monogyna* is given by Ascherson & Graebner (1906: 27) only about 1-2 cm.]

BRIEF DESCRIPTION OF THE SPECIMENS OF *C. MONOGYNA* USED IN THE ANALYSIS.

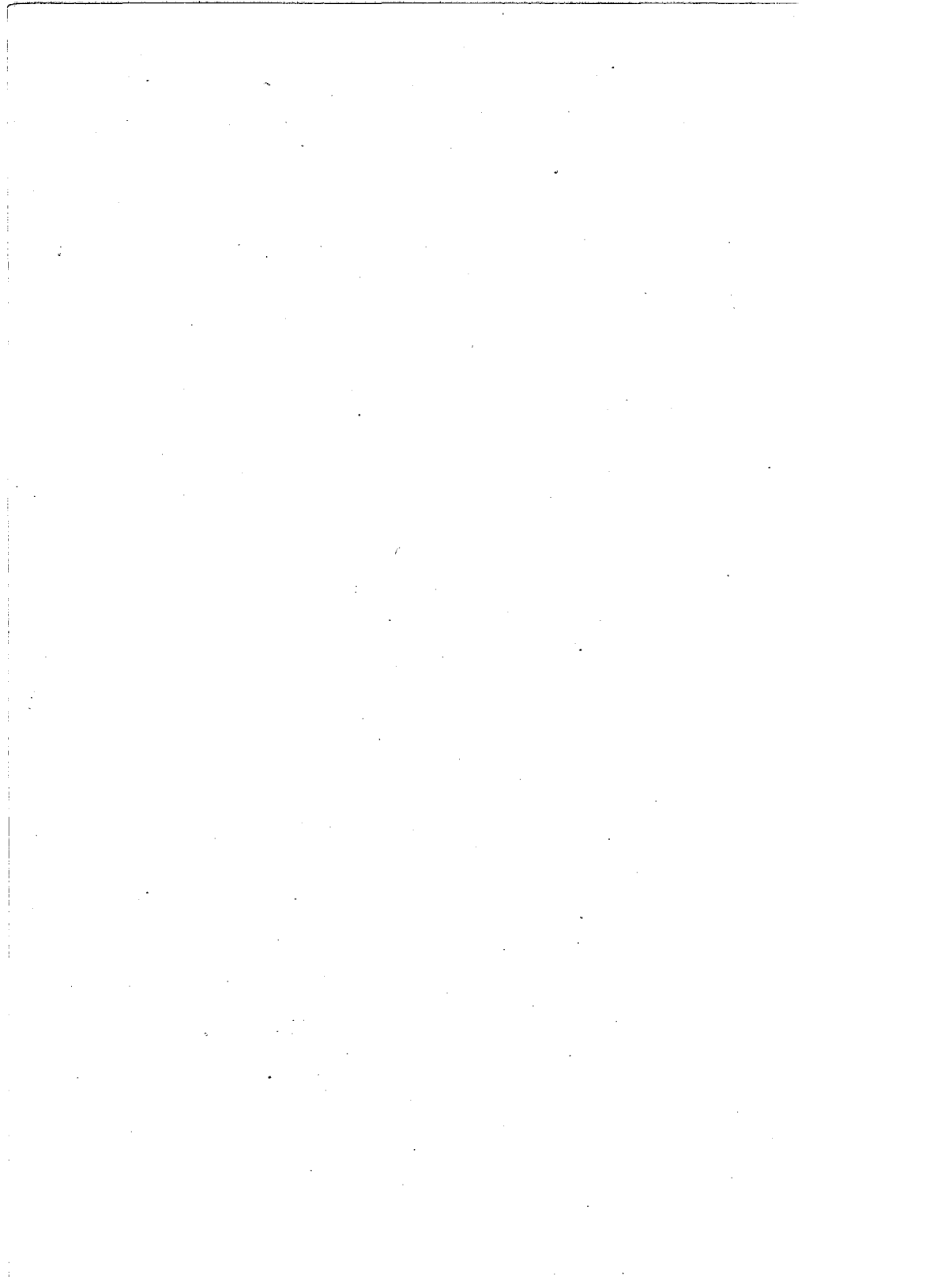
1. A specimen from the Thames riverside between Richmond and Twickenham. This had small cherry-red berries. Mean length of fruits 6 mm., mean breadth 6 mm. Sepals short, adpressed. Stones small, about 4 × 3 mm. Leaves typical, rather small. Further specimens of *C. monogyna* with small fruits and intermediate were also noted: between Richmond and Kingston (Petersham Road), on Wimbledon Common, on the Chiltern Hills, and in Bricket Wood (Herts.). Here it should be stated that the writer saw in the Kew Herbarium a number of specimens of *Crataegus* spp. (from Dalmatia and Hercegovina) with small fruits, which should be referred either to *C. Inzengae* (Tin.) Bertol. or to *C. transalpina* Kern. ex Hayek, both of which are related to *C. monogyna*.

2. A specimen from the Thames riverside between Richmond and Twickenham with fruits of intermediate size. Mean length of fruits 7 mm., mean breadth 6 mm. Fruits dark cherry-red with sepals ascending or spreading. Stones about 5 × 3 mm. Leaves typical.

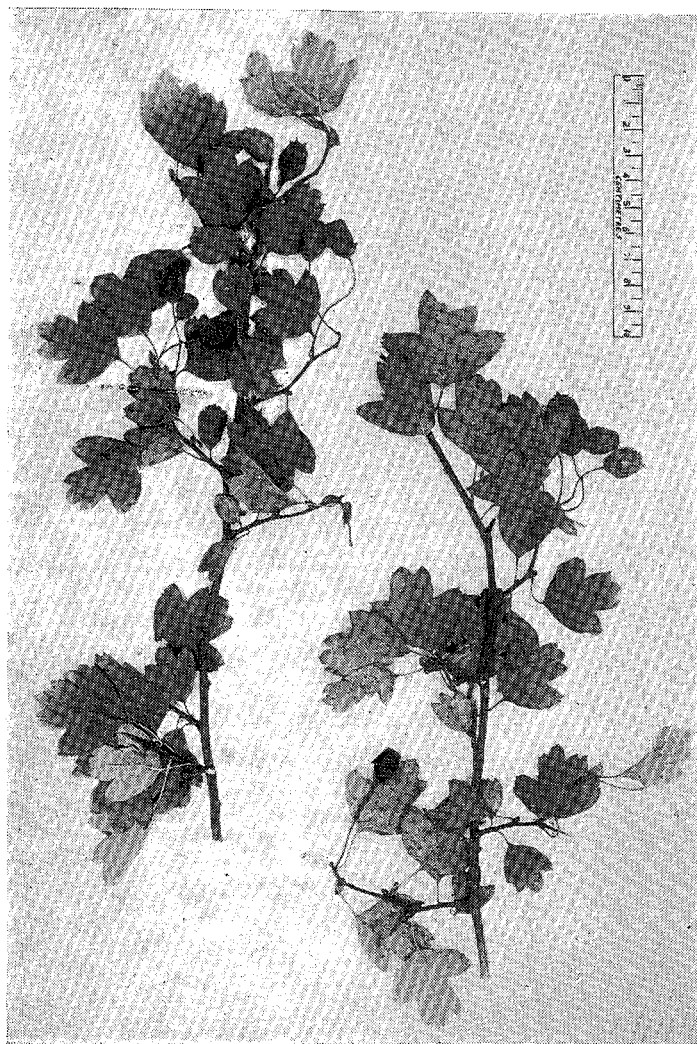


Crataegus monogyna Jacq. with small fruits (1). Thames
riverside between Richmond and Twickenham.
Coll. S. Batko, 21/x/42.

From the Trower Fund.







Crataegus monogyna Jacq. var. *splendens* Druce (5). Scrub near Ruislip
Common. Coll. S. Batko, 9/x/42.

From the Trower Fund.

3. A typical specimen of *C. monogyna* from Wimbledon Common. Fruits cherry red. Sepals short, adpressed. Mean length of fruits 9 mm., mean breadth 7 mm. Stones about 6×4 mm. Leaves typical.

The writer saw in the Kew Herbarium specimens of *C. monogyna* with typical fruits from the continent also, e.g., one specimen was labelled "C. K. Schneider, Iter balcanicum 1907, No. 210, 13 Jan. 1908. *Crataegus monogyna* typica. Bulgaria prope Varna in collinis versus Francka $\bar{\zeta}$, ad 1 m., 20.v., leg. Schneider." Four dried fruits were measured. The approximate dimensions are as follows: 9×6 , 9×7 , 9×6 , 8×7 mm. Another specimen was labelled "Cyprus, No. 542. *Crataegus monogyna* Jacq. Plátres, 23.10.37, 3500 feet. Erw. Kennedy. On steep dry mountainside among bushes of garigue." The approximate dimensions of six dried fruits are as follows: 9×7 , 8×8 , 8×7 , 8×7 , 9×7 , 8×8 mm.

4. A specimen of *C. monogyna* intermediate between the typical plant and var. *splendens*. Fruit cherry red. Mean length 11 mm., mean breadth 9 mm. Sepals acute, ascending, rarely adpressed or spreading. The friable layer of fruit pulp weakly developed. Leaves typical. Locality: Thames riverside between Richmond and Kew.

5. *C. monogyna* var. *splendens* Druce. Fruits cherry red, large. Mean length 13 mm., mean breadth 9 mm. Bushes near Ruislip Common. This is an interesting variety described by Druce, who says: "The fruit is twice the size of the normal." According to my observation, this proportion is excessive. [Not by surface or volume.—Ed.] The largest fruits of this variety which I have seen are: 15×10 mm., 14×11 mm., while the normal size of fruits of typical *C. monogyna* is 9×7 mm.

C. E. Salmon (1931: 307) says of the fruits of var. *splendens*: . . . "The haws on the various bushes examined averaged as follows: Pilgrims' Way, 14 mm. \times 12 ; Walton Heath, $12 \times 10\frac{1}{2}$; Buckland Hill, 12×10 ; Colley Lane and Betchworth, 11×10 . Anything smaller than the last cannot, I think, be admitted as *splendens*."

This variety is well represented both in Druce's Herbarium and in the British Museum herbarium. It is related to *C. monogyna* f. *macrocarpa* Szafer. Szafer's specimens have large fruits, 13×9 mm. (stones 9×5 mm.). Leaves typical. Szafer's form has been found in Switzerland also, see one specimen in the Kew Herbarium labelled "Flora von Baselland. *Crataegus monogyna* Jacq. var. *macrocarpa* Szaf. Gebüsch am Birsig bei Binningen, 9.9.1931. Paul Aellen." In the Kew Herbarium there is also a specimen from Afghanistan labelled: "Kurum Valley Plants, 1879. *Crataegus Oxyacantha* L. With very large fruit; may be a variety. A common shrub at 8000 feet round Shálizán; usually forms a good tree in the Hariáb district." There is on the same sheet the second label also: "*Crataegus Oxyacantha* L. var. Kurum Valley, Afghanistan, 1879. Coll. and comm. Dr J. E. T. Aitchison, Dec. 1879." The specimen is, in fact, *C. monogyna* f. *macrocarpa* Szafer.

6. *C. monogyna* var. *pteridifolia* Loud. Fruits large, coral red. Mean length 12 mm., mean breadth 9 mm. Sepals narrow, several times as long as broad, partly adpressed, partly ascending. Leaves rather large, pinnate, with long petioles (up to 3.5 cm.). One small tree on the Thames riverside between Richmond and Kew; coll. S. Batko, 22.x.1942. There are also in Kew Herbarium fruiting twigs of the same tree collected much earlier by J. Fraser: (1) 30th May, (2) 3rd October 1928. The writer also saw one specimen belonging to this form on the Thames riverside between Richmond and Twickenham. Mean length of fruits 12 mm., mean breadth 10 mm. Leaves and sepals like those of the first specimen. This form is also represented in Druce's Herbarium. The distribution of *C. m. pteridifolia* in this country and the general distribution are not quite clear. Loudon (1839: 831) says: "There are only small plants of this very elegant and interesting variety in the Fulham Nursery, at Messrs Loddiges, and in one or two other collections." K. Koch (1862: 407) reported it in a part of Yugo-Slavia (Montenegro) and in the Botanic Garden at Petersburg (Leningrad). Ascherson et Graebner (1906: 30) say only: "Der Abart *fissa* ähnliche Formen sind: *C. Oxyacantha pteridifolia*, . . . ect. der gärten.—*Mesp. monog. . . . pteridifolia* K. Koch a.a.O. (1869)." No description of the fruits has been found. Hence it is clear that the distribution needs further study.

The following tables give the results of an analysis of the variability in size of the fruits of *C. monogyna* based on the above six plants selected to cover the extreme ranges.

No.	Name of specimen.	Class of Length Limits (mm.) and Number of Fruits.											
		4.5-5.5	5.5-6.5	6.5-7.5	7.5-8.5	8.5-9.5	9.5-10.5	10.5-11.5	11.5-12.5	12.5-13.5	13.5-14.5	14.5-15.5	Total.
1.	<i>Crat. monog.</i> , with small fr., Rich., Twick.	1	20	4	—	—	—	—	—	—	—	—	25
2.	<i>Crat. monog.</i> , intermediate, Rich., Twick.	—	1	12	12	—	—	—	—	—	—	—	25
3.	<i>Crat. monog.</i> , typical, Wimbl. Comm.	—	—	—	6	17	2	—	—	—	—	—	25
4.	<i>Crat. monog.</i> , intermediate, Rich., Kew.	—	—	—	—	2	6	8	8	1	—	—	25
5.	<i>Crat. monog.</i> , <i>splendens</i> , Ruislip.	—	—	—	—	1	—	—	3	11	9	1	25
6.	<i>Crat. monog.</i> , <i>pteridifolia</i> , Rich., Twick.	—	—	—	—	—	—	3	17	5	—	—	25

No.	Name of specimen.	Class of Breadth Limits (mm.) and Number of Fruits.							Total.
		4.5-5.5	5.5-6.5	6.5-7.5	7.5-8.5	8.5-9.5	9.5-10.5	10.5-11.5	
1.	<i>Crat. monog.</i> , with small fr., Rich., Twick.	3	22	—	—	—	—	—	25
2.	<i>Crat. monog.</i> , intermediate, Rich., Twick.	—	12	13	—	—	—	—	25
3.	<i>Crat. monog.</i> , typical, Wimbl. Comm.	—	3	20	2	—	—	—	25
4.	<i>Crat. monog.</i> , intermediate, Rich., Kew.	—	—	—	2	18	5	—	25
5.	<i>Crat. monog.</i> , <i>splendens</i> , Ruislip.	—	—	—	3	13	8	1	25
6.	<i>Crat. monog.</i> , <i>pteridifolia</i> , Rich., Twick.	—	—	—	—	6	19	—	25

Three further specimens of special interest should be referred to here although their fruits were not made use of in constructing the curves of variability.

(a) *C. monogyna* with fruits broader than long. Mean breadth 10 mm., mean length 9 mm. (this mean based on 25 fruits). Some of the sepals short, adpressed, others ascending and others curved-ascending. Fruit colour dark cherry red. Stones 6 × 4 mm. Leaves typical. Thames riverside between Richmond and Twickenham.

(b) *C. monogyna* var. *urceolata* Hobkirk. Fruits narrow, cylindrical. Mean length 12 mm., mean breadth 7 mm. (this mean based on 10 fruits). Leaves mostly trilobed. Stones 7 × 4 mm., flattened. In scrub near Ruislip.

(c) *C. monogyna* var. *sibirica* Loud. Two specimens labelled with this name were found in Kew Gardens. The shape of the leaves, the structure of the stones (smooth or almost smooth on the ventral side), and the fruits with sepals ascending, relate them to *C. microphylla* Koch. (*C. lagenaria* Fisch. & Mey., *C. pinnatiloba* Lange) from the Caucasus. Loudon (1839: 830) reports it as "a native of Siberia," but according to the latest treatment of *Crataegus* (Pojarkova, 1939) true *C. monogyna* does not grow in Siberia. [But in former times the term Siberia included parts of south-east European Russia.—Ed.] K. Koch (1862: 407) regards *C. sibirica* Lodd. as synonymous with "*Mespilus monogyna* All. *dissecta* Dum. and says: "Eine nur in Transkaukasien und Persien, aber auch, wie es scheint, am Altai vorkommende Abart."

No mention of this interesting Hawthorn was given by Schneider (1906). Its exact relation to *C. microphylla* is not altogether clear and requires fuller study.

C. BIOMETRICAL ANALYSIS OF *C. OXYACANTHOIDES*.

The mean length and breadth of the fruits is here based on 92 specimens. From 31 specimens only one fruit was examined. Special care was taken to ensure that this fruit should represent the mean size for the twig collected from each shrub. From 61 shrubs more fruits were examined (up to about 100). The means of these 61 shrubs have been included in the general number of 92 specimens whose mean is given below.

Average length of fruits, mm.	Number of fruits (class of frequency).	% of frequency.	Average breadth of fruits, mm.	Number of fruits (class of frequency).	% of frequency.
6	1	1.1	6	1	1
7	3	3.2	7	4	4.3
8	25	27.1	8	27	29.3
9	33	35.8	9	40	43.4
10	20	21.7	10	17	18.4
11	6	6.5	11	3	3.3
12	2	2.1			
13	2	2.1			
Total	92	99.6	Total	92	99.6

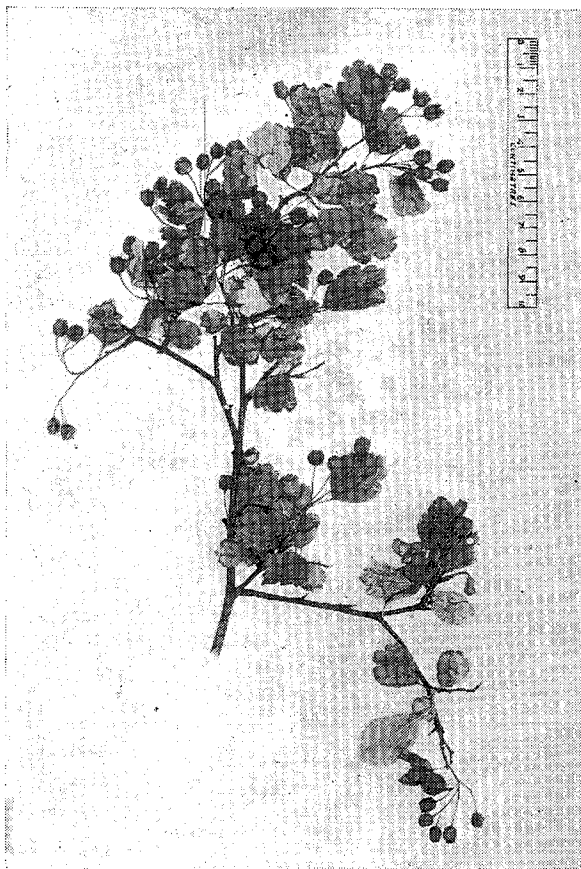
The average values of the means of the fruits are as follows: For length of fruits $lm. = 9.1$ mm. (say 9.0 mm.), for breadth of fruits $bm. = 8.8$ mm. (say 9.0 mm.). So the shape of the fruits is almost globular. The data for the frequency curves for the variation in size of the fruits are also shown. The same biometrical constants as given for *C. monogyna* have been calculated and the results are given below.

Crataegus oxyacanthoides.

Mean mm.	Length of Fruits.		Correlation coefficient of length to breadth.	Mean mm.	Breadth of Fruits.	
	Standard deviation mm.	Coefficient of variability %			Standard deviation mm.	Coefficient of variability %
9.1±0.32	3.04±0.22	33.3±2.7	+0.82	8.8±0.25	2.37±0.17	26.84±2.11

As with *C. monogyna*, the following different types were represented among the material: (A) shrub with small fruits; (B) shrub with typical fruits; (C) shrub with large fruits; and (D) shrubs with intermediate fruits between A and B and B and C, and the following tables represent an analysis of the fruit size of *C. oxyacanthoides* and *C. Palmstruchii*.





Crataegus oxyacanthoides Thuill. with small fruits (1). Ruislip.
Coll. S. Batko, 9/x/42.

From the Trower Fund.

No.	Name of specimen.	Class of Length Limits (mm.) and Number of Fruits.											
		4.5-5.5	5.5-6.5	6.5-7.5	7.5-8.5	8.5-9.5	9.5-10.5	10.5-11.5	11.5-12.5	12.5-13.5	13.5-14.5	14.5-15.5	Total.
1.	<i>Crat. oxyac.</i> , with small fr., Ruislip.	2	21	2	1	1	1	1	1	1	1	1	25
2.	<i>Crat. oxyac.</i> , intermediate, Rich., Twick.	—	6	11	8	—	—	—	—	—	—	—	25
3.	<i>Crat. oxyac.</i> , typical, Ruislip.	—	—	—	—	5	18	2	—	—	—	—	25
4.	<i>Crat. oxyac.</i> , intermediate, Ruislip.	—	—	—	—	—	—	1	8	16	—	—	25
5.	<i>Crat. oxyac.</i> , intermediate, Ruislip.	—	—	—	—	1	—	9	12	3	—	—	25
6.	<i>Crat. Palm- struchii</i> , Ruislip.	—	—	—	—	—	—	—	3	10	10	2	25

No.	Name of specimen.	Class of Breadth Limits (mm.) and Number of Fruits.											
		4.5-5.5	5.5-6.5	6.5-7.5	7.5-8.5	8.5-9.5	9.5-10.5	10.5-11.5	11.5-12.5	12.5-13.5	Total.		
1.	<i>Crat. oxyac.</i> , with small fr., Ruislip.	11	13	1	—	—	—	—	—	—	—	—	25
2.	<i>Crat. oxyac.</i> , intermediate, Rich., Twick.	—	—	6	19	—	—	—	—	—	—	—	25
3.	<i>Crat. oxyac.</i> , typical, Ruislip.	—	—	—	—	9	12	4	—	—	—	—	25
4.	<i>Crat. oxyac.</i> , intermediate, Ruislip.	—	—	—	—	5	4	15	1	—	—	—	25
5.	<i>Crat. oxyac.</i> , intermediate, Ruislip.	—	—	—	1	4	11	7	2	—	—	—	25
6.	<i>Crat. Palm- struchii</i> , Ruislip.	—	—	—	—	—	3	8	11	3	—	—	25

FURTHER DETAILS REGARDING THESE SPECIMENS.

1. *C. oxyacanthoides* with small fruits. One shrub. Mean length of fruits 6 mm., mean breadth 6 mm. Stones about 5 × 4 mm. Leaves small, about 2.5 × 2 cm. Locality: London area, near to Ruislip Common. [Another specimen with small fruits was seen in the Druce Herbarium labelled: "Ryarsh Wood, West Kent, August 24, 1930.—J. E. Lousley." Fruits small, about 6 × 6 mm. Leaves rather small: a

duplicate from the same bush is in the Kew Herbarium. There is also a third small fruited specimen of *C. oxyacanthoides* in Kew Herb. labelled: "Ex Herb. C. E. Britton. In hedge between Lower Morden and North Cheam, Surrey. Coll. C.E.B., 1.ix.1907." Leaves and fruits are small.]

2. *C. oxyacanthoides* intermediate specimen. Mean length of fruits 7 mm., mean breadth 8 mm. Stones 5×4 mm. Leaves rather small. Locality: Thames riverside between Richmond and Twickenham.

3. *C. oxyacanthoides* almost typical specimen. Mean length of fruits 10 mm., mean breadth 10 mm. Stones about 7×5 mm. Sepals twice as long as broad, often ascending. Locality: near Ruislip Common.

4. *C. oxyacanthoides* intermediate. Fruits coral red, large. Mean length 13 mm., mean breadth 10 mm. Stones about 8×5 mm. Leaves rather small, about 2.5×2 cm. The fruits of this specimen are almost as large as those of *C. Palmstruchii*. The leaves are, however, much smaller. Locality: near Ruislip Common.

5. *C. oxyacanthoides* intermediate. Fruits large, dark coral red. Mean length 12 mm., mean breadth 10 mm. Leaves rather small, about 2.5×2.5 cm. Locality: near Ruislip Common.

6. *C. Palmstruchii* Lindm. Fruits coral red, very large. Mean length of 100 fruits 12.88 mm. (say 13 mm.), mean breadth 11.03 mm. (say 11 mm.). Stones about 9×7 mm. with structure very like those of *C. oxyacanthoides*. Leaves as typical in *C. oxyacanthoides*, but larger (av. 4.5×3 cm.), and feebly lobed. This specimen, distinguished by its very large fruits and large leaves, proved to be *C. Palmstruchii* Lindman (1918.) Not previously recorded from the British Isles. One shrub about 4 m. high. Locality: rough ground in Park Avenue, Ruislip.⁸ There are in the Druce Herbarium (Oxford) several specimens with large leaves but without fruits resembling this Hawthorn. Its distribution in Europe (already given) has been only partially investigated.

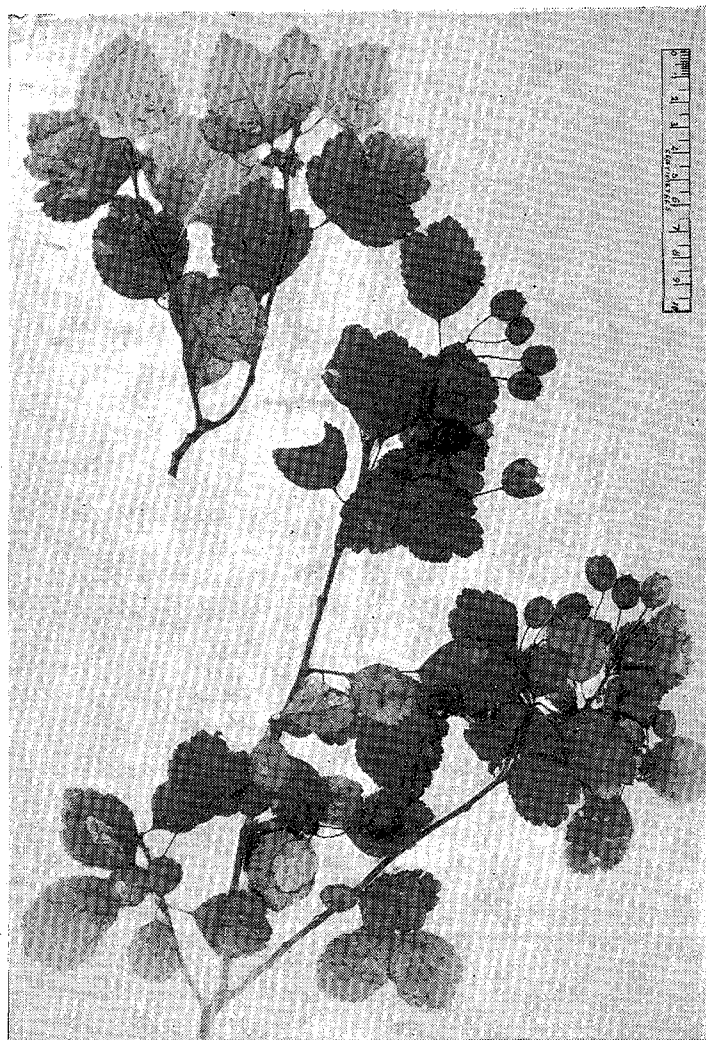
The following biometrical constants have been calculated:—

Crataegus Palmstruchii.

Mean mm.	Length of Fruits.		Correlation coefficient of length to breadth.	Mean mm.	Breadth of Fruits.	
	Standard deviation mm.	Coefficient of variabil. %			Standard deviation mm.	Coefficient of variabil. %
12.88±0.25	2.52±0.18	19.56±1.43	+0.71	11.03±0.23	2.33±0.16	21.12±1.56

Leaves of *C. oxyacanthoides* are, generally speaking, much less variable in shape than those of *C. monogyna*. The general shape is obovate, mostly 3-lobed with crenate margin. There is, however, not always a

⁸The writer has seen two other specimens related to *C. Palmstruchii*. The first is in the Royal Bot. Gardens, Kew, labelled: *C. oxyacanthoides*. The second is at Killlearn (Stirlingshire) in the garden of Mrs B. C. Mitchell, possibly planted.



Crataegus Palmstruchtii Lindm. Rough ground in Park Avenue, Ruislip.
Coll. S. Batko, 18/ix/42.

From the Trower Fund.

deeply lobed to the middle of the blade. Berries very large up to 1.2 cm. long and up to 8 mm. broad, with 5 swellings at the base." It is not clear why Hegi says "small" because in Hegetschweiler's original description the height is given as 15-20' [1'=1 foot], i.e. higher than that of *C. monogyna* (6-15') and that of *C. oxyacanthoides* (10-15'). It grows, according to Hegi, at high altitudes in the Alps. Hegi (1923: 733) says that according to R. Buser it is a distinct species, while according to O. Buser and Brügger it is a hybrid between *C. monogyna* and *C. oxyacanthoides*. Evidently the taxonomic status of *C. macrocarpa* is still not clear, nor is its distribution yet accurately known. Apart from Switzerland, it occurs (Buser, 1897: 14) in Voralberg, leg. Zollikofer, probably in district Spa and in Thüringia. It has been recorded by Druce (1915: 143) from the British Isles: "*Crataegus oxyacanthoides* Thuill. var. *macrocarpa* Heger. (sic!) [Ref. No. 70] Virley, N. Essex, v.-c. 19, May 31, 1914; fruit, September 6, 1914, teste G. C. Druce. Mr Druce says *in lit.*: 'The leaves are not quite typical *oxyacanthoides*. The size of the fruit brings it under var. *macrocarpa* Heger, which I have seen in Essex, both North and South.'—G. C. Brown." There is material of this in Herb. Kew, the British Museum, and the Druce Herbarium; the leaves are 3-lobed, sharply toothed. Styles 1 or 2. We must, however, be very careful, in stating the distribution of *C. macrocarpa* Hegetschw. in the British Isles, to avoid confusion with ordinary hybrids between *C. monogyna* and *C. oxyacanthoides*. There is in the Herbarium at Kew a specimen of "*Mespilus (Crataegus) Oxyantha* Gäertn. var. *macrocarpa* Heg. Marbach Com. St.-Gall. juin 79. Zollikofer." This is a flowering twig. The leaves are sharply toothed, 3-lobed, with round bases. The majority of the flowers are two-styled.

Lieut. Srodon's specimen agrees quite well with Gremli's description of *C. macrocarpa*. The leaves of this specimen are rather deeply lobed, more like those of *C. monogyna*. Fruits are both two- and one-stoned. A sample of 25 fruits contained 17 one-stoned (68%), 8 two-stoned (32%). All the fruits have characteristic swellings at the base. The fruits are rather large. Mean length of 100 fruits 12 mm., mean breadth 10 mm. Stones large, 7 × 5 mm. Some of the stones have, on the ventral side, irregular furrows resembling those of *C. oxyacanthoides*.

SUMMARY AND GENERAL CONCLUSIONS.

1. The general areas of distribution of *C. monogyna* Jacq. and *C. oxyacanthoides* Thuill. are much smaller than was formerly supposed.
2. The shape of fruits of *C. oxyacanthoides* is more spherical than that of *C. monogyna*.
3. Investigations of the fruits of *C. monogyna* and *C. oxyacanthoides* (fresh and dried material from this country, and dried material from the continent) showed that three types of specimens may be distinguished: (1) With small fruits; (2) with mean fruits (average size); (3) with large fruits. Between these three types, however, intermediates are to be

found. This classification by fruit size is at once simple and accurate. The large fruited *C. Palmstruchii* Lindm. bears the same relation to *C. oxyacanthoides* as *C. monogyna* var. *splendens* Druce does to *C. monogyna*. The distribution of *C. Palmstruchii* and the question of its possible indigenuity in this country need further investigation.

4. Lindman's classification of *Crataegus* has proved to be reliable and to be both simple and clear from the taxonomic point of view.

I am greatly indebted to: Mr A. D. Cotton, Keeper of the Kew Herbarium and Library, for granting facilities for laboratory work; to Prof. M. Skalińska and Mr N. Y. Sandwith for their valuable advice; to Dr C. L. Hare and Mr A. J. Wilmott for kind help in the preparation of my English manuscript; to Mr G. Atkinson for the Hawthorn snaps; to Mrs B. C. Mitchell (Killearn, Stirlingshire) and Lieut. A. Srodoń for the material kindly sent me; to Dr N. Polunin and For. Off. F. Czwaczka for help and assistance in the Library of the University of Oxford; and to Mr A. J. Wilmott, J. E. Dandy, and A. B. Jackson for help and assistance in the British Museum.

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THE TYPIFICATION OF CRATAEGUS OXYACANTHA L.

J. E. DANDY.

The original account of *Crataegus Oxyacantha* L., published by Linnaeus in his *Species Plantarum* (1753), p. 477, runs as follows:

8. CRATÆGUS foliis obtusis bitrifidis serratis. *Hort. cliff.* 188. *Fl. suec.* 399. *Roy. lugdb.* 272.
 Mespilus, apii folio, sylvestris spinosa s. Oxyacantha. *Bauh. pin.* 454.
 Oxyacantha s. Spina acuta. *Dod. pempt.* 751
Habitat in Europæ pratis apricis duris. ♀

From this it would appear at first sight that the definition of the species was taken from Linnaeus's earlier *Hortus Cliffortianus* (1737), and that we should therefore look to that work for the type. The fact is, however, that the definition "foliis obtusis bitrifidis serratis" given in the *Species Plantarum* is not identical with that given in the *Hortus Cliffortianus*, p. 188, which is simply "foliis obtusis bis trifidis" (as also is that given in his *Flora Suecica*). This means that the definition given in the *Species Plantarum* is in effect a new definition, of which the type is not necessarily to be sought in the *Hortus Cliffortianus*, especially as Linnaeus, in changing the definition, must have been influenced by additional material, the Clifford Herbarium being no longer accessible to him.*

Let us nevertheless consider the species which Linnaeus in the *Hortus Cliffortianus* called *Crataegus foliis obtusis bis trifidis*, and under which he cited the same two synonyms (from C. Bauhin and Dodoens) as in the *Species Plantarum*, together with four others from L'Obel, Ruppius, J. Bauhin and Lécluse. It appears that there is no typical specimen of this species in the Clifford Herbarium, now at the British Museum (Natural History). There are, however, two specimens representing the varieties α and β which Linnaeus appended to the species. Of these, the variety α (*Mespilus spinosa*; sive *Oxyacantha flore pleno*) is a one-styled plant which Dr Batko identifies as a double-flowered form of *Crataegus monogyna* Jacq. The variety β (*Mespilus apii folio laciniato*) was raised to specific rank by Linnaeus in the *Species Plantarum* under the name *Crataegus Azarobus*, and so does not concern us here. In the absence of a typical specimen of the *Hortus Cliffortianus* species we cannot be sure what Linnaeus had in mind, though the fact that he regarded a double-flowered form of *Crataegus monogyna* as a double-flowered variety of his species shows that the latter covered one-styled plants. The wide range which he attributed to the species ("sepibus, montibus, campestribus, pratis per Sueciam, Germaniam, Angliam & Galliam") does not help us.

*The Clifford Herbarium, then housed in Holland, was used by Linnaeus in preparing his *Hortus Cliffortianus*, but after the publication of that work in 1737 he returned to Sweden and did not see the herbarium again.

Turning to Linnaeus's own herbarium, we find that *Crataegus Oxyacantha* was one of the species represented in the first enumeration (c. 1753) and that there are two sheets named *C. Oxyacantha* by Linnaeus himself. The first of these sheets, named "8. *Oxyacantha*" by Linnaeus, shows a one-styled plant which Dr Batko identifies with *C. curvisepala* Lindm., a species described from Sweden. The second sheet, named "*Oxyacantha*" (with no ordinal number) by Linnaeus, also bears a one-styled plant, but as this is inscribed "Algir[ia]" it must be excluded from consideration in the typification of *C. Oxyacantha*, which by the protologue was restricted to Europe.†

The first of Linnaeus's two sheets—the one which we have to consider—is unlocalized, but the specimen may be assumed to have come from Sweden, especially as Linnaeus referred in the protologue to his *Flora Suecica*. On comparing this specimen with the definition of *C. Oxyacantha* one is at once struck with the fact that the leaves are very noticeably "bitrifidis" and "serratis". They are, on the other hand, not what one would usually describe as "obtusis". This discrepancy is the only factor against the specimen being regarded as type of *C. Oxyacantha*, and in my opinion it is a factor which should not be allowed to operate, as it must be remembered that the word "obtusis" is included in that part of the definition copied from the *Hortus Cliffortianus*, where a complex of at least two species (*C. monogyna* and *C. Azarolus*) is involved, and Linnaeus would naturally retain it. It is at all events certain that in adding the word "serratis" to his earlier (*Hortus Cliffortianus*) definition Linnaeus was guided by new material, presumably represented by the specimen in his own herbarium. Neither of the descriptions cited by Linnaeus from the older authors fits the definition better than his own herbarium material does, and I therefore propose that this specimen (on *Crataegus* sheet 12 in the Linnean Herbarium) be regarded as type (i.e. lectotype) of *C. Oxyacantha*.

Dr Batko, as I have already mentioned, refers this specimen to *C. curvisepala*; so that this name should be replaced by *C. Oxyacantha*. The two well-known British species become *C. monogyna* Jacq. (one-styled) and *C. oxyacanthoides* Thuill. (*C. Oxyacantha* of Jacquin, two-styled).

Jacquin applied the name *C. Oxyacantha* to the two-styled species, but although Linnaeus may of course have known the two-styled plant there is no evidence that he ever saw a specimen, all the relevant material in his own herbarium and in the Clifford Herbarium being one-styled. The fact that he placed the genus *Crataegus* in the *Icosandria Digynia* does not affect the question, as, quite apart from *C. Oxyacantha*, the style-number in his other species of the genus varies from two to five.

†Mr S. Savage kindly informs me that the specimen doubtless came from Eric Brander, who was Swedish Consul in Algiers, and that it was certainly received by Linnaeus later than the other specimen named *C. Oxyacantha*.

A NEW HYBRID *SENECIO* FROM THE LONDON AREA.

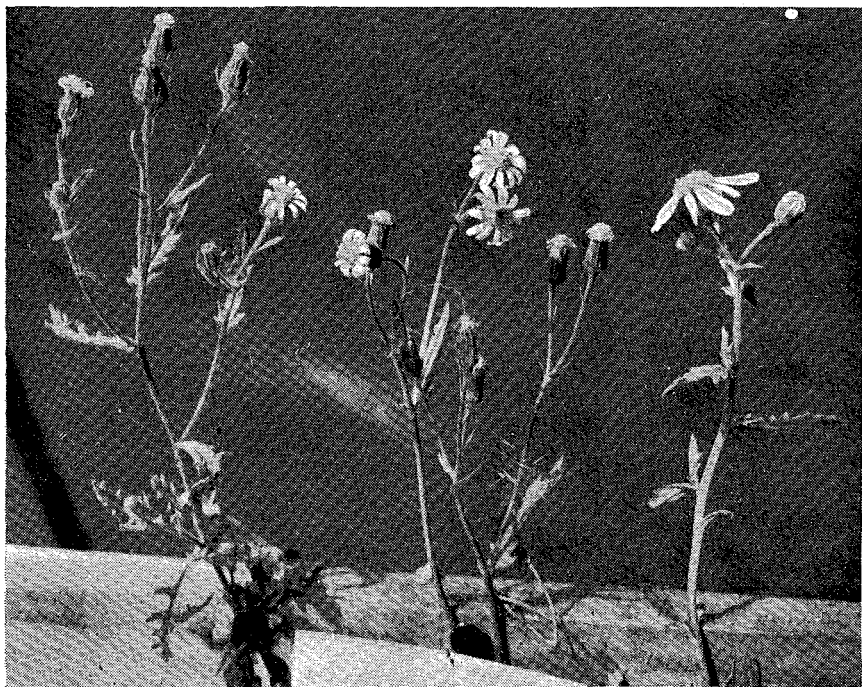
J. EDWARD LOUSLEY.

The rapidity with which *Senecio squalidus* and *S. viscosus* have spread in the London area is one of the most remarkable botanical phenomena which have come under the observation of the writer, and has led to the occurrence of an easily recognised and undoubted hybrid new to science.

Senecio squalidus L. (1753: *Sp. Pl.*, 869) is a native of the Central Mediterranean. From Sicily, where its classic home is the slopes of Mount Etna, and Southern Italy it has spread to Corsica and the Northern Adriatic, and, according to Druce (*Comital Fl.*, 168, 1932), to Spain and to Southern France. In Britain it was first noticed on the walls at Oxford in 1794 (Sibthorp, *Fl. Oxon.*, viii) whither it appears to have escaped from the Botanic Gardens, where it had been cultivated since before 1699. The spread from Oxford was at first very slow and then, by agency of the railway as well described by Druce (1897: *Fl. Berks.*, 292/3 and 1927: *Fl. Oxon.*, ed. II, 239 seq.) much more rapid. By 1897 the plant had reached Reading and was known in Buckinghamshire (Druce *op. cit.*) but it seems that it did not reach the western outskirts of the Metropolis until about ten years later (21, Middlesex; Southall, Druce in *B.E.C. 1904 Rep.*, 25, 1905; West Drayton, 7th August 1906, C. S. Nicholson, and Hayes, 29th May 1909, Rev. P. H. Cooke, both in *Herb. London Nat. Hist. Soc.*). Even then progress was comparatively slow and somewhat erratic. By 1930 the plant might still be regarded as rather rare in the London area though it was to be found regularly in many scattered localities. In the last fifteen years *S. squalidus* has increased at a prodigious rate and by the outbreak of war it was already abundant by railways and roads and on waste ground in nearly all the suburbs. The construction of air-raid shelters in 1939 and 1940 afforded an opportunity for the plant to invade the centre of London, while the bare spaces which resulted from the subsequent bombing afforded ideal conditions for the rapid increase of the Oxford Ragwort.

By 1944 *S. squalidus* occurred in abundance on almost every bombed site in London¹, rivalled only in luxuriance by *Epilobium angustifolium*. It is tempting to suppose that the dry, well drained, nidus of brick-dust and mortar provides conditions similar to those of the lava-soils of its native Sicily, while the temperature to which these sites are raised on warm summer days is much higher than is usual in this country. The method by which the seeds are distributed is well known and beyond question. The parachute-like fruits can be seen blowing about in quan-

¹[Less common in north-east London: on a walk from Highgate to Liverpool Street in July 1944 I did not see a single plant.—J. S. L. Gilmour.]



Senecio viscosus L. (left): $\times S. londinensis$ Lousley (centre). *S. squalidus* L. (right).

All from Baldry Gardens, Streatham, Surrey. September 17, 1944.

\times about $\frac{4}{7}$ th.

From the Trower Fund.

single plant of the hybrid attracted immediate attention amidst abundance of the parents and on this occasion adequate material could be collected. The following morning was devoted to a careful examination of the specimens but it was soon found advisable to obtain further material of the variable *S. squalidus* and I therefore visited a bombed site about a hundred yards from my house at Streatham where I knew both parents were to be found. Here I ventured rather farther from the road than on previous visits and to my astonishment found a fine large plant of an undoubted hybrid. In view of the ease with which fresh material of this plant could be obtained and the very clear evidence it exhibited of both parents, I have used it as the type for the description given below. During the next few weeks examples of the hybrid were found in several places in the City of London, ranging from a plant almost identical with the Streatham example in Aldersgate Street to a rather more common form nearer to *viscosus* as at the site of Sergeant's Inn and Bush Lane, Cannon Street.

The new hybrid is described as follows:—

× *Senecio londinensis* (*S. squalidus* × *S. viscosus*), hybr. nov.

Planta hybrida inter *S. squalidum* et *S. viscosum*, characteres intermedios praebens. Caulis validus, verisimiliter perennis, ut in *S. squalido* laxè ramosus necnon glandulis numerosis viscosis praeditus. Folia interparentes forma ac textura intermedia, quam in *S. squalido* solet saturatius viridia, supra glandulis, subtus praesertim in costa marginibusque glandulis numerosis viscosis instructa. Capitula magnitudine intermedia (18-20 mm. tota diametro); periclinii squamae glandulis numerosis viscosis vestitae, exteriorae longitudine variabiles, usque ad dimidiam longitudinem interiorum, omnes apice nigrae; flosculi radii angusti (<2 mm.), 8-9 mm. longi, lingulati, praesertim post capituli maturitatem quippiam revoluti. Cypselae rugosae et verisimiliter steriles, secundum sulcos ut in *S. squalido* omnino pubescentes sed saturatius coloratae.

Plant a hybrid between *S. squalidus* and *S. viscosus* and intermediate in characters. Stem stout, probably perennial, laxly branched as in *squalidus* with numerous viscid glands. Leaves intermediate between the parents in outline and texture, darker green than is usual in *squalidus*, with glands on the upper surface and numerous viscid glands especially on the mid-rib and margins below. Flowers intermediate in size (18-20 mm. in overall diameter); phyllaries with numerous viscid glands, the outer variable in length up to $\frac{1}{2}$ length of the inner, all with black tips; ray florets narrow (<2 mm.), 8-9 mm. long, lingulate, tending to be revolute especially after maturity of flower. Cypselae shrivelled and probably infertile, uniformly pubescent along the furrows as in *squalidus*, but darker in colour.

Type. Baldry Gardens, Streatham, Surrey, v.-c. 17, 1944, J. E. Lousley in Herb. Mus. Brit. All the specimens distributed under this name from this locality and collected on 17th and 30th September and 6th October 1944 were taken from a single large plant.

The name given to this hybrid has been chosen on account of the special association of the plant with the sites laid bare as a result of German air bombardment in the heart of London.

Distribution:—

- 16, W. Kent; Railway siding, St Mary Cray, 19th August 1944, J. E. Lousley.
- 17, Surrey; Ham Gravel Pits, 16th September 1944, J. E. Lousley and C. West; Streatham (as above).
- 21, Middlesex; Bush Lane, Cannon Street, 7th and 14th October 1944; Sergeants' Inn, 14th October 1944, J. E. Lousley. All above in Herb. Lousley. Also seen at Aldersgate Street. The last three stations are all in the City of London. Mr N. Y. Sandwith has also seen the hybrid at Devereux Court, which is a few yards outside the western City boundary.

The frequency of a hybrid depends on (1) the facility with which the two parents hybridise and (2) the relative rarity of the parents and the frequency with which they are associated. This may be appropriately illustrated by an example from the genus *Rumex* in which *R. conglomeratus* and *R. maritimus* form hybrids abundantly in all the localities where I have seen them associated and yet, owing to the comparative rarity of one of the parents, the hybrid must be regarded as a rarity in Britain generally. The case of the present *Senecio* hybrid appears to be contrary. Both parents occurred in and around London in vast numbers in 1944 and many millions of plants must have been seen, and yet only a small number of individuals of the very easily detected $\times S. londonensis$ were observed. At each station where the hybrid was found it occurred only in comparatively small numbers and it would thus appear that the cross does not form very easily. On the other hand, the parents are associated in such large numbers in the London district and in other parts of the country where they are increasing and coming into contact more frequently that it is possible that the hybrid will eventually prove to be widespread.

In its usual forms the hybrid is very easy to detect in the field. On sunny days the dainty star-like appearance of the intermediate-sized flowers with their narrow somewhat revolute ray-florets on a larger, less erect, greener and much more branched plant than *viscosus*, covered with viscid glands, but not "clammy," should at once attract attention in a mixed population, while confirmatory characters will be found in the outer phyllaries and fruits.

After writing the first draft of this paper I heard that Mr N. Y. Sandwith had independently found the hybrid between the same species on the site of Sergeants' Inn in 1943 and again there and by Devereux Court (about 330 yards to the west) and at Ham Gravel Pits in 1944. He kindly read through my draft paper and made a number of valuable suggestions and also showed me the excellent series of specimens he had prepared. A few of Sandwith's observations have been incor-

porated in the earlier part of this paper, but most of them are given separately below as, with the exception of the Sergeant's Inn specimens (some of which are identical), his forms of the hybrid differ slightly from mine.

He suggests that the peculiar branching of $\times S. londonensis$ should be emphasised rather more than it is in my description. In many specimens of the hybrid this is certainly a very striking feature, resulting in large "twiggly" plants with branches widely spreading in all directions and forming almost a small bush. He also points out that the glands are considerably shorter than those of *viscosus* and this I think is probably always true. However, it is very difficult to measure the length of these glands under the microscope without a great deal of preliminary preparation and as their length is variable I prefer not to incorporate the character in my description.

Mr Sandwith also adds some useful contrasting characters in the flowers. He would emphasise that the ligules are intermediate in breadth as well as in length, and this agrees with my own experience and should be implied from the measurement given in my description above. In the Baldry Gardens, Streatham, plant the width of the ligules varied from 1.25 to 1.75 mm., while that of associated *squalidus* and *viscosus* was about 3 and 1 mm. respectively. In my Ham plant the ligules were about 2 mm. broad. He points out that the colour is a greenish-yellow towards that of *viscosus* and very different from the orange-yellow of *squalidus*. This would appear to be the case from my dried material, but as I did not compare the colour of the flowers with a colour-chart when fresh it would be unwise to incorporate the character in my description. As he indicates, there is also a difference in the outer phyllaries, but this is difficult to describe from dried specimens.

Sandwith had the advantage of being able to keep his Sergeant's Inn plants under observation throughout the year and noticed that they were in bloom on 7th May 1944. *S. squalidus* may be found in flower in almost every month of the year but *S. viscosus* does not usually commence to flower until the middle or end of July. If the flowering of the hybrid normally commences at such an early date it should make it especially easy to detect during May and June, for at that time the abundant viscid glands would distinguish it from all other British *Senecios*.

To stimulate further investigation into the hybrids in this genus it may be useful to give a list, together with some references, to those which have already been recorded for Britain. It should, however, be made quite clear that some of these records rest on very inadequate grounds and that further study is desirable in all cases.

3 \times . *S. aquaticus* Hill \times *S. Jacobaea* L.

See Druce in *B.E.C. 1914 Rep.*, 17, 1915, and *1923 Rep.*, 39, 1924, and Praeger in *Journ. Bot.*, 73, 44, 1935, and *B.E.C. 1935 Rep.*, 137, 1936. This hybrid appears to be common in Ireland and may prove not to be rare in England. [cf. p. 832.—Ed.]

- 6x. *S. erucifolius* L. × *S. Jacobaea* L.
See Druce in *B.E.C. 1909 Rep.*, 415, 1910. Omitted from *British Plant List ed. 2*, and further study required.
- 7x. *S. squalidus* L. × *S. vulgaris* L.
This has been recorded on many occasions and the references are too numerous and well known to cite here. Some of them may be incorrectly based on rayed variants of *vulgaris*. It is interesting to note that the plant found by H. J. Howard and E. A. Ellis on Castle Mound, Norwich, and recorded as the hybrid in *Trans. Norf. & Norw. Nat. Soc.* for 1943 is infertile. I have seen specimens in Herb. E. L. Swann.
- 8x. *S. viscosus* L. × *S. vulgaris* L.
Recorded with some doubt by Riddelsdell in *Journ. Bot.*, 61, 176, 1923. I gathered a plant in my own garden on 28th August 1942 which I believe to be this hybrid as the characters are mixed, but it may be only a luxuriant, less glandular form of *viscosus*. The hybrid is known in Sweden.
- 9x. *S. sylvaticus* L. × *S. viscosus* L.
See Amphlett & Rea, *Fl. Worcs.*, 206, 1909, and *B.E.C. 1909 Rep.*, 415, 1910. Further investigation is required but this is a well-known hybrid in Europe.
- 31x. *S. Cineraria* DC. × *S. Jacobaea* L.
A very distinct and convincing hybrid which has been found in a number of places in England and Ireland and is well known.

Finally, I wish to express my thanks to the various friends mentioned in this paper for their assistance and especially to Mr N. Y. Sandwith for his very generous co-operation in placing his specimens and observations at my disposal.

THE FLORA OF BOMBED SITES IN THE CITY OF LONDON IN 1944.

J. EDWARD LOUSLEY.

The pioneer flora of the areas laid waste by enemy action in and around the City of London has already been described (Lousley in *B.E.C. 1941/2 Rep.*, 528-531, 1944), and the purpose of the present paper is to record the further development up to the autumn of 1944. Continued clearance of the sites and the constant influx of additional species has so greatly increased the material available for study that it has proved advisable to restrict the present account to the area within the political boundaries of the City of London Corporation, whereas in the former paper a number of records were included from beyond these limits.

The area of the City of London is about 673 acres, and it is one of the most congested built-up areas in the world. The sites of most of the buildings now destroyed have been covered for a very long period. Thus the ground occupied by the Temple Church has been built on since at least 1185, and that of St Olave, Hart Street, certainly since 1222 and possibly since before the Norman Conquest. With the exception of brief periods for rebuilding, some of the sites now exposed to the foundations may have been continuously roofed over since Roman times, and one must go back to the years immediately following the Great Fire for the last opportunity of doing any extensive botanising within the confines of the City. It is therefore disappointing to record that the almost unique opportunity of studying the recolonisation of a British area which was botanically almost completely sterile has to a considerable extent been spoiled by the misguided efforts of well-meaning enthusiasts who have sown the seeds of garden plants broadcast in order to "beautify" the ruins. Every observant gardener will be well aware of the surprising amount of adventitious weed seed which is often contained in packets of flower seed purchased from even the best of seedsmen and it is patent that this broadcast sowing must have introduced species which otherwise might not have occurred. The behaviour of the garden annuals (and biennials) deliberately sown has varied but a number of them are certainly reproducing from their own seed and are likely to hold their own for a period until the competition of wild species becomes too strong. These which seem certain to persist for a while include *Calendula officinalis*, *Antirrhinum majus*, *Alyssum maritimum* and *Oenothera sp.*

The majority of the records given in this paper were made during a series of special visits planned to cover the whole of the area in September and October 1944. To this have been added many casual observations made in the course of my daily peregrinations about the City throughout the year, and also a number of notes sent to me by friends

whose names are included in the individual records. It should, however, be made clear that although the list is believed to be fairly complete as regards the plants recognisable in autumn it may well be less satisfactory as regards the earlier flowers. The boundaries and street names adopted are those shown on the "Geographia" fifteen inches to the mile map of the City of London (undated, but purchased direct from the publishers in 1944) in which no inaccuracies have been detected.

The following is the list of species observed during 1943 and 1944:—

- 6/3. *RANUNCULUS ACRIS* L. Churchyard of St Olave, Silver Street, W. J. L. Sladen and D. McClintock.
- 6/5. *RANUNCULUS BULBOSUS* L. Between Queen Victoria Street and Upper Thames Street, W. J. L. Sladen. No specimen was preserved but the finder is confident that this was the species found.
- +13/3. *DELPHINIUM GAYANUM* Wilmott. Basinghall Street, W. J. L. Sladen and D. McClintock.
- +21/1. *PAPAVER SOMNIFERUM* L. Not uncommon and often as hortical colour forms. Deliberately introduced.
- +28/1. *ESCHSCHOLZIA DOUGLASSII* Walp. Newgate Street—deliberately introduced.
- +34/1. *CHEIRANTHUS CHEIRI* L. Old Bailey—deliberately introduced.
- 35/4. *RORIPPA ISLANDICA* (Oeder) Borbás. Warwick Lane, in fair quantity.
- +42/10. *ALYSSUM MARITIMUM* Lam. Frequent, and doubtless deliberately introduced. Sometimes, as at Walbrook, with mauve-tinted flowers.
- +47/2. *HESPERIS MATRONALIS* L. Between Silver Street and Cheap-side, W. J. L. Sladen and D. McClintock.
- +49/3. *SISYMBRIUM ALTISSIMUM* L. Occasional.
- +49/4. *SISYMBRIUM ORIENTALE* L. Frequent.
- (49/5. *SISYMBRIUM IRIO* L. So far as I am aware there is no authentic record of this species having reappeared in the City, although there have been a number of apparently ill-informed newspaper pronouncements to this effect. The hunt was on when the *Daily Mail* on 23rd February 1943 exhorted its readers to "Watch for Fire Flower" and to help them in their quest described it as "a whitish flower, and the plant is from 18 in. to 2 ft. tall"! Most of the records which have been made seem to have been based on specimens of *Sisymbrium altissimum* and *S. orientale*, which run down to *S. Irio* in some of the floras in common use in which these two increasing aliens are omitted. Although the London Rocket has a place in our Floras which has become hallowed by botanical antiquity, it is as well to remember that its abundance on the ruins of London in 1667 and 1668 was in circum-

- stances very similar to those which its two allies now enjoy and that it was then probably introduced from Europe and was as much an alien then as they are now.)
- 50/1. *ERYSIMUM CHEIRANTHOIDES* L. Very local—only seen at Brook's Wharf.
- †54/2. *BRASSICA CAMPESTRIS* L. Occasional and usually near roads.
- 55/1. *DIPLTAXIS TENUIFOLIA* (L.) DC. In quantity over a limited area on both sides of Upper Thames Street from Darkhorse Lane to near Bush Lane; rare by Dean Street, Chancery Lane. This species was first recorded for Britain from London by Gerard (*Herbal*, 192, 1597) and the works of the older botanists contain frequent reference to its occurrence in quantity on London Wall and elsewhere in the City, including London Bridge. In view of its abundance and persistence it was a much more representative plant of the City flora than *S. Irio*, and it would be tempting to make out a case for its reappearance being due to long buried seed being brought to the surface. The main centre of its present distribution, however, is near Cannon Street Station and it is likely that it has been brought up in some way by activities connected with the railway from the trackside at New Cross or beyond in Kent, where it is abundant.
- 59/1. *CAPSELLA BURSA-PASTORIS* (L.) Medik. Frequent.
- 60/2. *CORONOPUS PROCUMBENS* Gilib. Only seen in one place; in Redcross Street.
- †95/1. *SAPONARIA OFFICINALIS* L. Well established between Well Street and Monkwell Street (where it may have originated from a disused churchyard) and on brick rubble on the corner of Wood Street and Addle Street.
- 98/3. *LYCHNIS ALBA* Mill. Bush Lane and Neville Court.
- 100/5. *CERASTIUM VULGATUM* L. Frequent.
- 101/3. *STELLARIA MEDIA* Vill. Common
- 102/5. *ARENARIA SERPYLLIFOLIA* L. Near Cannon Street Station, W. J. L. Sladen.
- †115/3. *ALTHAEA ROSEA* L. West Smithfield and King William Street.
- †135(2)/1. *AILANTHUS ALTISSIMA* (Mill.) Swingle. As seedlings and saplings plentiful in the basements of bombed buildings in the Temple.
- 153/7. *MEDICAGO LUPULINA* L. Rather uncommon.
- 154/1. *MELILOTUS ALTISSIMA* Thuill. Basinghall Street, W. J. L. Sladen and D. McClintock.
- †154/3. *MELILOTUS ARVENSIS* Wallr. Two fine plants by Mark Lane.
- 155/2. *TRIFOLIUM PRATENSE* L. Common.
- 155/15. *TRIFOLIUM HYBRIDUM* L. Rather uncommon.
- 155/16. *TRIFOLIUM REPENS* L. Rather rare.
- 220/1. *EPILOBIUM ANGUSTIFOLIUM* L. In the greatest abundance throughout the City and usually the first flowering plant to

- invade blitzed sites. Frequently to be seen also on the top of Police Boxes, Home Guard Blockhouses, etc., wherever a little sand or soil has collected.
- 220/8. *EPILOBIUM ROSEUM* Schreber. Near the Tower of London on the City boundary.
- 220/10. *EPILOBIUM MONTANUM* L. Churchyard of St Giles, Cripplegate.
- +223/. *OENOTHERA* sp. ("Evening Primrose"). In several places.
- +250/3. *PETROSELINUM CRISPUM* (Mill.) Nym. Between Queen Victoria Street and Upper Thames Street, W. J. L. Sladen.
- +276/4. *PEUCEDANUM GRAVEOLENS* (L.) Druce. Great Tower Street.
- 287/1. *SAMBUCUS NIGRA* L. Common, though often only as seedlings. Introduced by the agency of birds.
- +320/3. *ERIGERON CANADENSIS* L. In the greatest abundance throughout the City. This is a North American species first recorded as a British species by Ray (*Syn.*, 49, 1690) as found by Dr Tancred Robinson about London "*sed certe non indigena*" (misquoted in *Comital Flora*).
- +347/4. *HELIANTHUS ANNUUS* L. Mark Lane and Upper Thames Street.
- +352(2)/1. *COSMOS BIPINNATUS* Cav. West Smithfield.
- 354/1. *GALINSOGA PARVIFLORA* Cav. Very local. Neville Court, by Temple Church, by St Dunstan's-in-the-East, Redcross Street, and in 1942 in Fenchurch Street. This species prefers garden soil, which is scarce in the City.
- 365/1. *ACHILLEA MILLEFOLIUM* L. Rather rare and usually in places where grasses have grown to form a "turf."
- +368/1. *ANTHEMIS TINCTORIA* L. Churchyard of St Olave, Silver Street, W. J. L. Sladen and D. McClintock.
- 368/4. *ANTHEMIS COTULA* L. Basinghall Street, W. J. L. Sladen and D. McClintock.
- +370/13. *CHRYSANTHEMUM PARTHENTIUM* (L.) Bernh. forma *HORTENSE* (Schur) Beck. King William Street.
- 371/1. *MATRICARIA INODORA* L. Very common.
- +371/3. *MATRICARIA MATRICARIOIDES* (Lessing) Porter. Very rare—Dean Street.
- 378/3. *ARTEMISIA VULGARIS* L. Common.
- 379/1. *TUSSILAGO FARFARA* L. Abundant.
- +383/7. *SENECIO SQUALIDUS* L. Most abundant and variable. The rapid increase of this species in the City (as elsewhere in London) during the past two years is remarkable.
- 383/7×. *SENECIO SQUALIDUS* L. × *viscosus* L. (×*S. LONDINENSIS* Lousley). See separate paper in this Report.
- 383/8. *SENECIO VISCOSUS* L. In quantity and widespread though not quite as abundant as the last species.
- 383/10. *SENECIO VULGARIS* L. Frequent. The var. *radiatus* Koch was found near Wood Street by W. J. L. Sladen and D. McClintock.

- †385/1. *CALENDULA OFFICINALIS* L. Very common and widespread and apparently naturalised.
- 396/2. *CIRSIUM VULGARE* (Savi) Airy-Shaw. Rare. Between Well Street and Monkwell Street, Bush Lane, Neville Court. Known by St Alphage, London Wall, since before the present war.
- 396/8. *CIRSIUM ARVENSE* (L.) Scop. Common. Occurred on a Houndsditch site before the war.
- 421/2. *HYPOCHAERIS RADICATA* L. Churchyard of St Giles, Cripplegate.
- 423/. *TARAXACUM OFFICINALE* Weber. Rare. Billiter Square and St Paul's Churchyard.
- †425/2. *LACTUCA SERRIOLA* L. Uncommon. Aldersgate Street, Cannon Street (Western end) and by St Dunstons-in-the-East.
- 427/2. *SONCHUS ARVENENSIS* L. Between Silver Street and Cheapside, W. J. L. Sladen and D. McClintock.
- 427/4. *SONCHUS OLERACEUS* L. Very common. Occurred in Houndsditch before the present war.
- †474/3. *BUDDLEIA VARIABILIS* Linde. Locally common about St Paul's Cathedral, as in Cannon Street, Carter Street, Newgate Street, Paternoster Row, and a little farther away at Brook's Wharf. Undoubtedly these plants, some of which have now attained flowering size, have originated from seed blown from planted shrubs in the Cathedral churchyard.
- 513/1. *CONVOLVULUS ARVENENSIS* L. Very rare—Neville Court.
- †516/1. *SOLANUM LYCOPERSICUM* L. Occasional. Apparently growing from seed from tomatoes thrown away by people having "packed lunches" the previous year.
- †517/10. *SOLANUM TUBEROSUM* L. Seen in several places.
- 517/2. *SOLANUM NIGRUM* L. Common.
- †532/2. *LINARIA PURPUREA* Mill. Frequent, and likely to thrive.
- †534/1. *ANTIRRHINUM MAJUS* L. Common.
- 577/3. *STACHYS SYLVATICA* L. Near Goldsmith's Hall, W. J. L. Sladen and D. McClintock.
- (583/1. *BALLOTA NIGRA* L. Seen only at Trinity Square a few yards outside the City boundary.)
- 588/8. *PLANTAGO LANCEOLATA* L. Rare. Old Swan Lane. Also seen in the churchyard of St Olave, Silver Street, by W. J. L. Sladen and D. McClintock.
- 588/10. *PLANTAGO MAJOR* L. Rare. Billiter Square and Dean Street.
- †596/6. *AMARANTHUS RETROFLEXUS* L. Great Tower Street and Lower Thames Street.
- 600/1. *CHENOPODIUM RUBRUM* L. Rather common as at Monument Street, Bush Lane, Upper Thames Street, Mark Lane and Hart Street near St Giles, Cripplegate. This species would appear to be increasing rather rapidly in central London on bombed sites. In the country around London it is quite common.

- (600/6. CHENOPODIUM MURALE L. Seen by Mr N. Y. Sandwith in 1943 and 1944 in Devereux Court a few yards west of the City boundary.)
- 600/8. CHENOPODIUM ALBUM L. Common.
- 600/15. CHENOPODIUM POLYSPERMUM L. Very rare—seen only at Aldermanbury.
- 606/3. ATRIPLEX PATULA L. Uncommon.
- 606/5. ATRIPLEX HASTATA L. Common.
- †613/3. SALSOLA PESTIFER Nelson. Mark Lane and Lower Thames Street—at the last locality on disintegrating sandbanks. I have used Nelson's name for this plant because his description in Coulter and Nelson's *New Manual of Botany of the Central Rocky Mountains*, 1909, page 169, is clear and unambiguous, and there would seem no reason to doubt that he describes the species found here. This contention is supported by the illustration in Britton and Brown's *Illustrated Flora of the Northern States and Canada*, ed. 2, 2, 25, 1913, fig. 1714. Nelson's is almost certainly not the earliest name for the plant and I use it because war-time conditions make impossible the reference to rare books and continental material necessary to fix the nomenclature. The species is probably a native of Southern Russia, whence it has spread throughout most of Europe and to North America, where it is a great pest under the name of Russian Thistle. For the most part it is the plant referred to in British literature as *Salsola Kali* var. *tenuifolia* Tausch and *Salsola Tragus* L., and it is an increasingly frequent alien of docks, rubbish-dumps, waste ground and even arable fields. At Dagenham it has been established for at least 20 years and now covers the dumps in vast quantity—in some places to the almost total exclusion of other vegetation. The railway which passes near to the Dagenham habitat runs into Fenchurch Street Station close to the City habitats of *S. pestifer*, and goods-traffic may possibly account for its introduction.
- 615/2. POLYGONUM CONVULVULUS L. Uncommon—Long Lane, Wood Street, and Great Tower Street.
- 615/6. POLYGONUM LAPATHIFOLIUM L. Bush Lane and Aldermanbury Postern.
- 615/7. POLYGONUM PERSICARIA L. Common.
- 615/14. POLYGONUM HETEROPHYLLUM Lindm. Common.
- †615/32. POLYGONUM SIEBOLDII De Vriese. Well Street.
- 618/3. RUMEX CRISPUS L. Occasional.
- 618/6. RUMEX OBTUSIFOLIUS L. ssp. AGRESTIS (Fries) Danser. Frequent.
- 618/9. RUMEX CONGLOMERATUS Murr. Very rare—one plant only seen in Bush Lane.

- 618/8. *RUMEX SANGUINEUS* L. var. *VIRIDIS* Sibth. Very rare—Friday Street.
- (628/14. *EUPHORBIA PEPLUS* L. Occurs on Tower Hill just outside City boundary.)
- 632/2. *MERCURIALIS ANNUA* L. Rare—Redcross Street, Hart Street, Queen Victoria Street, and Knightrider Street.
- 633/. *ULMUS* sp. A large Elm tree in Queen Street was broken off a few feet above the ground by a Flying Bomb during the summer but although the short remaining trunk was badly split and lost most of its bark a few leaves were put out in November 1944.
- 637/1. *URTICA DIOICA* L. Frequent.
- 638/1. *PARIETARIA DIFFUSA* M. & K. Since before the present war this plant has flourished on the short stretch of exposed "Roman Wall" by St Alphage. It has now spread in considerable quantity to brick rubble near Aldermanbury Postern and may thus properly be included in a list of the plants of the bombed sites.
- +640(2)/1. *PLATANUS ACERIFOLIA* Willd. Many seedlings and saplings up to a metre in height in the exposed basements of buildings in the Temple.
- 642/1. *BETULA ALBA* L. Seedlings recorded from between Queen Victoria Street and Upper Thames Street, W. J. L. Sladen.
650. *SALIX*. Specimens of each of the plants I understand by the following names from the City bombed sites have been seen by Mr A. Bruce Jackson, who considers them correctly named:
- 650/6. *SALIX VIMINALIS* L. Rare. New Basinghall Street and the Temple.
- 650/8. *SALIX CAPREA* L. Very common, and occurring throughout the area. The plants are at present (January 1945) commonly 5 feet in height, and occasionally taller, as in the Temple, where there are bushes attaining 10 feet.
- 650/10. *SALIX ATROCINEREA* Brot. Less common than the last species, but not rare. All three Willows at times grow on the tops of truncated walls.
- 770/3. *ALOPECURUS MYOSUROIDES* Huds. Churchyard, St Olave, Silver Street, W. J. L. Sladen and D. McClintock.
- 777/1. *PHELEUM PRATENSE* L. Uncommon—specimens from Friday Street have been confirmed by Mr C. E. Hubbard.
- 780/. *AGROSTIS GIGANTEA* Roth. Frequent. Specimens from Jewin Street and Fetter Lane determined by Mr C. E. Hubbard.
- 792/1. *HOLCUS MOLLIS* L. Rare—Billiter Square.
- +794/7. *AVENA SATIVA* L. Rather common.
- 808/2. *CYNOSURUS CRISTATUS* L. Churchyard, St Olave, Silver Street, W. J. L. Sladen and D. McClintock.
- 819/1. *DACTYLIS GLOMERATA* L. Common.
- 824/14. *POA ANNUA* L. Frequent.

- 827/3. *BROMUS STERILIS* L. Churchyard, St. Olave, Silver Street, W. J. L. Sladen and D. McClintock.
- 829/1. *LOLIUM PERENNE* L. Very common.
- +829/4. *LOLIUM MULTIFLORUM* Lam. Occasional.
- 835/2. *HORDEUM MURINUM* L. Rare—Wood Street and Minories.
- +835/10. *HORDEUM VULGARE* L. Occasional.
- 847/1. *PTERIDIUM AQUILINUM* (L.) Kuhn. Very abundant throughout the City, especially in basements which have been exposed and not filled in. Even before the present war it was to be seen in Houndsditch (Lousley in *Journ. Bot.*, 1939, 181), on the remains of a building demolished to ground level, and I understand that it also occurred in several places in gloomy basement areas. In 1943 young Bracken plants were to be seen scattered about the City, but it was not until 1944 that the fern could be said to be abundant. The favourite habitat is in the exposed basements of buildings which have been demolished to ground level, and there can be no possible doubt that it has originated from wind-borne spores. Even if fragments of rhizomes were occasionally brought in by some means the growing plants could seldom penetrate the thick walls between the basements and hence it is clear that the present abundance is due to thousands of separate introductions which could not be otherwise than by spores. Parts of the basements are damp and sheltered from the wind and the sun and it seems that such conditions favour the germination of the spores and development of the prothalli. But the occurrence of bracken is not limited to the basements. Near the Coal Exchange in Lower Thames Street in a shaded corner the brickwork of a wall is kept perpetually damp by a leaky pipe or gutter above, and here juvenile Bracken plants about 3 inches long may be seen five feet above the street level. In Allhallows Lane at the side of Cannon Street Station there is a series of waste pipes descending from the Station above, and in the cup formed by the jointing of one of these pipes healthy Bracken plants grow some 15 feet above the road. In such places introduction could only be by spores and it seems likely that these are present in the City air in great quantity but only occasionally find suitable places for development.
- 856/1. *DRYOPTERIS FILIX-MAS* (L.) Schott. Seen near old disused churchyards in Upper Thames Street, Well Street, and St Giles, Cripplegate, where it is likely to have been introduced, but rarely elsewhere as in Snow Hill in basements apparently originating from spores.

Throughout the above list all plants believed to have been deliberately introduced, such as shrubs planted in churchyards and flowers and vegetables on little corners of rubble temporarily cultivated, have

been excluded, but garden flowers occurring haphazardly on the rubble are included as it is impossible to distinguish between those self-sown and the work of enthusiasts broadcasting seed.

In this list there are records of 112 species and one hybrid, whereas in my previous paper, which recorded the position at the end of 1942, only 27 species could be given—and not all of these had then been seen within the area to which the present account is restricted. As might be expected from the greater distance from gardens and parks, the flora of the bombed sites in the City is still less rich than that of the West End, but the increase in the course of the two years is of interest. Species with wind-borne seeds still predominate, though even here there has been some change in proportions and *S. vulgaris* is no longer the most abundant *Senecio*. The greatest increase has been in the weeds of cultivation, which have probably been brought on the wheels of vehicles and on the boots of workmen and to a lesser extent on the clothing of the many City workers who travel up daily from the country. Some cultivated grasses and clovers have probably originated from horse's nosebags, while packing materials furtively disposed of in spite of the vigilance of the police may be responsible for other introductions, especially in the warehouse districts.

Between 1942 and 1944 the greatest change has been in the rapid increase of the dominant species: *Epilobium angustifolium*, *Erigeron canadensis*, *Fussilago Farfara*, *Senecio squalidus*, *S. viscosus*, *Sonchus oleraceus* and *Pteridium aquilinum* amongst the herbs, and *Sambucus nigra* and the *Salices* amongst the shrubs. Where the sites are left undisturbed the present phase is likely to come to an end and, at least in the exposed basements, the Bracken may gain absolute dominance. Where there is a certain amount of disturbance the present species may continue to thrive, as also will some at least of the introduced garden plants such as *Alyssum*, *Antirrhinum*, *Calendula*, and perhaps others.

Finally, I wish to acknowledge my indebtedness to Miss L. J. Johns and Messrs W. J. L. Sladen, D. McClintock, and N. Y. Sandwith for records of plants observed by them.

BIBLIOGRAPHICAL NOTES AND REVIEWS.

"The 'Tunbridge Wells' Botanical Pocket Book." The authorship of this rare work, published at Tunbridge Wells by J. Clifford in 1840, is discussed by J. S. L. Gilmour and H. S. Marshall (1944: *J.B.*, 80, 132-134), who give evidence to refute its attribution to either T. F. Forster or T. I. M. Forster, and conclude that it was compiled by the publisher.—[Wi.]

Dream Island Days. R. M. Lockley. Pp. 144. London: H. F. & G. Witherby, Ltd., 1943.

This very readable book gives an exciting account of the adventures of the author, who is well known for his ornithological studies, and who made his home from 1927 to 1940 on the island of Skokholm. This lonely island is situated about two miles off the Pembrokeshire coast and the flora belongs to v.-c. 45. Lockley's story contains many descriptions of the plants of various habitats, but the chief botanical interest in the book rests on the list of 176 plants recorded from this mile-long island by the author's wife, who doubtless had the assistance of visitors. There is a close resemblance between the list of native species and those of the uninhabited islands of the Scillies. *Stellaria nemorum* is doubtless an error, and *Potentilla verna*, *Veronica agrestis* and *Lepturus incurvatus* require confirmation, but the list should be useful to Welsh botanists, and there is also mention of some plants from Grassholm and the "Bishop and Clerks" rocks.

J. E. LOUSLEY.

British Botanists. By John Gilmour. London: William Collins, pp. 48, with 8 plates in colour and 19 other illustrations, 1944; 4/6.

This inexpensive addition to the botanist's library is well worth its price for the illustrations alone, as befits a member of the series "Britain in Pictures." To deal satisfactorily with British botanists of some 350 years in 34 pages of printed matter is, however, impossible, and the author himself calls his work "not a continuous story of British botany; rather a few selected scenes strung together on a thin historical thread." It is, indeed, too much botany, and too little botanists, though the distinction is inevitably a matter of emphasis, for a history of botanists involves the development of their science. Although there is much that one can criticise, there is also much to enjoy, and much "food for thought," even if that is not the primary object indicated by the title, which indicates a book which will give the general reader, for whom the series is produced, a sound outline of the country's production of botanists.

The account of pre-Linnean botanists is more satisfactory than that of those who followed the great Swede who revolutionised botany, but even so, the space devoted to the outstanding figures entails the omission of the parts played by so many good botanists—Dale, Llwyd, Petiver, Sherard, etc., and even Sloane, whose *Hortus Siccus* was the finest in the world, not to mention those who explored distant lands and brought back, like Cunningham from China, the first-known specimens from distant lands. Post-Linnean British botanists who continued these explorations and often provided the material for those who worked at home also deserve some mention, and again enlargement on the few prevents a proper balance being obtained. One paragraph should have been given to those who, in the second half of last century, "made Britain the best botanized country in the world," for example Babington, Boswell-Syme, the coterie of Reverend gentlemen, Ley, Purchas, Marshall, the Lintons, Rogers, etc. Scotland is rather scurvily treated (p. 34): one misses Sibbald, Lightfoot, Dickson, and others. The most serious omission to my mind is that of F. F. Blackman (admittedly alive, but so are Biffen and Tansley), whose work on plant physiology was outstanding and whose "Optima and Limiting factors" marked a revolution in thought. But it is easy to criticise and in such limited space a more complete account might have become unreadable. As it is, there is much to interest any reader, including the botanists themselves. It is a pity that the writing was not given more polish to match the beautiful illustrations; some phrases seem very out of place beside them. But nobody is likely to regret having purchased a copy.

A. J. WILMOTT.

ABSTRACTS FROM LITERATURE.

[Those responsible for these Abstracts are indicated as follows:—
[H.]=H. A. Hyde; [Wa.]=A. E. Wade; [Wi.]=A. J. Wilmott.

When only one entry is made in this Report from a single paper the full reference is given with the entry, in order to avoid both unnecessary printing and cross-reference: the usual method of citation by reference to the Bibliography is retained when more than one reference is made to the same paper.

Note to Contributors It would be a great convenience to the Editors if contributors would send in their Abstracts, and any necessary References for the Bibliography, on slips of uniform size, the size desired being 8 inches by 5 inches, the long edge to be treated as the top of the page. A separate slip for each item permits the easy sorting of the MS. without the transcription which is otherwise too often necessary in the preparation of copy for the printer. The uniform slips can be easily filed and will be available for future reference, thus enabling the Editors to avoid repetition and to make helpful references to previous notes.—Ed.]

GENERAL.

(A) BIOLOGY AND MORPHOLOGY.

ATMOSPHERIC POLLEN.—Hyde, H. A., and Williams, D.A. (1944: Studies in Atmospheric Pollen; I, A Daily Census of Pollens at Cardiff, 1942; *New Phyt.*, 43, 49-61) exposed microscope-slides coated with an adhesive and changed every 24 hours during the whole of 1942 and subsequently analysed the pollens so obtained. They found that anemophilous pollens formed 93.5% of the 15,673 grains identified and entomophilous pollens 6.5%. The effective pollen season lasted from early March until late September; there were three phases: (a) trees, (b) grasses, (c) dicotyledonous herbs. The following highest counts (on 5 sq. cm.) were obtained on the dates stated: *Corylus*, 63 on 20th March; *Alnus*, 29 on 25th March; *Taxus*, 142 on 26th March; *Salix*, 10 on 27th April; *Ulmus*, 107 on 1st April; *Populus*, 6 on 13th April; *Fragininus*, 12 on 11th April; *Betula*, 387 on 27th April; *Carpinus*, 21 on 28th April; *Fagus*, 20 on 9th May; *Pinus*, 23 on 27th May; *Quercus*, 103 on 16th May; *Gramineae*, 482 on 23rd June; *Plantago*, 28 on 6th June; *Rumex*, 14 on 8th June; *Urtica*, 58 on 19th June. The great majority of entomophilous pollens caught belonged to flowers with exposed (Knuth's type E) or partly concealed (EC) nectar or to pollen flowers (Po), the most numerous being Ranunculaceae, Cruciferae, Umbelliferae, *Sambucus* and Compositae. No type of pollen was caught which could not have originated within a few miles at most and there appeared to be a high correlation between the pollen composition of the catch and that of the local vegetation, though distant transport could not be excluded. There was also a close relation between the catch and local weather conditions.—[H.]

Hyde, H. A. (1944: Pollen Analysis and the Museums; *Museums Journal*, 44, 145-149) describes the scope of *palynology*, the new branch of knowledge, centred on the technique of pollen analysis, which has recently come into being, and pleads for the help of the museums in developing it.—[H.]

Hyde, H. A., and Williams, D.A.—1943: A Census of Atmospheric Pollen; *Nature*, 151, 82-3. Preliminary note.—[H.]

POLLEN.—Lewis, D., and La Cour, L. F. (1944: *Nature*, 153, 167-8) describe a method of collecting pollens in quantity, based on air suction.—[H.]

INTERRELATIONS OF PLANTS AND INSECTS formed the subject of a joint discussion held between the British Ecological Society and the Royal Entomological Society of London (Anon.; 1944: *Nature*, 153, 424-6).—[H.]

NECTAR, POLLEN AND HONEY.—J. Pryce-Jones (1944: *P.L.S., Sess. 155*, 129-174) discusses in detail problems connected with these in the "bee-flower relationship," many British species being mentioned.

SEED DISPERSAL.—Healey, A. J. (1943: *Nature*, 151, 140) describes some observations on accidental carriage and dispersal of seeds caught on human clothing.—[H.]

GERMINATION OF SEEDS.—An account of recent work is given by Tincker, M. A. H. (1943: *P.L.S., Sess. 154*, 167-182, with discussion 182-184). The longevity of seeds can often be increased by suitable storage conditions. *Oenothera biennis*, *Silene noctiflora*, *Verbascum Blattaria*, and *Rumex crispus* germinated after 60 years in bottles buried 18 inches in soil in Michigan. Low temperature and low humidity generally favour longevity. Hard seed coats which become impervious to water are a well known cause of dormancy: various methods of inducing subsequent germination are described. Some seeds germinate better in the light, others better in darkness. Certain wave-lengths of light may inhibit or stimulate germination. The effects of many other factors is discussed and a long bibliography is given. In the discussion Dr Ramsbottom mentioned that *Albizzia Julibrissin* seeds in the British Museum collections, brought from China in 1793, germinated in their box in 1940 after wetting during the extinguishing of a fire, which led him successfully to attempt the germination of seeds of *Nelumbium Nelumbo*, both from Manchurian peat estimated as at least 300 to 400 years old brought to London in 1926, and from a receptacle in the Sloane collections, estimated as at least 250 years old, some of which were germinated by Robert Brown a century ago.—[Wi.]

PHENOLOGY.—Phenological reports for 1943, based on observations by members of the Darlington and Teesdale Naturalists' Field Club, are published in the *N.W. Nat.*, 18, 350-351 (1943).—[Wa.]

FLOWERING.—J. McLean Thompson (1944: *P.L.S., Sess. 156*, 46-68, and discussion) makes suggestions "Towards a modern physiological interpretation of flowering." As a study of cauliflorous plants, in which the inflorescences spring direct from woody branches, makes it "increasingly evident that either a foliar or a flowering shoot may be de-

veloped from an exogenous or an endogenous meristem and that reversion of state is oft-recurrent, questions have grown more insistent as to what may be the factors which determine this or that course of development within a shoot, as to which are major factors, and as to where they reside. The time has not yet come when final and well-balanced answers can be given." But detailed observations on the course of development of form and organisation are given which may help towards an elucidation of the problem.—[Wi.]

BULBS AND CORMS.—Priestley, J. H., and Scott, Lorna I. (1943: Notes from a Botanical Laboratory; *Naturalist*, No. 805, 33-37) discuss the formation of bulbs and corms in monocotyledons and give a detailed account of the structure and development of the bulb of the bluebell and the corm of the crocus.—[Wa.]

HETEROSTYLISM.—Lewis, D. (1943: The Physiology of Incompatibility in Plants, II; *Ann. Bot., N.S.*, 7, 115-122) has discovered that differences in the osmotic pressure of styles and pollen of thrum- and pin-plants of *Linum grandiflorum* will account for the fact that pin-flowered plants are not usually fertilized by pin-flowers nor thrum by thrum.—[H.]

(B) ECOLOGY.

FORESTRY.—The report of a joint meeting between the British Ecological Society and the forestry societies of Great Britain to discuss the "Ecological Principles involved in the Practice of Forestry" is published in *Forestry*, 17, 11-46, 1943, and also in the *Journal of Ecology*, 32, 83-115, 1944.—[Wa.]

AQUATIC VEGETATION.—Grose, J. D. (1943: The Changing Vegetation of Coate Water; *Wilt. Arch. and N.H. Mag.*, 50, 269-270) gives some observations made during the years 1934-1940 on the changing frequency of five species at Coate Water, an artificial lake. With one exception all the species mentioned are now scarce although each has occurred in abundance in one or more years during the period.—[Wa.] See also Grose, J. D. (1944: *J.B.*, 80, 125-126).

SEA CLIFFS.—Hepburn (1943) gives an account of the vegetation of sea cliffs between Trebetherick Point and Kellan Head, North Cornwall. It is shown that only a small community of plants can survive exposure to wind and spray on the lower cliffs. On the higher parts with more soil and less exposure to spray other plants occur along with those of the lower zone, but with the latter in different relative quantities. Very few of the true cliff plants are able to compete with the grasses and other plants of the grassland community on the cliff tops. Cliff-walls bordering the cliff grassland support a flora which includes a number of true cliff species.—[Wa.]

SALT MARSH.—Boley, M. B. (1943: The Vegetation of Berrow, North Somerset; 1, The Salt Marsh Community; *Proc. Bristol N.S.*, 9, 427-433) gives an account of the salt marsh vegetation at Berrow and discusses the changes which have taken place since 1922. Changes in drainage and silting leading to altered levels and salinity have been the chief

factors in the changes. A list of species with their frequencies in 1922, 1930 and 1942 is given.—[Wa.]

SAND DUNES.—Boley, G. M. (1944: The Vegetation of Berrow, North Somerset; 2, The Sand Dune Succession; *Proc. Bristol N.S.*, 9, 510-520) describes the flora of the foreshore and sand-dune communities at Berrow and compares the observations of previous workers. A full list of species is given with their comparative frequencies in the years 1906, 1922, 1929 and 1943.—[Wa.]

EFFECT OF WIND-BLOWN SEA SALT ON PLANTS.—Edlin, H. L. (1943: Salt Storm on the South Coast; *Quart. Journ. For.*, 37, 24-26) records damage done to forest trees in the south of England in the spring of 1942.—[H.]

THE IMPACT OF WAR ON THE BRITISH FLORA.—An excellent summary for Wiltshire has been given by J. D. Grose (1944: *Wilts. Arch. and N.H.M.*, 50, 336-345), and it is to be hoped that other local botanists will similarly set down changes observed in their own areas, for the benefit of future students. The felling of woodlands may permit the reappearance of members of the ground flora, but if the sites are colonised by bracken or replanted by conifers the result will be a serious impoverishment of our flora. A good deal of the ploughing up of poor heath land and other areas has resulted in little if any gain to the war larder and much destruction of natural amenities.

Many weeds have flourished and spread. The considerable cultivation of flax has made *Linum usitatissimum* once again a frequently observed casual. The roadside borders have escaped the extreme cutting that in pre-war years was destroying one of the great pleasures of the countryside for little if any benefit to the farmer, whose weeds rarely came from either roadside or hedgebank, but more often found it difficult to exist in such densely populated habitats.

Tank practice has produced many areas suitable for ecological studies in recolonisation.

Air-raid shelters have produced many crops of unusual weeds, and bombed sites yet others. The spread of *Senecio squalidus* L. may have been partly due to the wide range of the London Fire Brigade, but some places (Canterbury, I am informed) seem to have escaped it: full records for this species might be of interest.

Decreasing transport facilities have given our rarities a chance to recover, as happened to some in the last war. The collection of medicinal herbs and rose-hips is not likely to have affected the flora permanently. Many defence trenches have provided increased habitats for water plants.

Most of the effects would probably disappear after a few years of normal conditions, but the extent to which this is true can only be judged if the effects of war are set down now. Mr Grose's article is a valuable contribution to the history of our flora, and a model for others to study.—A. J. WILMOTT.

C. I. Sandwith (1944: *Proc. Bristol N.S., Ser. 4, 9, 471*) writes:—
 “The aspect of the countryside has been somewhat changed by war needs, waving corn, with the accompanying cornfield weeds, Red Poppies, Corn Chamomile and others not commonly seen in this part of the district, taking the place of well known, green pastures.”

BOMBED AREAS.—Salisbury (1943) describes the colonization of bombed areas in London and discusses the ecological factors involved. The principal species concerned are *Epilobium angustifolium*, *Senecio vulgaris*, *S. squalidus*, *S. viscosus*, *Tussilago Farfara*, *Erigeron canadensis*, *Sonchus oleraceus*, *Taraxacum officinale*, *Galinsoga parviflora*, grasses (*Poa annua*, *Lolium perenne*, *Agrostis alba* [i.e. *stolonifera*, Ed.], *Holcus lanatus*, *Dactylis glomerata* and *Poa pratensis*), clovers (*Trifolium pratense*, *T. repens*), *Stellaria media*, *Plantago lanceolata*, *Salix Caprea*, *Sambucus nigra*, *Solanum Dulcamara*, *S. nigrum*. The author concludes that the order of arrival of the various species of plants is in no small degree a measure of the relative efficiency of their means of dispersal.—[H.] See also 721/1, *Typha latifolia* L.

(C) TOPOGRAPHICAL.

NORTH CORNWALL.—Hepburn (1943) gives an ecological account of the vegetation of the sea-cliffs between Trebetherick Point and Kellan Head.—[Wa.]

DEVONSHIRE.—Fraser, G. T. (1944: *Trans. and Proc. Torquay Nat. Hist. Soc.*, 9, 9-12) contributes “Notes on the Flora of Dawlish Warren.”—[Wa.]

SOMERSET.—The Report of the Botanical Section in the *Proceedings of the Somersetshire Archaeological and Natural History Society* for 1942, Vol. 88, 106-112, 1943, contains a number of records supplied by the recorder, Dr W. Watson.—[Wa.]

WILTSHIRE.—Grose, J. D. (1944: *Wiltshire Plant Notes; Wilts. Arch. and N.H. Mag.*, 50, 346-350) enumerates a large number of records made in 1942 and 1943. He also discusses (1944: *The Impact of the War on the Wiltshire Flora; l.c.*, 336-345) the effect of war activities on the flora of various habitats. The chief losses are forest trees and a few local ericaceous species. The range of a few native plants and of several aliens has been increased.—[Wa.]

The Reports of the Marlborough College Natural History Society for 1942 and 1943 contain the usual “Flower List” of records for the rarer plants and phenological observations; pp. 11-12, 11-12 respectively.—[Wa.]

SURREY: Bookham Common.—The ecological survey of the Common undertaken by the London Natural History Society is in need of more helpers with the vegetation mapping (*Lond. Nat. for 1943*, 22: 1944).—[Wi.]

HERTFORDSHIRE.—Meyer, D. & H. (1943: *The Year's Botany; Journ. Letchworth and Dist. N.H. and Antiquarian Soc.*, No. 3, 11-12) contribute a few records for the county, and report the rediscovery of *Drosera*

rotundifolia, long thought to be extinct in the county. Brunt, A. W. (*l.c.*, 13-14) gives a brief account of "The Flora of Norton Common."—[Wa.]

ESSEX: Epping Forest.—In connection with the Survey undertaken by the London Natural History Society, an interesting Historical Sketch of the area is given by C. S. Bayes (1944: *Lond. Nat. for 1943*, 32-43), which is followed by some details concerning the climate.—[W.]

NORTHAMPTONSHIRE.—Allen, H. G. (1943: Botanical Notes, 1942 and 1943; *Journ. Northamptonshire Nat. Hist. and Field Club*, 30, 118-119) gives a number of new locality records.—[Wa.]

WEST GLOUCESTERSHIRE AND NORTH SOMERSET.—Sandwith (1943, 1944) reports on the progress of floristic botany in the Bristol district.—[Wa.]

STAFFORDSHIRE.—Edees, E. S. (1943, 1944: *Trans. North Staffs. Field Club*, 77, 38-42; 48-53) contributes some "Plant Notes and Records for 1942 and 1943." The rediscovery of *Potentilla verna* reported.—[Wa.]

MONTGOMERYSHIRE.—Wade and Webb (1943) contribute a large number of records, 175 species including adventives are recorded as new to the county.—[Wa.]

NORTH LINCOLNSHIRE, NOTTINGHAMSHIRE, DERBYSHIRE AND SOUTH-WEST YORKSHIRE.—Brown, J. (1944: Midlands Phanerogamia; *N.W. Nat.*, 18, 325-326) enumerates a number of records for vice-counties 54, 56, 57, and 63.—[Wa.]

CHESHIRE.—Ellison and Wilson (1943: *Proc. Liverpool Nat. Field Club*, 1942, 6-10) give Notes on the Fauna and Flora of Hilbre Island.—[Wa.]

WEST LANCASHIRE.—Whellan (1943: Notes on the Flora of West Lancashire; *N.W. Nat.*, 17, 354-357) discusses some changes in the flora of the St Anne's district and enumerates a number of records for the vice-county including *Papaver Lecoqii* Lam. at Silverdale, and *Spartina Townsendii* H. & J. Groves from the muddy bank of the Wyre near Shard Bridge, which are new to v.-c. 60.—[Wa.]

YORKSHIRE.—Sledge, W. A. (1943: Botanical Records Committee [Report]; Yorkshire Naturalists' Union: Annual Report, 1942; *Naturalist*, No. 804, 16-18) reports a number of new locality records for the vice-counties of 61, 62, 63, 64, and 65.—[Wa.]

NORTH-EAST YORKSHIRE.—The publication of "The Natural History of Goathland; III, The Flowering Plants and Ferns" has been continued by Flintoff, R. J. (1943: *N.W. Nat.*, 18, 87-102, 194-204).—[Wa.]

NORTH-WEST YORKSHIRE.—Taylor, George (1944: Farnham Mires: A Notable Botanical Locality; *N.W. Nat.*, 19, 26-28) gives a description of Farnham Mires together with a list of the more interesting plants. Farnham Mires was scheduled for reclamation and cultivation, but an approach was made to the appropriate agricultural committee and to the Wild Plant Conservation Board, and the reclamation plans were cancelled.—[Wa.]

WESTMORLAND AND CUMBERLAND.—Wade, A. E. (1943: An Exsiccata of Lake District Ferns; *N.W. Nat.*, 17, 394-395) describes "Flintoff's

Collection of the British Ferns in the Lake District" and probably published about 1850. A list of the species with their localities is given.—[Wa.]

DUMBARTONSHIRE.—Lee, J. R., contemplates publishing "The Flora of Dumbartonshire, v.-c. 86. A" at an early date. (See *Glasgow Nat.*, 16, 87, 88—plant records are to be found on pp. 88-90).—[Wi.]

RHUM.—Harrison *et al.* list plants collected in Rhum (v.-c. 104) and S. Uist (v.-c. 110), some of which are extracted in *Plant Records*. They include the arctic species *Lychnis alpina* L. and *Erigeron uniflorus* L. as well as further specimens of *Carex bicolor* All., all from Rhum.—[Wi.]

VICE-COUNTIES.—J. W. H. Harrison (1944: *Vasc.*, 29, 18) attacks the article on "Vice-counties" in the last *Report* (pp. 524-6), but misrepresents the Committee there mentioned as having been "to all intents and purposes self-appointed," and makes other equally unfounded statements.—[Wi.]

(D) DISTRIBUTION.

(a) HISTORY OF THE BRITISH FLORA.

THE GLACIAL PERIOD.—A further contribution to the study of the Glacial Period has been made by Sir George Simpson (1940: *P.L.S.*, *Sers.* 152, 190-219; Possible Causes of Change in Climate and their Limitations). First, the effects of various factors on temperature and rainfall are analysed and discussed. The distribution of land and water has little effect on the mean annual temperatures of latitudinal zones, those of the northern hemisphere, which contains most of the land, being only two or three degrees warmer. A glaciated southern hemisphere in the Permo-carboniferous Period coupled with a warm northern hemisphere, and a uniform temperature over the whole world as postulated in the Eocene Period, are both meteorologically impossible. But although the mean annual temperatures are little affected, the summer and winter temperatures may be greatly affected. At the equator there is little difference between the warmest and coldest months, but at 40° N. lat. the annual range is 30° C. over N. America and nearly 40° C. over Asia though only 6° C. over the eastern Atlantic. At 40° S., which runs mostly over the ocean, the range is small and only exceeds 6° C. near the land. At 60° N. the range over the N. Atlantic is only 8° C. but reaches 58° over Asia. It is the *summer* temperatures that are the deciding factor for glaciation: in general the temperature of the warmest month is about 5° C. in non-glaciated regions, and below it in glaciated; the temperature of the coldest month is of little importance. At 70° N. and S. lat. the mean annual temperatures are -10.7° C. and -13.3° C. respectively, not very different. But 70° S. is permanently glaciated down to sea level, whereas there is no permanent ice at sea level at 70° N. latitude: owing to the great continents on the equatorial side of 70° N. the mean temperature of the warmest month is 7.3° C., but on the equatorial side of 70° S. lies the Antarctic ocean and the midsummer temperature at 70° S. is -1.3° C.

Rainfall is more complicated, depending on three main factors, the latitudinal zonal effect, the orographic effect dependent mainly on great mountain ranges, and the origin of the prevailing winds (continental or oceanic). These three effects may work in the same or in opposite directions. In consequence the distribution of rainfall is very irregular, and extremes of rainfall may be found in all three zones. In spite of the different distribution of land in north and south latitudes, the rainfall in corresponding latitudinal zones is remarkably similar, and the totals to north and south the same to 1 per cent. Two main conclusions stand out:—(a) Average temperatures and rainfall for a zone and a year are the same in the two hemispheres irrespective of the distribution of land and water: it is the shape of the earth and the physical properties of the atmosphere which determine the main features of the climate of the earth as a whole; (b) glaciation and desert formation are very largely the effect of the local distribution of land and water. It would therefore seem that a possible cause of [local] climatic change might be found in [changed] distribution of land and water. But in the Pleistocene period several violent oscillations of climate occurred and although redistribution of land and water may have taken place there is no evidence for any oscillation. The violent changes must have some other cause.

Wegener and Köppen postulated shifting of the north and south poles, and in the Pleistocene Glacial Period the north pole was presumed to be between 5° and 7° nearer north-west Europe than it is now. But this does not account for the *series* of glacial and interglacial periods, and even they were not prepared to allow for corresponding pole-wanderings. In 1929 Milankovitch published a book on the mathematical theory of thermal phenomena produced by solar radiation, and Köppen and Wegener were impressed by the possible large changes in summer and winter radiation, the former of which has been shown to be all important in connection with glaciation. Milankovitch's curve showed four pairs of periods of cold summers with a long interval between the second and third periods, which Köppen and Wegener thought corresponded well with the curve of the four advances in the Swiss snow line denoted by Penck and Brückner as Günz, Mindel, Riss, and Würm [Glacial] periods. The changes in solar radiation were considered to have subdivided into four the Ice Age caused by the movement of the poles.

The possibility of correlating the glaciations with the radiation curve appealed to many workers. The remainder of this paper consists of a re-examination of this problem. Although the total radiation received remains constant, various factors (e.g., eccentricity of the earth's orbit) may produce colder winters balanced by hotter summers. About 11,100 years ago, according to Milankovitch's curve and Simpson's calculations, July temperatures in Scandinavia are between five and six degrees higher than to-day, which, although the January temperatures were between four and six degrees lower, might have permitted the

northward extension of oak, birch, hazel, and maple known to occur after the Glacial Period ended. But at the time, presumed to be that of the Riss Glaciation, Milankovitch's curve (c. 233,000 years ago), shows the July temperature lowered $5\frac{1}{2}^{\circ}$ C. in lat. 55° N. Now between 40° N. and 80° N. the July temperature decreases at approximately 5.5° C. for 10° of latitude, i.e., at that time the July mean at 55° N. would be that of the present July mean of 65° N., where there is no approach to glaciation. But in the Riss glaciation 55° N. in America was heavily glaciated. And from Milankovitch's curve the other periods were even less favourable to glaciation. The temperature changes were calculated from a formula given by Milankovitch, but it can be shown that this formula gives changes about four times too large, as Simpson goes on to explain. Milankovitch's curve was based on changes in the earth's orbit: it follows that changes of solar radiation due to changes in the earth's orbit are always too small to produce glacial periods.

Changes in the energy of the sun are next to be considered. Penck and others assume that a glacial period must correspond with a lowering of the temperature of the earth's surface as a whole. But Meinardus demonstrates conclusively from an ingenious argument that the greater outflow of ice from the Antarctic Continent, known to have occurred, would be possible only with an *increase* in temperature and wind velocity (e.g., 5° C. and 24% increased wind vel.).

Simpson then restates and elaborates his previous explanation of how an increase in solar radiation may produce glaciation in an earth warmer as a whole. If the pluvial periods known to exist in other parts of the world can be shown to be correlated with the glaciations nearer the poles, this explanation will be corroborated. If they can be shown to be confined to the interglacial epochs, as Penck held, this explanation must fall, for it requires that there should be one pluvial period embracing the Riss and the Würm glacial epochs with its maximum in the interglacial between them.—[Wi.]

POLLEN ANALYSIS.—For a summary of an account of "Pollen Analysis and the Forest History of England and Wales" see H. Godwin (1940: *P.L.S., Sess. 152*, 225-6). The typical pollen diagram for the post-Glacial period shows a first period of increasing warmth, in which successive forest types extend, a second period of optimum forest development and a third period of decreasing warmth with some extension of beech and hornbeam not previously important. The East Anglian zonation, which seems applicable to the whole country, is:—

- VIII. Alder-Oak-Elm-Birch-(Beech) ... [Romano-British].
- [VII-VIII transition] [Bronze and Early Iron Ages].
- VII (a and b). Alder-Oak-Elm-Lime ... [Neolithic].
- VI (a and b). Pine-Hazel [Mesolithic].
- V. Pine [Mesolithic].
- IV. Birch-Pine.

Some peat-beds submerged on the North Sea and off South Wales have been dated IV-V and second half of VI respectively.—[Wi.]

Pennington, W. (Mrs T. G. Tutin). (1943) Lake Sediments: the bottom deposits of the North Basin of Windermere with special reference to the diatom succession; *New Phyt.*, 42, 1-27. Various plant pollens were identified.—[H.]

COASTAL PEAT BEDS.—Godwin, H.; 1943: Coastal Peat Beds of the British Isles and the North Sea; *J. Ecol.*, 31, 199-247. This was Dr Godwin's presidential address to the British Ecological Society, 1943. He summarises the distribution of coastal peats and describes the results of pollen analyses from many of them, including previously unpublished profiles from Somerset, Hampshire, Sussex, Norfolk, Cardiganshire, Skye and Jersey. He shows that submerged peats have been formed at all stages of the late glacial or post glacial period: the concepts "submerged forest period" and "Neolithic submerged forest period" should be discarded.—[H.]

NORFOLK.—H. Godwin (1944: Age of origin of the "Breckland" heaths of East Anglia; *Nature*, 154, 6-7) describes and figures pollen diagrams from Hockham Mere. A sharp increase in various non-tree pollens occurs above a horizon probably coincident with the opening of the Neolithic period and strongly suggests the origin of the Breckland heaths from pre-existing oak forest.—[H.]

(b) VARIOUS.

Williams, C. B. (1944: Some applications of the Logarithmic Series and the Index of Diversity to Ecological Problems; *J. Ecol.*, 32, 1-44) describes the application of a logarithmic series to a number of problems of the division of individuals into species and of species into genera.—[Wa.]

NATURE RESERVES.—Nature Conservation in Britain (1943: Memorandum No. 3 of the Conference on Nature Preservation in Post-war Reconstruction. Issued by the Society for the Promotion of Nature Reserves, London: British Museum (Natural History). A synopsis of the principles involved in, and of the measures required to implement, a policy of nature conservation in Great Britain. (Discussed in *Nature*, 151, 707-9).—[H.]

(G) NOMENCLATURE.

NOMENCLATURE.—For an account of "A Discussion on the differences in observance between Zoological and Botanical Nomenclature," see *P.L.S.*, Sess. 156, 126-146. The discussion was summed up by Mr Paul de Laszlo.—[Wi.]

Practical problems of botanical and zoological nomenclature were discussed at a meeting of the Association of Applied Biologists reported by Rendle, B. J. (1944: Nomenclature Problems of the Applied Biologist; *Nature*, 154, 812-14). The principle of priority is recognized both in botany and in zoology: its application in both is complicated by the resurrection of names published in obscure journals with consequent instability in nomenclature. International Committees both of botanists and of zoologists have been set up: the botanical one to prepare a list of

names of economic plants to remain in use for a limited period, the zoological one with power to suspend the operation of the rules in particular cases in the interests of uniformity.—[H.]

(H) TAXONOMY.

NOMENCLATURE AND TAXONOMY.—A memorandum from The Council of the British Ecological Society on Nomenclature and Taxonomy in the Biological Flora of the British Isles, in course of publication in the *Journal of Ecology*, appears in that journal, Vol. 31, 93-96. The Council has decided to depart from the Recommendation in the International Rules that specific epithets which are old generic names or derived from personal names or vernaculars should be spelt with initial capitals. The terms to be used for the different types of intra-specific units are defined as far as that is possible with the incomplete knowledge of to-day.—[Wa.]

(K) MISCELLANEOUS.

Wardlaw, C. W. (1944: Unification of Botanical Science; *Nature*, 153, 125-130) considers selected aspects of the development of plant science and emphasises the need to achieve integration between the various branches of botany.—[H.]

SAMUEL KING (1810-1888).—Crump, W. B. (1943: Samuel King and His Botanical Tours in Yorkshire; *N.W. Nat.*, 18, 275-284) gives a short biography and publishes King's accounts of the tours he made to Malham in Craven in 1837 and to Teesdale in 1840.—[Wa.]

BOTANIC GARDENS.—Cambridge University Botanic Garden will benefit very substantially from the Cory Bequest (1943: *Nature*, 151, 328). Oxford Botanic Garden has received a new Statute (1943: *Nature*, 151, 367).—[H.]

SYSTEMATICS OF PLANTS AND ANIMALS.

"Differences in the systematics of plants and animals and their dependence on differences in structure, function, and behaviour in the two groups" were debated at the Linnean Society in 1941 [*P.L.S.*, Sess. 153, 272-287]. In closing the debate it was said that "it seemed that the only conclusion that could be drawn was the obvious one that all systematists were striving after the same ends, though the methods of approach were different."—[Wi.]

CLASSIFICATIONS.—"A Discussion on Phylogeny and Systematics" was held at the Linnean Society in 1940 [*P.L.S.*, Sess. 152, 234-255] in which adherents of both "phylogenetic" = "natural" and "artificial" = "logical" classifications, both botanists and zoologists, took part. "The President closed an interesting debate with a comment on the great diversity of view revealed and a remark that phylogenetic trees may serve in teaching if the student be cautioned that they are probably inaccurate."—[Wi.]

Chapman, K. H. (1944: *Nature*, 153, 768) emphasises the importance of the subjective element in all schemes of classification.—[H.]

ECOTYPE.—Gregor, J. W. (1944: The Ecotype; *Biol. Reviews, Camb. Phil. Soc.*, 19, 20-29) discusses this concept at some length. Ecotypic differentiation is defined as "hereditary differentiation in respect of morphological and/or physiological attributes occasioned by the selective action of the habitat environment." It is suggested that when it is necessary to refer to habitat populations the ecotypic significance of which has not been established the term ecotype should be avoided, and some non-comittal term such as ecodeme should be used instead.—[Wa.]

SYSTEMATIC.

- 6/7. *RANUNCULUS FLAMMULA* L. The history of a white-flowered individual in Sussex is described by B. Barnes (1942: *P.L.S.*, *Sess. 154*, 58-62). It was found in 1927 and subdivided between 1927 and 1933 into more than two dozen plants in the author's garden, Chelsea Physic Garden, and Kew. For some reason all these and the original plant left in the wild died in the winter of 1933-34, which was not a hard one and which left the normal yellow plants in the garden unhurt. Whether the individual plant (although so much divided!) had reached its natural length of life or whether some feature of the winter affected the white but not the yellow form, must be left an open question. The white spots and patches on old petals due to bleaching is also discussed.
- 6/9. *RANUNCULUS ARVENSIS* L. A detailed study of the flower has been made by I. H. Burkill (1941: The Make-up of the Flower of *Ranunculus arvensis* Linn.—a study in evolution of isomerism in phanerogamous flowers; *P.L.S.*, *Sess. 153*, 161-215). A pure line was raised and the object was to seek for indications of how cyclic flowers evolved. A tendency towards isomerism was uncovered. Many data of counts or resulting graphs are given.—[Wi.]
39. *CARDAMINE*. Biswas, K. (1943: *Trans. Bot. Soc. Edin.*, 33, 416-430) in "Observations on Indian *Cardamine*" include *C. hirsuta* L., *C. impatiens* L. and *C. pratensis* L. The first is spreading as a weed throughout India and Burma from the plains to the temperate hills of the Western and the Eastern Himalayas. *C. impatiens* is common in the Western and Eastern Himalayas. *C. pratensis* is chiefly confined to the Western Himalaya and is abundant in West Tibet. *C. hirsuta* L. is used in a broad sense and includes *C. flexuosa* With.—[Wa.]
- 54/15. *BRASSICA ALBA* (L.) Boiss. Dale, W. T., and Scott, L. I. (1943: *Proc. Leeds Phil. and Lit. Soc.*, Scientific Sec., 4, 111-122) examine the behaviour of the mucilage layer found on the outer surface of the mature seeds.—[Wa.]
59. *CAPSELLA*. Dale, W. T., and Scott, L. I. (1943: *Proc. Leeds Phil. and Lit. Soc.*, Scientific Sect., 4, 111-122), describe the structural characteristics of the testa.—[Wa.]

- 60/1. *CORONOPUS DIDYMUS* Sm. Recorded as a weed on the leeward coast of Fiji at Nadarivatu, 1941, by Greenwood, W. (1943: *P.L.S.*, Sess. 154, 93; as *Senebiera didyma* Pers.).—[Wi.]
- 77/1. *CAKILE MARITIMA* Scop. This species "increased surprisingly along the beaches at seaside resorts owing to barbed-wire protection" in N.E. Yorkshire and Durham (1942: *Vasc.*, 27, 23).—[Wi.]
88. *VIOLA*. Fothergill, P. G. (1944: Studies in *Viola*; IV, The somatic cytology and taxonomy of our British species of the genus *Viola*; *New Phyt.*, 43, 23-35), gives the following new chromosome numbers:—
- 2n=20, *Viola odorata* L. vars. *subcarnea*, *semperflorens* and *immaculata*;
- 2n=26, *V. variata*, *V. Lloydii*, *V. Lejeunei*, *V. Pesneauii*, *V. segetalis*, *V. Curtisii*, and *V. variata* var. *sulphurea* (special case in which 2n=26+2);
- 2n=34, *V. obtusifolia* (and n=17), *V. ruralis*, *V. Déséglisei* (and n=17);
- 2n=40, *V. contempta*;
- 2n=48, *V. lutea* var. *amoena* Hens., *V. nana*.

The following numbers are confirmed: *V. odorata* L., *V. hirta* L., *V. silvestris* Lam. with 2n=20; *V. canina* L. and *V. Riviniana* Rchb. with 2n=40.

His conclusions, drawn from the study of the cytotaxonomy of the group, are: A. Section *Nomimum*: *V. hirta* and *V. odorata* are closely related but Becker is justified in separating them into two distinct groups. *Canina* and *Riviniana* are as closely allied to each other as is either to *silvestris*, if not more so; the chromosome number of *silvestris* is half that of the other two, but these two are not simple polyploids. B. Section *Melanium*: The series *Tricolores*, *Luteae-Curtisii* and *Nanae* of Drabble require some revision from the cytological evidence. Cytologically *Lloydii*, *Lejeunei*, *variata*, *variata* var. *sulphurea*, *Pesneauii*, and *Curtisii* belong to the same group, the *Tricolores*. Thus *Pesneauii* and *Curtisii* are extracted from Drabble's *Luteae-Curtisii* group, which is left with the single species *V. lutea* and its variety *amoena*. This separation of *lutea* from *tricolor* spec. coll. is justified, but *V. nana* and *V. lutea* are seen to have very similar chromosome complements. Drabble's creation of a separate series, *Nanae*, is not perhaps necessary, while the cytological evidence rather supports Rouy and Foucaud's inclusion of both *lutea* and *nana* in the collective species *V. Kitabeliana* Roem. & Schult. Finally, *V. contempta* requires further investigation. In chromosome number, etc., it resembles the 2n=40 series, while systematically it is placed among the *tricolor* pansies with 2n=26.—[H.]

- 88/1. *VIOLA STAGNINA* Kit. Taylor, J. M. (1943: *Viola stagnina* Kit. in Yorkshire; *N.W. Nat.*, 18, 112), reports on the occurrence of this plant at Thorne Waste.—[Wa.]
102. *ARENARIA*. Polunin, N. (1943: *Nature*, 153, 451-2) describes the distribution of *A. humifusa* Wahl. and suggests that it may be found to include Britain.—[H.]
- 112/14. *HYPERICUM PERFORATUM* L. is a pestilent weed in Australia: an account of its attempted control by beetles is summarised by Imms, A. D. (1944: *Nature*, 153, 785).—[H.]
- 112/14b. *HYPERICUM PERFORATUM* var. *ANGUSTIFOLIUM* Gaud. Control measures also include the sowing of competitive species (*Trifolium subterraneum* in association with perennial grasses, e.g. *Phalaris tuberosa* and *Lolium perenne*) and chemical treatment. See Moore, R. M., and Cashmore, A. B.; *Australian Council for Scientific and Industrial Research Bull.*, 151 (quoted 1943: *Nature*, 152, 746).—[H.]
127. *GERANIUM*. G. N. and F. F. Jones (1943: *Rhodora*, 45, 5-26, 32-54) have made a "Revision of the Perennial Species of Geranium of the United States and Canada." *G. pratense* L. (p. 13) is adventive in fields and meadows of North-eastern United States and adjacent Canada and Newfoundland.
- 137/1. *EUONYMUS EUROPAEUS* L. Alternate host of *Aphis fabae* (*A. rumicis*): Blackman, G. E. (1944: *Gard. Chron.*, 116, 57).—[H.]
138. *RHAMNUS*. Godwin, H. (1943: Biological Flora of the British Isles; *Journ. Ecol.*, 31, 66-92) gives a biological and ecological account of *Rhamnus Frangula* L. and *R. catharticus* L.—[Wa.]
- 142/1. *ACER PSEUDOPLATANUS* L. Urquhart, B. P. (1943: *Quart. Journ. For.*, 37, 89-91) contributes notes on natural regeneration.—[H.]
- 142/1. *ACER PSEUDOPLATANUS* L. Jones, E. W. (1944: Sycamore and Maple Problems; *N.W. Nat.*, 18, 322-324) refers to (a) the problem of the date of the introduction of the sycamore, and (b) the distribution and reproduction of the maple, with a view to obtaining information on these points.—[Wa.]
- 142/1. *ACER PSEUDOPLATANUS* L. Howard, A. L. (1944: The Sycamore Tree; *Nature*, 153, 348-9) contributes notes on the history and uses of sycamore and maple in Britain. The "seed" is a remarkable example of a natural rotating mechanism: Brabazon, Lord (1944: *Nature*, 153, 498).—[H.]
- 176/12. *VICIA SATIVA* L. For details of visits of bees and flies, see C.R. (1943: *Vasc.*, 28, 16).—[Wi.]
- 176/35b. *VICIA TETRASPERMA* (L.) Munch. var. *TENUSSIMA* Druce is beginning to appear in North America; Maine, Vermont; Massachusetts, New York, and Oregon, according to M. L. Fernald (1943: *Rhodora*, 45, 480).
- 184/12. *FILIPENDULA ULMARIA* (L.) Maxim. is well established by Lake Superior, Minnesota, with leaves varying white, green, or mottled green and white beneath: Lakela, O. (1944: *Rhodora*, 46, 27).

- figure, are published in the *N.W. Nat.*, 18, 217-220 (1943).—
[Wa.]
- 383/8. *SENEGIO VISCOSUS* L. Turner, A. (1943: *N.W. Nat.*, 18, 110) records a population of this plant in a potato field, at Nelson, Lancashire with the ray florets radiating outwards instead of being recurved. Nowers, J. E. (1943: *N.W. Nat.*, 18, 215-216) also records a similar form from Darlington, Durham.—[Wa.]
419. *HIERACIUM*. Fernald (1943: *Rhodora*, 45, 317-325) in "Notes on Hieracium" refers to *H. murorum* L. as "locally adventive from Europe," and *H. vulgatum* Fries as an "All-inclusive series of introductions." *H. sabaudum* L. is now abundant in places at Cambridge, Massachusetts.
- 422/1. *LEONTODON HISPIDUS* L. Among material of this species cultivated for study of variation in leaf-form and hairiness, several abnormalities were observed:—Flowering stems with two capitula: florets tubular except at the very tip: ripe fruit two-seeded: one cotyledon bifurcated.—Miss K. B. Blackburn (1943: *Vasc.*, 28, 29).—[Wi.]
- 425/6. *LACTUCA ALPINA* (L.) Hook. f. Roger. J. Grant (1943: *Trans. Bot. Soc. Edin.*, 23, 404-406) contributes some ecological notes on this plant in Scotland. He suggests that as the few remaining colonies are beyond the reach of animals, rain and wind are perhaps the chief enemies, although weather alone will not prevent its survival.—[Wa.]
- 435/1. *CAMPANULA GLOMERATA* L. has been found in Minnesota: Lakela, O. (1944: *Rhodora*, 46, 28).
55. *PRIMULACEAE*. A paper by G. V. Last, on the family, and dealing chiefly with the British species of *Primula*, which was read before the Liverpool Botanical Society, is printed in full in the Report of the Society (1943: *N.W. Nat.*, 18, 127-129).—
[Wa.]
- 460/2. *PRIMULA VULGARIS* Huds. Marsden-Jones, E. M., and Turrill, W. B. (1944: Experiments on Colour and Heterostyly in the Primrose (*Primula vulgaris* Huds.), *New Phyt.*, 43, 130-134) describe the results of breeding experiments made with variously coloured "red" (anthocyanin) primroses (from Pembrokeshire) which probably owed their sap pigment to genes introduced from gardens.—[H.]
- 467/2. *ANAGALLIS ARVENSIS* L. Seedling. Abnormalities are described by Barnes, B. (1943: *P.L.S.*, Sess. 154, 88-91) who analysed the features of 1174 young wild seedlings: 33 had three cotyledons but only 14 of these had the first whorl of foliage leaves three-membered. In spite of increased assimilating surface the tricotyls were less vigorous and more backward than the dicotyls.—[Wi.]
- 480/7. *GENTIANA AMARELLA* L., "cf. var. *ULIGINOSA* Wahl." Found in 1937 in S. Greenland by N. Polunin (1943: *P.L.S.*, Sess. 154, 117).

- 500/1. ANCHUSA SEMPERVIRENS L. as a garden plant. See Hutchinson, J. (1943): Evergreen Alkanet; *Gard. Chron.*, 113, 238-239 (with line drawing).—[H.]
- 534/1. ANTIRRHINUM MAJUS L. The "Comparative Cytology of sterile intra- and fertile inter-varietal tetraploids of *Antirrhinum majus* L." is detailed by Sparrow, A. H., Ruttle, M. L., and Nebel, B. R. (1942: *Amer. J.B.*, 29, 711-715). The relatively higher homozygosity of the intra-varietal tetraploids is considered the probable cause of their greater sterility. Auto-tetraploids are often characterised by reduced fertility.—[Wi.]
539. LIMOSELLA. An account of *L. subulata* Ives, *L. aquatica* L., and their hybrid, in Glamorgan, is given by E. Vachell (1941: *Trans. Cardiff Nat. Soc.*, 71, 32-35).
549. MELAMPYRUM. Britton, C. E. (1943: The Genus *Melampyrum* in Britain; *Trans. Soc. Edin.*, 33, 356-379) gives descriptions with a key of the species, subspecies, varieties and principal forms found in the British Isles.—[Wa.]
- 558/13. MENTHA ARVENSIS L. An account, under two varieties—"typica" [? var. nov.] and "villosa (Benth.) comb. nov."—of some of the N. American forms of this species is given by Stewart, S. R. (1944: *Rhodora*, 46, 331-336).—[Wi.]
- 588/8. PLANTAGO LANCEOLATA L. Denton, M. E. (1943: *N.W. Nat.*, 18, 110-112) describes and illustrates an abnormal inflorescence with fasciated and spirally twisted stems.—[Wa.]
600. CHENOPODIUM. Aellen, P., and Just, T. (1943: *American Midland Naturalist*, 30, 47-76) publish a "Key and Synopsis of the North American Species of the Genus *Chenopodium*." Sixty-two species together with their varieties are included. Twenty-four of the species are represented in the British Plant List either as natives or adventives. The varieties *glomerulosum* (Rchb.) and *lanceolatum* (Muhl.) of *C. album* are reduced to the rank of forma and *C. Borbasii* Murr. to the rank of variety under the same species. The Genus *Roubieva* is treated as a section of *Chenopodium*.—[Wa.]
- 618/14. RUMEX ACETOSA. Löve, A. (1943: *Nature*, 152, 358-9) describes a Y-linked inheritance of asynapsis.—[H.]
633. ULMUS. Howard, A. L. (1943: *Nature*, 152, 636-8) writes on the British elms. Melville, R. (1944: The British Elm flora; *Nature*, 153, 198) briefly summarises the British elms, their status and distribution.—[H.]
- 635/1. CANNABIS SATIVA L. Todd, A. R. (1943: The Hemp Drugs; *Endeavour*, 2, 69-72) discusses the history and chemical composition of the hemp drugs.—[Wa.]
642. BETULA. For notes on the ecology of *B. alba* and *B. pubescens* see Penistan, M. J. (1944: *Birch. Quart. Journ. For.*, 33, 78-88).—[H.]

- 645/1c. *CORYLUS AVELLANA* v. *CONTORTA* Hort. in Gloucestershire: Arnold, R. E. (1944: *Gard. Chron.*, 116, 182). Not fertile: Van de Weyer, W. (1944: *Gard. Chron.*, 116, 210).—[H.]
646. *QUERCUS*. Jones, E. W. (1943: The Oaks in Britain; *N.W. Nat.*, 18, 213-214) refers to some of the problems relating to the two British oaks and the hybrid between them. The kind of information required in connection with the study he is making of the oaks is set out in detail.—[Wa.] Howard, A. L. (1944: The Oak Tree, *Nature*, 153, 438-41) contributes notes on the history and uses in Britain.—[H.]
- 649/1. *FAGUS SYLVATICA* L. Howard, A. L. (1944: The Beech Tree; *Nature*, 154, 492-4) discusses uses in Britain.—[H.]
650. *SALIX*. In "The Cytology of *Salix* in Relation to its Taxonomy," J. Wilkinson (1944: *Ann. Bot.*, N.S., 8, 269-284) continues the analysis of the chromosome complements of a number of species and hybrids. The basic number in the genus is 19 or 22, and the various irregularities, fragmentation and polyploidy, probably also mutation, have played their parts in evolution. *S. lapponum* can be diploid or tetraploid, and *S. Myrsinites* diploid or decaploid).—[Wi.]
- Wilkinson, J. (1944: The Cytology of *Salix* in relation to its Taxonomy; *Ann. Bot.*, N.S., 8, 269-284) has determined the following chromosome numbers (in addition to confirming others previously reported):—*lapponum* L., 38 (diploid on base 19); *lapponum*, 76 (tetraploid); *daphnoides*, 57 (triploid on 19); *Myrsinites*, 190 (decaploid on 19); *herbacea*, 38 (diploid on 19); *Caprea*, 76 (tetraploid on 19); *triandra*, 88 (tetraploid on 22); and those of eleven hybrids. Polyploidy (e.g. in *S. lapponum* and *S. Myrsinites*) may be unaccompanied by systematic difference. The author describes the metaphase chromosome morphology of 27 species and eleven hybrids and draws general conclusions on karyophylysis within the genus. Howard, A. L. (1944: The Willow Tree (*Salix* sp.); *Nature*, 154, 835-7) quotes sizes of remarkable specimens of various species.—[H.]
- 651/2. *POPULUS TREMULA* L. An account (with bibliography) of a giant form (*gigas*) discovered in 1935 in Scania, South Sweden, and since also in Middle and North Sweden, which is a triploid (somatic chromosomes, 57) is given by T. A. Sprague (1940: *P.L.S.*, Sess. 152, 111-113).—[Wi.]
- 661/1. *CORALLORRHIZA TRIFIDA* Châtel. Downie, D. G. (1943: Notes on the Germination of *Corallorrhiza innata*; *Trans. Bot. Soc. Edin.*, 33, 380-382) records the symbiotic germination of the seeds and establishes the fact that the normally associated endophyte is a member of the Basidiomycetes, the perfect state of which is at present unknown.—[Wa.]
- 665/1. *GOODYERA REPENS* (L.) R. Br. Downie, D. G. (1943: Source of the Symbiont of *Goodyera repens*; *Trans. Bot. Soc. Edin.*,

33, 383-390) shows that the mycorrhiza associated with this orchid grows in the surface litter, but does not survive in the older compact humus and that the association is therefore confined to the surface layers. Evidence is submitted showing that the symbiont exists, either as an epiphyte or in the form of air borne spores, on the bifoliar spurs of Scots Pine before shedding, a fact which is of importance in understanding the distribution of the fungus in the soil and the colonisation of the latter by the orchid.

Mollison, J. E. (1943: *Goodyera repens* and its Endophyte; *loc. cit.*, 391-403) describes the first infection and subsequent rate of digestion of the endophyte in the embryo, its distribution in the adult plant and the infection of mature plants.—[Wa.]

- 668/3(3). *EPIPACTIS VECTENSIS* (Steph.) Brooke & Rose. Travis, W. G. (1943: *N.W. Nat.*, 18, 326) records this from a pine plantation on the Formby to Freshfield sandhills, S. Lancs., v.-c. 59, where it was observed in 1942.—[Wa.]
- 669/3. *ORCHIS SIMIA* Lam. Rose, F. (1943: A Note on the Rediscovery of *Orchis Simia* (Lamarck) in Oxfordshire; *J.B.*, 80, 102-3) briefly discusses its relationship with *O. purpurea*, *O. militaris* and *Aceras anthropophora*.—[Wa.] [The station appears to be the old one in which it has always been known.—Ed.] The Kent and Oxford forms are compared.—[Wi.]
- 676/3. *IRIS SPURIA* L. Bradley, C. R. Sylvester (1943: *Proc. Dorset N.H. and Arch Soc.*, 64, 118-120) contributes "Some Notes on the Occurrence of *Iris spuria* in Dorset," where it appears to have been growing for over half-a-century. He considers that the occurrence of this iris both in Lincolnshire and Dorset is not the result of a garden escape or other accidental introduction; but that it is a rare but true native of Britain. See *B.E.C. 1941-42 Rep.*, 505.—[Wa.]
- 688/1. *TAMUS COMMUNIS* L. I. H. Burkill (1943: *P.L.S.*, *Sess.* 155, 31-34) describes three leaves with double apex and one with the petiole doubled.
- 702/4. *ALLIUM VINEALE* L. Scott, R. H. (1944: *Agriculture*, 51, 162-170) describes the Life History of the Wild Onion and its bearing on Control. The production of bulbils and bulbs is dealt with in some detail.—[Wa.]
- 702/8. *ALLIUM CARINATUM* L. The plant thus recorded by N. L. Britton in 1901 from Pennsylvania is *A. oleraceum* L.—Fernald, M. L. (1944: *Rhodora*, 46, 59-60).—[Wi.]
718. *JUNCUS*. Richards, P. W. (1943: Biological Flora of the British Isles; *Journ. Ecol.*, 31, 51-59, 60-65) gives detailed biological and ecological accounts of *Juncus macer* S. F. Gray and *J. filiformis* L.—[Wa.]

- 718/6. *JUNCUS BALTICUS* Dethard. Its occurrence in S. Greenland confirmed by Polunin, N. (1943: *P.L.S.*, Sess. 154, 117).
- 718/9. *JUNCUS ACUTIFLORUS* Ehrh. has been rediscovered in N. America on Little Miquelon: Le Hors, L. (1944: *Rhodora*, 46, 312).—[Wi.]
- 721/1. *TYPHA LATIFOLIA* L. A clump of this species was found in 1942 "growing superbly" in a water-filled bomb-crater produced in November 1940 by a land mine on the site of the Manor House, Goldings Hill, near Loughton, Essex (*Essex Nat.*, 27, 189).
- 735/1. *TRIGLOCHIN MARITIMA* L. Cook, W. R. I., and Cleal, B. (1943: *Ann. Bot.*, N.S., 7, 347-355) describe hypertrophy of the leaf bases caused by *Plasmodiophora* sp.—[H.]
737. *POTAMOGETON*. "Studies of British *Potamogetons*" are continued by J. E. Dandy and G. Taylor (1944: *J.B.*, 80)—XVI. "×*Potamogeton olivaceus* (*P. alpinus* × *crispus*)," of which the synonymy and history as a British plant are fully detailed (pp. 117-120)—XVII. "Further Remarks on *Potamogeton Berchtoldii*," with discussion and rejection of *P. Millardii* Harrison (pp. 121-124)—XVIII. "*Potamogeton praelongus* in Crag Lough," with correction of mis-citation by Bennett in *Top. Bot. Suppl.* (p. 124). E. C. Ogden (1943: *Rhodora*, 45, 57-105, 119-163, 171-214) gives an account of "The Broad-leaved Species of *Potamogeton* of North America north of Mexico. Plate 746 shows fruits of several British species. On p. 75 is a "Key to the Species Based on the Anatomy of the Stem," and this is followed by tables of characters as they occur in various subsections. Distribution maps are also given. The paper is concluded by a long index of determinations of numbered exsiccata.—[Wi.]
- 737/1. *POTAMOGETON NATANS* L. Found in 1937 in S. Greenland by Polunin, N. (1943: *P.L.S.* Sess. 154, 117).—[Wi.]
- 737/9×25. ×*POTAMOGETON HESLOP-HARRISONI* W. A. Clark (1942: *Vasc.*, 27, 20)—"*P. gramineus* × *P. Berchtoldii*" [which should be written *P. Berchtoldii* × *gramineus*.—Ed.]—*nomen nudum*, from 110, O. Hebr.; N. Uist, Loch Crogary.—[Wi.]
- 746/9. *SCIRPUS NANUS* Sprengel. Gilly, Charles Louis (1944: Notes on Geographical Distribution; I, *Eleocharis parvula* (R. & S.) Link; *Amer. Midland Mat.*, 31, 499-500) summarises the distribution of this species in North America. A primary distributional area following the North Atlantic arc pattern is recognised, the exact western limits in North America are not yet known. Other occurrences in North America are attributed to migratory birds or to the dumping of ballast.—[Wa.]
753. *CAREX*. In "Notes on British Carices.—VI," E. Nemes (1944: *J.B.*, 80, 105-112) discusses "Hudson's Species." *C. disticha* Huds. is accepted in its usual sense as = *C. intermedia* Good. *C. spicata* Huds. is accepted for *C. contigua* Hoppe. *C. inflata*

- Huds. is regarded as *nomen dubium*, and the alterations made by Hudson in the second edition of the *Flora Anglica* indicate that he then transferred the name to *C. laevigata* Sm.—[Wi.]
- 753/37. "CAREX MAGELLANICA Lam. *sensu lato*." Found in 1937 in S. Greenland by Polunin, N. (1943: *P.L.S., Sess. 154, 117*).—[Wi.]
- 767/1. HIEROCHLOE ODORATA (L.) Beauv. Record for South Greenland confirmed by Polunin, N. (1943: *P.L.S., Sess. 154, 117*).—[Wi.]
- 770/1. ALOPECURUS PRATENSIS L. is established at Duluth, Minnesota: Lakela, O. (1944: *Rhodora, 46, 25*).—[Wi.]
- 780/2(2). AGROSTIS GIGANTEA Roth. Found in 1937 in South Greenland by Polunin, N. (1943: *P.L.S., Sess. 154, 117*).—[Wi.]
- 780/3. AGROSTIS TENUIS Sibth. Its occurrence in S. Greenland confirmed by Polunin, N. (1943: *P.L.S., Sess. 154, 117*).—[Wi.]
- 824/12. POA FLEXUOSA Sm. Its occurrence in S. Greenland confirmed by Polunin, N. (1943: *P.L.S., Sess. 154, 117*).—[Wi.]
- 830/4. AGROPYRON REPENS (L.) Beauv. Sharman, B. C. (1943: *Nature, 151, 170*) observed nucleoli (maximum number, 6) in the cells of developing tissues. Sharman, B. C. (1943: *Nature, 152, 276-7*) has observed a periclinal division at the growing point.—[H.]
- 840/1. TAXUS BAOCATA L. Howard, A. L. (1944: The Yew Tree (*Taxus baccata*); *Nature, 154, 215-6*) quotes size of remarkable British specimens.—[H.]
- 841/1. PINUS SYLVESTRIS L. Howard, A. L. (1944: The Scots Pine (*Pinus sylvestris*); *Nature, 154, 679-80*) contributes notes on economic history and uses.—[H.]
- 847/1. PTERIDIUM AQUILINUM (L.) Kuhn. has been supposed hitherto to take two seasons to develop each new frond, Braid, K. W., and Conway, E. (1943: *Nature, 152, 750-1*) show from the growth of a sporeling (originally 2-3 in. across with 5 or 6 fronds) during a single season that the plant may produce 85½ in. of exploratory rhizome and 16 green fronds within six months and hence conclude that here is one explanation of the rapid spread of bracken. The frond and the plant, and their size and form in relation to the status of the species as an invader or a constituent of stable vegetation, are described by Watt, A. S. (1943: Contributions to the ecology of bracken (*Pteridium aquilinum*); II, The Frond and the Plant; *New Phyt., 42, 103-126*). Hunter, J. G. (1944: *Nature, 153, 656*) has studied the composition of the frond throughout its growing season. Copisarow, M. (1943: Reclamation of brackenland; *Nature, 151, 139*) describes a successful attempt to reclaim an area of bracken in Denbighshire.—[H.]
851. ASPLENIUM. Alston (1940) lists the supposed hybrids of *Asplenium* found in Britain. Some are hybrids with *Phyllitis scolopendrium*, and an artificial hybrid of the latter with

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- Ceterach* is mentioned, although it did not live long enough to be described. The *Asplenium* hybrids found on the continent but not yet observed in Britain are also listed, all hybrids of *A. Adiantum-nigrum*, with *A. Ruta-muraria* (\times *A. Perardi* Litard.), *A. septentrionale* (\times *A. Souchei* Litard.), *A. Trichomanes* (\times *A. dolosum* Milde), and *A. viride* (\times *A. Woymanianum* Asch. & Gr.). See also Corrections to B.P.L.—[Wi.]
- 868/1. AZOLLA FILICULOIDES Lam. Williams, E. G. (1943: Further Notes on *Azolla filiculoides* Lam.; *N.W. Nat.*, 18, 326-327) records some observations made in 1941-1943 on the frequency of this plant in the Cheshire Pond, near Chester.—[Wa.]
- 870/7. LYCOPODIUM SELAGO L. Case, I. M. (1943: Periodicity in the Development of Fertile and Sterile Zones in *Lycopodium Selago*; *New Phyt.*, 42, 93-97. Sporangial rudiments are laid down between May and July in a definite fertile zone; they take two years to complete their development.—[H.]

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