# THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES.

## REPORT FOR 1936

(WITH BALANCE-SHEET AT 31st DECEMBER 1936)

BY THE

HONORARY SECRETARY,

JOHN F. G. CHAPPLE,

YARDLEY LODGE, CRICK ROAD, OXFORD.

AND THE

HONORARY EDITOR,

PATRICK M. HALL,

12 HIGH STREET, FAREHAM, HANTS.

VOL. XI. PART III.

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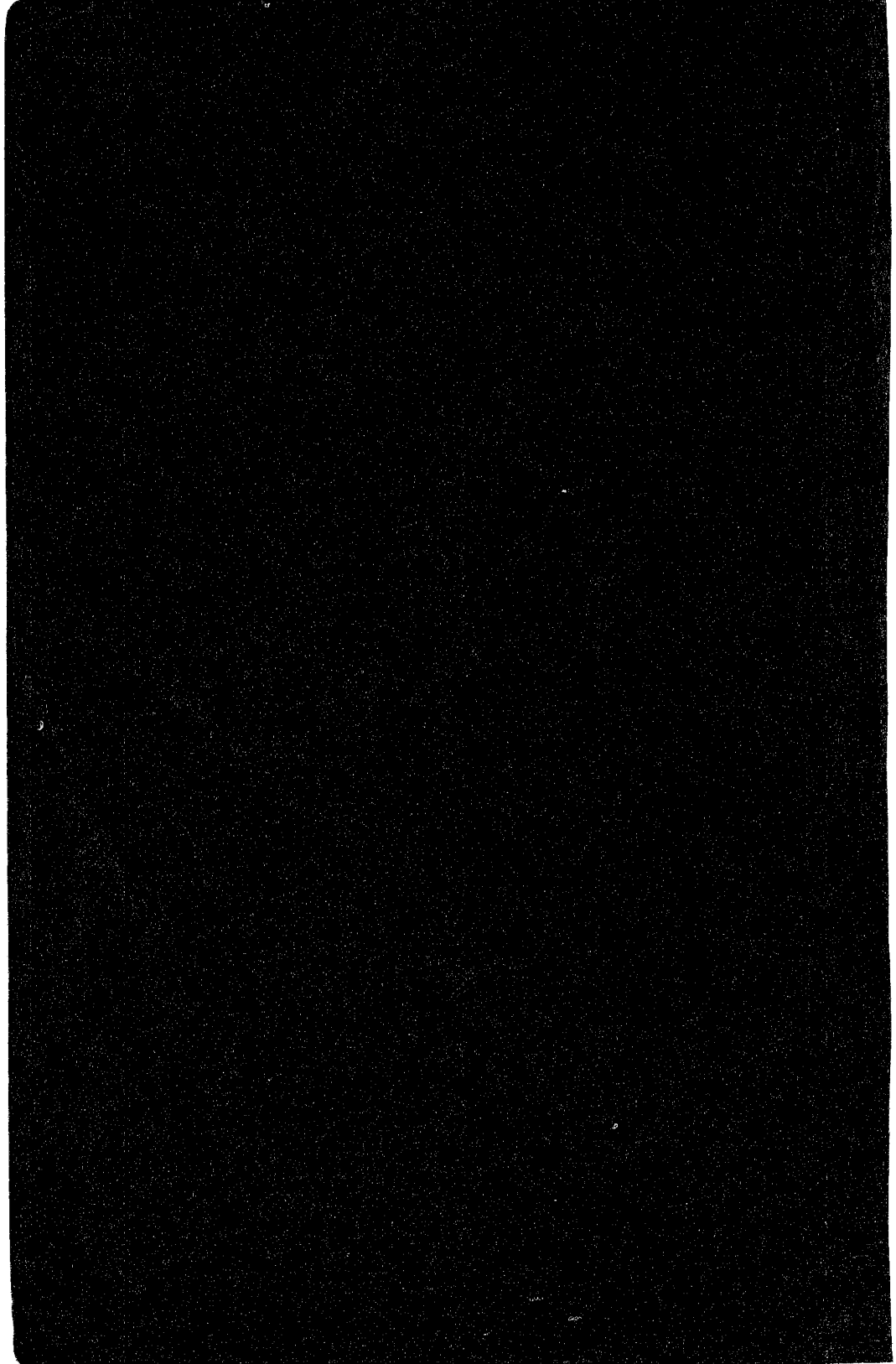

# THE BOTANICAL SOCIETY AND EXCHANGE CLUB OF THE BRITISH ISLES.

(VOL. XI. PART III).

Victoria Regina.

Floreat flora.

# REPORT FOR 1936


BY THE

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12 HIGH STREET, FAREHAM, HANTS.


The Ordinary Member's Subscription of 10/- per annum (or Exchange Member's 20/-) became due on 1st January 1937, and should be paid to the Honorary Secretary.

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Exchange Club Parcels for 1937 should be sent, post paid, on or before 1st December 1937, to the HONORARY SECRETARY, who will act as Distributor and Editor of the Distributor's Report (Vol. XI, Part VI).

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PRICE 10s.

*(The Editor does not hold himself responsible for Statements in Signed Contributions).*



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PRINTED BY T. BUNCLE & CO. LTD., ARBROATH.

AUGUST 1937.

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## OFFICERS FOR 1937-38.

ELECTED AT THE ANNUAL GENERAL MEETING, MARCH 17TH, 1937.

*Chairman*—The Rt. Hon. H. T. Baker, P.C.
*Vice-Chairman*—Mr J. Ramsbottom, O.B.E., M.A., F.L.S.
*Hon. Secretary*—Mr John F. G. Chapple.
*Hon. Treasurer*—Mr Francis Druce, M.A., F.L.S.
*Hon. Editor*—Mr Patrick M. Hall, M.C., F.L.S.

### *COMMITTEE.*

*To retire March, 1938.*
Hon. Mrs G. Baring.
Mr A. E. Wade, F.L.S.
Mrs Wedgwood.
Mr A. J. Wilmott, M.A., F.L.S.

*To retire March, 1939.*
Dr R. W. Butcher, B.Sc., Ph.D., F.L.S.
Mr J. S. L. Gilmour, M.A., F.L.S.
Mr E. Milne-Redhead, B.A.
Miss E. Vachell, F.L.S.

*To retire March, 1940.*
Mr J. E. Lousley.
Mr N. Y. Sandwith, M.A., F.L.S.
Mr N. D. Simpson, M.A., F.L.S.
Mr A. L. Still, B.A.

*To retire March, 1941.*
Mr A. H. G. Alston, M.A., F.L.S.
Mr C. E. Britton.
Mr H. W. Pugsley, B.A., F.L.S.
Lt.-Col. A. H. Wolley-Dod.

*Co-opted Member*—Mr R. H. Corstorphine, B.Sc., F.L.S.

### *SUB-COMMITTEES.*

*Editorial Sub-Committee.*
Mr R. H. Corstorphine.
Mr N. Y. Sandwith.
Mr A. J. Wilmott.
The Hon. Editor.

*Excursions and Field-work Sub-Committee.*
Dr R. W. Butcher.
Miss E. Vachell.
The Hon. Secretary.

*Rules Sub-Committee.*
The Editorial Sub-Committee with the addition of Mr Francis Druce.

## NEW MEMBERS (UP TO MAY 1, 1937).

Barnes, Egbert C., Hungerdown, Seagry, Wilts. (1937.)
Birchall, Miss Violet E. D., Saintbridge House, Gloucester.
Cadbury, Miss Dorothy A., 40 Edgbaston Park Road, Edgbaston, Birmingham.
Cole, Mrs Edward B., South Hamilton, Massachusetts, U.S.A.
Crawshaw, Lady, Whatton, Loughborough, Leicestershire.
Crisp, W. C., School House, Stewkley, Leighton Buzzard, Beds.
Day, Miss E., Flint House, Sandwich, Kent. (1937.)
Dent, G., 2 Park Cottages, Limpsfield, Surrey.
Dony, J. G., B.Sc. (Econ.), 41 Chobham Street, Luton, Beds. (1937.)
†Fraser, G. T., 71 Fore Street, King's Kerswell, Newton Abbot, Devon. (1937.)
Gambier-Parry, Mrs B., Duntisbourne Rouse, Cirencester, Gloster. (1937.)
Graham, Prof. R. J. D., M.A., D.Sc., F.R.S.E., Botany Dept., The University, St Andrews.
Hardinge, The Hon. Lady, St James's Palace, S.W.1.
Hughes, J. S., M.A., The University Observatory, Oxford. (1937.)
Jowett, Miss E. B., Oreton Mount, Grange-over-Sands. (1937.)
*Lang, Mrs D. K., Wyse Hill, Finchampstead, Berks.
Loyd, Lady Moyra, Langleybury, King's Langley, Herts. (1937.)
Mills, J. N., 20 Westfield Road, Birmingham, 15. (1937.)
Milvain, Mrs, Green Close, Snowshill, near Broadway, Worcester. (1937.)
Payn, Lt.-Col. W. A., The Gables, Osborne Road, Andover, Hants.
†Phillips, E. Masson, 26 Cheltenham Place, Plymouth, Devon. (1937.)
Sowter, F. A., Ashstead, North Avenue, Leicester. (Rejoined 1937.)
Verey, Mrs Cecil, Buckland Rectory, Broadway, Worcester.
Waldy, The Hon. Mrs, Eldon House, Heighington, Durham. (1937.)
Webster, Miss M. McCallum, Cromlet Hill, Old Meldrum, Aberdeenshire.
Williams, Mrs Frances R., 234 Highland Avenue, Winchester, Mass., U.S.A.

## CORRECTIONS IN THE LIST OF MEMBERS AND CHANGES OF ADDRESS AND TITLE.

Aellen, Dr Paul, Oberwilerstrasse 126, Basle, Switzerland.
Amherst, C., Lynton Cottage Hotel, Lynton, N. Devon.
Anderson, Sir W. M. Abbot-, C.V.O., Madeira Cottage, The Walk, Lyme Regis, Dorset.
Ashby, Mrs R. C., Woodlands, West End, Southampton.
Baker, F. T., Curator, City and County Museum, Lincoln.
Barnes, Mrs E. C., Hungerdown, Seagry, Wilts.

Blythe-Martin, Rev. W. H., M.A., St Mary's Vicarage, Tyne Dock, Co. Durham.
Brenan, J. P. M., Cape Cottage, Tonbridge, Kent.
Graham, Mrs H., 40 Orchard Court, Portman Square, W.1.
Graveson, W., Selborne, Queen's Hill, Hertford.
Grove, Mrs, Eccles Hall, Norwich.
Haines, J. W., Midhurst, Hucclecote, Gloucestershire.
Hall, Miss M., 1 Broad Walk, Weobley, Herefordshire.
Hartley, J. W., Vallona, London Road, Prestbury, Cheshire.
Haynes, Gerald, 8 Canterbury Road, Oxford.
Heron, Miss M., Erclands, Ercall Lane, Wellington, Salop.
Hill, S. A., 79 John Street, West Bromwich.
Johnston, Colonel H. H., C.B., C.B.E., D.Sc., etc., c/o Miss Charleson, Ratho Lodge, Ratho, Midlothian.
Massy, Miss N. C., The Close, Marley Common, Haslemere, Surrey.
Melville, Dr R., Royal Botanic Gardens, Kew, Surrey.
New York Botanical Garden, Bronx Park, New York, U.S.A.
Norton, F., Westward House, 3 Pencisely Rise, Cardiff.
Orme, Mrs R., Rolle Hotel, Budleigh Salterton, S. Devon.
Peel, Colonel The Hon. Sir Sidney, C.B., D.S.O., 26 Hill Street, W.1.
Phillips, Hugh, 16 Sollershott Hall, Letchworth, Herts.
Riddelsdell, Rev. H. J., M.A., A.L.S., 4 Wolverley House, Goring, Reading, Berks.
Rilstone, F., Lambourne Hill, Penhallow, Truro, Cornwall.
Severn, Lady, Winterbrook Lodge, Wallingford, Berks.
Sherrin, W. R., South London Botanical Institute, 323 Norwood Road, S.E.24.
Sledge, Dr W. A., 27 Weetwood Lane, Far Headingley, Leeds, 6.
Stuart, Mrs C. U., 120 London Road, Worcester.
Swaine, Miss A. K., Pisang Cottage, Nailsea, Somerset.
Temperley, G. W., Restharrow, Apperley Road, Stocksfield-on-Tyne.
Worsdell, W. C., 60 Church Road, Richmond, Surrey.

## THE RULES OF THE SOCIETY,

AS ALTERED AND ADOPTED BY THE ANNUAL GENERAL MEETING OF MARCH 17TH, 1937.

1. NAME.

The name of the Society shall be the Botanical Society and Exchange Club of the British Isles.

2. OBJECTS.

The objects of the Society are:—

i. To encourage the study of the Flowering Plants and Vascular Cryptogams of the British Isles.

ii. To facilitate intercourse between British Botanists for the exchange both of ideas and of dried material of critical species.

iii. To aid in the maintenance of adequate representative collections of British Plants in the Public and National Herbaria.

iv. To support the aims of the Wild Plant Conservation Board for the protection of the British Flora.

v. To organise botanical excursions.

3. OFFICERS OF THE SOCIETY.

(a) The management of the affairs of the Society shall be in the hands of a Committee.

(b) The Committee shall consist of the Chairman, Vice-Chairman, Honorary Secretary, Honorary Treasurer, Editor, and sixteen elected members.

(c) The Chairman, Vice-Chairman, Honorary Secretary, Honorary Treasurer, and Editor shall be elected annually at the Annual General Meeting, and shall be eligible for re-election.

(d) The elected members of the Committee shall be elected at the Annual General Meeting; four of the elected members shall retire every year by rotation in order of seniority in length of membership of Committee, and shall not be eligible for re-election until the expiration of a year.

(e) All nominations for the four annual vacancies on the Committee shall be in writing, signed by two members of the Society, and shall be accompanied by the written consent of the candidate to serve if elected, and shall be sent to the Honorary Secretary before February 1st in each year.

(f) Other vacancies on the Committee may be filled at the Annual General Meeting or at a Special Meeting called for the purpose, on nominations made at the Meeting.

4. MEMBERSHIP.

(a) Membership of the Society is open to all botanists upon payment of ten shillings, which shall entitle them to the privileges of membership until the 31st day of December of the current year.

(b) Candidates for membership shall obtain from the Honorary Secretary a copy of the Rules of the Society and sign a Form of Declaration of their willingness to support the objects of the Society and to accept the responsibilities and privileges of membership.

5. HONORARY AND CORRESPONDING MEMBERS.
Distinguished Foreign Botanists, who are not members of the Society, may be elected Honorary Members on the recommendation of the Committee at the Annual General Meeting. Distinguished British Botanists may, in the same way, be elected Corresponding Members. Such Honorary and Corresponding Members shall enjoy all the privileges of membership.

6. ANNUAL SUBSCRIPTIONS.
(a) Annual subscriptions shall be Ten Shillings for ordinary members and £1 for exchange members.
(b) Annual subscriptions are payable upon the first day of January in each year.
(c) Notice shall be given to every member of his subscription being due.
(d) Any member whose subscription shall be in arrear for two years on the first day of January in any year shall cease to be a member.

7. LIFE MEMBERSHIP.
Life membership may be compounded in one payment of £7 in the case of ordinary members and £12 in the case of exchange members.

8. PRIVILEGES OF MEMBERSHIP.
Each member of the Society shall enjoy the following privileges:—
(a) To receive one copy of the Society's Reports every year.
(b) To submit plants for naming to the Honorary Secretary (return postages on parcels being prepaid by the sender).
(c) To consult the Officers and Official Referees of the Society upon any question affecting British Botany.
(d) To submit papers and notes for inclusion in the Annual Report.
(e) To attend, and vote at, all meetings and excursions of the Society.

9. PRIVILEGES OF EXCHANGE MEMBERS.
In addition to all the privileges of ordinary members, exchange members shall also have the following privileges:—
(a) To receive two additional (i.e., 3 in all) copies of the Distributor's Report every year.
(b) To contribute parcels of dried plants and participate in the annual Exchange Distribution, which shall be conducted in accordance with such regulations as the Committee may from time to time direct.
(c) Copies of the Regulations of the Exchange Distribution may be obtained free of charge from the Honorary Secretary.

10. RESIGNATION.
Any member wishing to resign from his membership shall give written notice to the Honorary Secretary before the first day of December in any year of his intention to resign, failing which he shall be liable for the payment of his subscription for the ensuing year.

11. EXPULSION FROM MEMBERSHIP.
If it be proved at any time to the satisfaction of the Committee that any member has acted in any way contrary to the objects or derogatory to the interests of the Society, the Committee shall make a report on the matter to the next Annual or Special General Meeting; on a vote of not less than two-thirds of the members present at such meeting in favour of expulsion, the member concerned shall cease to be a member of the Society and shall forfeit all claim upon the Society; he may subsequently, however, be reinstated, but only by ballot of the members present at an Annual General Meeting.

12. HONORARY SECRETARY.
The Honorary Secretary shall carry out all ordinary secretarial duties. He shall be responsible to the Committee and shall be entitled to such Honorarium for his services as may upon the recommendation of the Committee be voted at the Annual General Meeting or at a Special General Meeting called for the purpose.

13. EDITOR.
The Editor shall edit the annual Report in co-operation with the Editorial (Publications) Sub-Committee, which shall be appointed by the Committee. He shall be entitled to such Honorarium for his services as may upon the recommendation of the Committee be voted at the Annual General Meeting or at a Special General Meeting called for the purpose.

14. FINANCES OF THE SOCIETY.
(a) The Society's invested funds shall be held in the names of the Chairman and Honorary Treasurer for the time being. The Society's Banking Account shall be in the name of the Society and shall be operated by the Honorary Treasurer.
(b) The Committee shall have power to adopt such financial measures as may seem to them to be expedient in the interests of the Society.
(c) A member of the Society, to be appointed by the Committee, shall act as Honorary Auditor, and the annual accounts having been audited by him, shall be approved by the Committee before presentation to the Annual General Meeting.

15. CHAIRMANSHIP.
At all Committee and General Meetings the Chair shall be taken by the Chairman, or in his absence by the Vice-Chairman. In the absence of both, the Chair shall be taken by a member of Committee elected by the meeting.

16. MEETINGS OF THE COMMITTEE.
(a) The Honorary Secretary shall be authorised to call a meeting of the Committee upon the written request of the Chairman or of not fewer than three members of the Committee. The Honorary Secretary shall give each member not less than seven days notice of a proposed Meeting.
(b) A quorum at a meeting of the Committee shall consist of five members.
(c) The Committee shall have power to add to their numbers not more than four co-opted members, who shall be members of the Society. Such members shall serve until the following Annual General Meeting.
(d) The Committee may appoint from their own body with or without the addition of other members such Sub-Committees as they may determine and shall define all duties and powers of such Sub-Committees and the number of Members to form a quorum thereof, and may delegate any of their powers and duties to such Sub-Committees.

17. ANNUAL GENERAL MEETING.
(a) The Annual General Meeting shall be held in March in each year at such time and place as the Committee shall direct.
(b) A quorum shall consist of seven members.
(c) Voting shall be conducted by show of hands, but on the ruling of the Chairman, or on the demand of not fewer than five members present, voting shall be by ballot; but all elections to the Committee under Rule 3 (d) shall be by ballot.

18. SPECIAL GENERAL MEETINGS.
(a) The Honorary Secretary shall, by direction of the Committee, or at the written request of not fewer than seven members, call a Special General Meeting for the consideration of any business of interest to the Society.
(b) A quorum shall consist of seven members.
(c) Voting shall be conducted by show of hands, but on the Ruling of the Chairman, or on the demand of five members present, voting shall be by ballot, but all elections to the Committee under Rule 3 (f) shall be by ballot.

19. NOTICES OF MEETINGS AND EXCURSIONS.
Notice of the Annual and Special General Meetings, and the agenda of such meetings, shall be sent to every member by post at least fourteen days before the date of the meeting. The programme of excursions will be sent to all members with the notice of the Annual General Meeting.

20. CASTING VOTE OF CHAIRMAN.
When there is equality of votes at any Committee, Annual, or Special General Meeting, the Chairman shall have a second or casting vote.

21. ALTERATIONS OF RULES.
No rule shall be made or altered except at the Annual General Meeting or at a Special General Meeting called for the purpose, and then only after twenty-eight days notice has previously been given in writing to the Honorary Secretary, and he shall give fourteen days notice to all members of the Society of the proposed addition or alteration to the Rules.

22. PROCEEDINGS OF MEETINGS.
The proceedings of all General Meetings shall be recorded in the Society's Annual Report.

23. CITATION OF ANNUAL REPORT.
The title of the Annual Report shall be abbreviated for citation as follows:—B.E.C. 1932 Rep. 123 (1933), referring to p. 123 of the Report for 1932 published in 1933.

24. REFEREES.
The Committee shall prepare from time to time a list of Referees to whom it is recommended that critical groups of plants or special plants should be submitted for naming.

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## THE PROGRAMME OF EXCURSIONS

arranged for 1937 was sent out to all members with the notices of the Annual General Meeting.

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## NOTICE.

THE 1937 CONVERSAZIONE

will be held at the Great Central Hotel, London, on Wednesday, November 17th, from 3 to 6 p.m.

Arrangements as in previous years. Tickets, price 3/6 per head, including tea, may be had on application to

MRS FOGGITT, Stoneybrough, Thirsk, Yorks.

Please enclose cheque or postal order, and stamps for reply. A few friends may be invited.

## REVENUE ACCOUNT FOR 1936.

### GENERAL FUND,

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To Balance from 1935, | | £137 | 18 | 1 | By Printing Reports, | £145 | 5 7 |
| ,, Subscriptions for 1936, | | 189 | 5 | 0 | ,, Expenses of Distributor, | 1 | 16 0 |
| ,, Subscriptions in advance, | | 32 | 15 | 9 | | 147 | 1 7 |
| ,, Sales of Reports, Reprints, and Advertisements, | | 6 | 13 | 1 | ,, Honorarium to Secretary, one year, | 50 | 0 0 |
| ,, Executors of the late W. H. Pearsall: Balance of Cash in hand, | | 0 | 10 | 0 | ,, Insurance, | 0 | 6 0 |
| ,, Excursion Fees, | | 0 | 7 | 6 | ,, Printing and Stationery, | 4 | 0 3 |
| | | | | | ,, Posts & Petty Exp'diture, | 16 | 14 7 |
| | | | | | ,, Balance, | 149 | 7 0 |
| | | £367 | 9 | 5 | | £367 | 9 5 |

### PUBLICATIONS FUND.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To Balance from 1935, | | £109 | 18 | 4 | By Balance, | £121 | 0 4 |
| ,, Sales of Comital Flora and Plant List, | | 11 | 2 | 0 | | | |
| | | £121 | 0 | 4 | | £121 | 0 4 |

### LIFE MEMBERS' FUND.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To Balance from 1935, | | £116 | 8 | 0 | By Balance, | £123 | 8 0 |
| ,, Composition, | | 7 | 0 | 0 | | | |
| | | £123 | 8 | 0 | | £123 | 8 0 |

### Miss TROWER'S FUND.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To Balance from 1935, | | £16 | 7 | 11 | By Balance, | £16 | 7 11 |

### BENEVOLENT FUND.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| To Balance from 1935, | | £41 | 3 | 6 | By Balance, | £41 | 3 6 |

## BALANCE SHEET AT 31st DECEMBER 1936.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| General Fund, | | £149 | 7 | 0 | National Savings Certificates, at cost, | £400 | 0 0 |
| Publications Fund, | | 121 | 0 | 4 | Cash at Bank, | 51 | 6 9 |
| Life Members' Fund, | | 123 | 8 | 0 | | | |
| Miss Trower's Fund, | | 16 | 7 | 11 | | | |
| Benevolent Fund, | | 41 | 3 | 6 | | | |
| | | £451 | 6 | 9 | | £451 | 6 9 |

(Signed) FRANCIS DRUCE, Acting Hon. Treasurer.
(Signed) JOHN CHAPPLE, Acting Hon. Secretary.

16th February 1937.—Examined and found correct.

(Signed) H. W. PUGSLEY.

## REPORT OF THE HONORARY SECRETARY FOR 1936.

By the death of Mr W. H. Pearsall on August 12th the Society loses its Honorary Secretary, who, during his four and a half years of office, was unsparing in his efforts to do all in his power to further the interests of the Society, and who for well over twenty years was an active member of the Club. His kindly help, conveyed in his beautifully written letters, will long be remembered by those members who had sought it. As a result of the vacant Secretaryship, the Committee decided to make the following provisional arrangements until the Annual General Meeting: to separate the offices of Honorary Secretary and Honorary Editor, appointing Mr John F. G. Chapple Honorary Secretary and Mr Patrick M. Hall Honorary Editor. In consequence of these proposed changes, the Committee have revised the Rules and their recommendations, adopted by the Annual General Meeting, are printed on pp. 200-204. On the resignation of Sir Roger Curtis, owing to his absence for a year in South Africa, Mr Francis Druce was appointed Acting Honorary Treasurer.

The Centenary Dinner of the Society was held on November 18th at the Monico Restaurant. About forty members were present with the Chairman in the chair, and the Earl of Crawford and Balcarres as the principal guest to propose the toast of the "B.E.C." The arrangements were in the hands of a capable sub-committee consisting of Mrs Foggitt, Mrs Knowling, Mr Druce and Mr Gilmour, and they deserve the Society's thanks for having so admirably arranged this function. On the same day the Conversazione took place, as usual, in the Great Central Hotel, when Mrs Foggitt delivered an account of the history of the B.E.C. since its inception in 1837, which was received with loud applause by the large gathering present. A fuller account of the Centenary Dinner and the speeches appears on p. 210.

The excursions arranged for 1937 are based on those recommended by the Field-work Sub-Committee appointed at the last Annual General Meeting. A report of the very successful excursions in 1936, arranged by Mrs Foggitt, is given on pp. 208-209.

We regret to record the death of the following members:—Miss M. Cobbe (January 1937), Mr D. A. Jones, Viscountess St Cyres, Dr F. W. Stansfield (February 1937), Mr J. G. Wilkinson (March 1937), Mr E. B. Wilkinson, and of our corresponding member, Mr A. R. Horwood (March 1937); also the death in 1935 of our Hon. Member, Dr F. Jaquet of Fribourg—the authority on *Alchemilla*. During the year 1936 and up to date, we have to report the resignation of 21 members, and the loss of 5 others who have ceased membership under Rule 6 (d). To offset this we are glad to announce the addition of 26 new names to our membership roll since the publication of the Report for 1935. Thirteen of these have joined in 1937, but the total of new members for 1936 is 29, which, on balance, shows a slight increase in the total membership of the Society, now standing at 435 ordinary and exchange members.

The Society is deeply indebted to the authorities of the British Museum, Cromwell Road, and of the Royal Botanic Gardens, Kew, for their willing help and co-operation. We are grateful for the help rendered by Dr P. Aellen, and by many British botanists, especially Mr G. O. Allen, Mr A. H. G. Alston, Mr G. M. Ash, Mr W. C. Barton, Mr E. B. Bishop, Mr C. E. Britton, Dr R. W. Butcher, Miss Campbell, Lady Davy, Mrs H. Drabble, Mrs Foggitt, Mr P. M. Hall, Dr W. O. Howarth, Mr C. E. Hubbard, Mr J. E. Lousley, Mr H. W. Pugsley, Mr J. Ramsbottom, Rev. H. J. Riddelsdell, Mr N. Y. Sandwith, Dr W. A. Sledge, Dr T. A. Sprague, the late Dr F. W. Stansfield, Mr A. L. Still, Dr W. B. Turrill, Miss Vachell, Mr A. E. Wade, Mr A. J. Wilmott, Lt.-Col. A. H. Wolley-Dod; also to Mr E. C. Wallace for undertaking the exchange distribution for 1936.

## SUMMARY OF PROCEEDINGS OF MEETINGS.

The Annual General Meeting marking the close of the 1935 season was held on March 25th, 1936. The Rt. Hon. Harold Baker, Mr J. Ramsbottom, Sir Roger Curtis, and Mr W. H. Pearsall were unanimously re-elected Chairman, Vice-Chairman, Hon. Treasurer, and Hon. Secretary respectively. Sixteen members of the Committee were elected under the new Rules, as follows:—

To retire March, 1937:—Mr Corstorphine, Lady Davy, Mrs Foggitt, Dr Sledge.

To retire March, 1938:—Hon. Mrs Baring, Mr Wade, Mrs Wedgwood, Mr Wilmott.

To retire March, 1939:—Dr Butcher, Mr Gilmour, Mr Hall, Miss Vachell.

To retire March, 1940:—Mr Chapple, Mr Druce, Mr Sandwith, Mr Simpson.

The Reports of the Hon. Secretary and Hon. Treasurer were adopted, and were printed in the Society's Report for 1935.

Arising out of a recommendation from the Committee that a small Sub-committee should be appointed to review the whole question of excursions and to report to the General Committee in November 1936, the following members were elected to serve on this "field-work" sub-committee:—Miss Campbell, Miss Vachell, Dr Butcher, and Mr Pugsley. The programme announced by Mrs Foggitt as arranged for 1936 was approved and her further suggestion that the Centenary of the Society should be celebrated by a Dinner was adopted.

Mr Sandwith was elected to fill the vacancy in the Publications (Editorial) Sub-committee caused by the resignation of Dr Turrill.

In consequence of the death of the late Hon. Secretary, a special meeting of the Committee was called on September 30th, 1936, at which provisional arrangements were made, as recorded above, for the carry-

ing on of the Secretarial and Editorial work of the Society. Mr R. H. Corstorphine was added to the Publications Sub-committee, and that sub-committee, with the addition of Mr Francis Druce, was instructed to draft a revision of the rules for the consideration of the Committee.

A meeting of the Committee was held at Burlington House on November 18th, at which the draft of the revised rules was discussed, and, with a few amendments, adopted for recommendation to the next Annual General Meeting. The report of the " Field-work " Sub-committee was also presented. (See Appendix at end of Report.)

The report, which was followed by a suggested programme of excursions for 1937, was adopted, and Miss Vachell, Dr Butcher, and the Hon. Secretary were appointed to the " Excursions " Sub-committee to make arrangements for the programme outlined for 1937. It was decided that the question of inviting guests should be left to the Leaders of Excursions, that where accommodation was limited guests should not be invited if this would mean the possible exclusion of members and that where guests were invited the member issuing the invitation should pay a fee of 2/6 per guest to the Society.

Mr Pugsley was appointed Hon. Auditor and Mr Wilmott was appointed to be the Society's representative on the Wild Plant Conservation Board.

A meeting of the Committee was held on March 17th, 1937, at which Mr Pugsley was re-elected Hon. Auditor for the ensuing year and the Hon. Secretary was appointed Distributor of the Exchange Club for 1937. Mrs Foggitt was invited to make arrangements for the Conversazione on November 17th, 1937. Mr Corstorphine was co-opted to the Committee and the Publications and Excursions Sub-committees were re-appointed for the ensuing year.

Forty-three members were present at the Annual General Meeting held on the same date and presided over by the Chairman, the Rt. Hon. H. T. Baker. After the adoption of the Hon. Secretary's and Hon. Treasurer's Reports and the recommended revision of the Rules, the Officers of the Society were elected, as enumerated on p. 197.

The thanks of the Society are due to the Trustees of the British Museum (Natural History) for affording facilities for the Committee Meeting of September 30th, 1936, and to the Linnean Society of London, in whose Rooms all the other meetings were held.

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## REPORT ON THE EXCURSIONS ARRANGED IN 1936.

MRS GERTRUDE FOGGITT.

The third season of the Society's Excursions has proved as successful and well attended as those of the two previous years. The first fixture on Saturday, May 23rd, was an afternoon on Chailey Common, Sussex, under the leadership of Lady Davy. Between 30 and 40 members and

friends, including 5 of the Committee, explored this typical south-eastern common, which is specially rich in heath, bog and aquatic plants. *Viola lactea* and its hybrids, and an unusual number of Carices (including the rare *C. montana*) were noted, and an apparently new record of *Ranunculus lutarius* from this area was made. Plants were examined and discussed over a good tea.

More ambitious was a week in the Channel Islands, beginning June 2nd, when the writer was responsible for the arrangements, and Lady Davy, who knows the Islands well, again led. Eighteen members and two friends formed the party, several of whom made the crossings by air. Five days were spent in Jersey and two in Guernsey, and by arranging special terms at Hotels and chartering private charabancs, particularly low expenses were ensured. Despite none too favourable weather conditions, the ground was entirely covered, and practically all the interesting plants seen. Two new members were the result of a specially happy and successful time.

Perfect weather favoured the three days spent in North Somerset, June 23rd-25th. Here the leaders were Miss Miller and Miss Vachell. Headquarters were at Burnham, and some 30 members and friends joined in excursions to Berrow Dunes, Mendip, Cheddar Gorge, Shapwick Peat Moors and Brean Down. This varied country provided exceptionally fine limestone and aquatic floras. Again two new members were the direct result.

A second afternoon Excursion on July 11th was led by Col. Wolley-Dod and Miss Pickard, to the Sussex Downs near Lewes. A party of approximately 25, under genial guidance, saw many typical downland plants, and even heavy rain did not damp their enjoyment.

It may here be insisted that in none of these excursions was any private property entered or bye-laws infringed, and the leaders are entirely convinced that no secrets were revealed and that the plants seen neither suffered nor would suffer any damage.

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## B.E.C. CENTENARY.

### Celebrated November 18th, 1936.

### THE CONVERSAZIONE.

The Conversazione seemed to go with more than its usual swing. In consideration of the Centenary of the B.E.C. the Wild Flower Society, who share in the party, graciously waived all part in the speeches which were naturally a specific feature of such an unique occasion. The Chairman paid sympathetic tribute to the late Mr Pearsall, and thanked Miss Lucy Burton (many of whose paintings were on view) for a fine picture of our historic "emblem" which she has presented to the Society as a recognition of the help which many members have given her in making her collection of illustrations of the British flora. Mr Baker also congratulated "The Father of the

B.E.C.,'' Mr Thomas B. Blow, who, at the age of 83, was again able to attend this meeting of a Society he joined some 65 years ago.

Mrs Foggitt then read a résumé of the chequered history of our Society, which held its first Anniversary Meeting 100 years ago almost to the day, and ridiculed the idea sometimes expressed that this was no Centenary since the original name of "The London Botanical Society" is no longer our title. She instanced the case of her own grandmother who lived to the age of 102, but had been born a Miss Lousada and died a Mrs Bacon. Was she, or was she not, a Centenarian? In her paper Mrs Foggitt was able to prove the unbroken continuity which had existed from the very commencement; while she also unfolded a record of achievements and a roll of famous names that may well fill us with pride in the past and encouragement for the future. Dr Butcher announced the Excursion Programme for next year, and Mr Hall voiced the thanks of the company to the Chairman. A number of most interesting botanical exhibits were a special feature of the afternoon, and happy groups gathered about the well-laden tea-tables.

## THE CENTENARY DINNER.

The Centenary Dinner was held the same evening at the Café Monico in Piccadilly Circus. The Chairman, the Rt. Hon. H. T. Baker presided, and the guest of honour was the Earl of Crawford and Balcarres. In spite of the fact that many members had to catch trains to the country earlier in the day there was a good attendance. Lord Crawford, in proposing the health of the Society and wishing it long life, made a witty speech interspersed with stories which delighted his audience. He made good use of a newspaper cutting, which he admitted he had filched from Mr Ramsbottom, concerning the Crown and Anchor in the Strand, the original meeting place of the Society. Mr Ramsbottom in reply, after pointing out that Lord Crawford was a Trustee of the British Museum, a Fellow of the Royal Society and President of the C.P.R.E., added some interesting details in the history of the Society to those which Mrs Foggitt had related at the Conversazione. Mr J. S. L. Gilmour proposed a vote of thanks to the Chairman in a graceful speech, and alluding to his previous political career quoted as parallels the love of natural history shown by Lord Grey of Fallodon and the addiction of Mr Winston Churchill to bricks and mortar. Mr Baker, in reply, thanked Mr Gilmour on behalf of those present for the magnificent leaf of *Victoria regia* which he had brought from Kew to adorn the centre table. After congratulating the Society on its progress from the Crown and Anchor to the rooms of the Linnean Society, and noting the great increase in its numbers, he confessed that he gladly turned from politics to botany and counted it a high privilege to be chosen to preside over the Botanical Society.

## OBITUARIES.

WILLIAM HARRISON PEARSALL (1860-1936). Every member of this Society must have been profoundly shocked by the news of the sudden death of the Secretary on August 12th, 1936, for he bore his years lightly and few can have realised that he was as much as 76 years of age. William Harrison Pearsall was born on June 6th, 1860; he belonged to an old Worcestershire family and was educated at Stourbridge Grammar School. In his younger days he was proficient in many branches of sport, cricket and association football in particular, and always showed a love of the outdoor life and an interest in things scientific. Taking up teaching as a profession, he was first employed at Birmingham, but was later transferred to Dalton-in-Furness, where a large part of his life was spent and where his scientific bent became definitely focussed upon Botany. This was due no doubt partly to his environment but most to the interest he took in the botanical work of his son (now Dr W. H. Pearsall, D.Sc., F.L.S.). Always a keen fly-fisherman, much of his leisure was spent on the English Lakes, which led to an intensive interest in their flora. His name will always be remembered in connection with his discovery of *Hydrilla* and *Najas* in Esthwaite Water in 1914, and this was a further factor in the strengthening of the friendship, already formed, with the late Dr Druce. Stimulated, as so many were by this friendship, he entered upon a specialised study of such aquatic genera as *Potamogeton*, *Batrachium*, *Callitriche*, and also *Carex*. The culmination of the work with his son was the publication in *Journ. Linn. Soc., Bot. 43* (1925), a joint paper on the Plankton Algae of the British Lakes.

Pearsall had many other activities at Dalton-in-Furness. A Liberal in politics, he was for many years Chairman of the Lonsdale Liberal Federation. A member of the Urban District Council, he was at different times Chairman of the Finance, Health and Library Committees. As he was also in great demand as an organist, it will be seen how versatile was his contribution to the public life of Dalton-in-Furness. On retiring to Kent in 1925, he became an active member of the Tunbridge Wells Natural History and Philosophical Society.

Before his death in 1931, Dr Druce had already suggested the name of Pearsall as his successor in the Secretaryship, and on Druce's death he was elected to that office, which he held for more than five years. No man could have been more difficult to follow than Druce, and Pearsall, taking over at a critical moment in the history of the Society, deserves the thanks of every member for holding it together and seeing it through a difficult period. Not many realise the volume of correspondence entailed: to every enquiry he gave most meticulous attention and nothing could have been more helpful than his fully-detailed replies, often accompanied by diagrams. Every letter was written by hand and in writing that was a joy to read. His very sudden collapse must be attributed in part to his strenuous work for the Society,

work in which he was engaged at the moment of death. Besides his excellence as a correspondent he was an interesting and congenial companion in the field. He is survived by his widow, two daughters, and the son already mentioned: to them the sympathy of our members will be extended.

In addition to his work for this Society, Pearsall was referee for Phanerogams for the *North Western Naturalist*. He published several papers on the Flora of North Lancashire in the *Lancashire and Cheshire Naturalist*, and, as is well known, completed the editing of the *Flora of Surrey* upon the death of the late C. E. Salmon. As Secretary of this Society, he edited the Reports for the five years 1931-35. Besides a paper on *Potamogeton Macvicarii* Ar. Benn. in *Journ. Bot.*, *71* (1933), and numerous short notes in the B.E.C. Reports, he published the following papers in recent Reports of this Society:—"*Sagina Reuteri*" (1927); "The British *Batrachia*" (1928); "Notes on *Potamogeton*" i. (1929) and ii. (1930), forming together a Monograph of the British species of that genus, in which he was recognised to be an expert; "× *P. Bennettii* Fryer," "*Zannichellia*," and "The British Species of *Carex*" (1932); "Beginning the Study of Grasses" and "Some Hybrid Carices" (1933); "Notes on the British Orchidaceae.—I" (in collaboration with the present writer), "Notes on the Umbelliferae" and "The British Species of *Callitriche*" (1934).—P.M.H.

Daniell Angell Jones (1861-1936). Daniell Angell Jones will be chiefly remembered for his work in connection with bryology, having been Secretary of the British Bryological Society from its formation until early in the year in which he died. But his botanical interests were not confined to bryology alone: he was a member of this Society for many years and during the period of his residence at Machynlleth and Harlech obtained an intimate knowledge of the flora of Merionethshire and Caernarvonshire. Numerous records stand above his initials in *Welsh Flowering Plants* and a MS. Flora of Merionethshire (said now to be in the Harlech Library) won for him a prize at the National Eisteddfoed held at Blaenau Ffestiniog in 1898.

A native of Liverpool, Jones was born on July 14th, 1861: becoming a schoolmaster, he taught at Machynlleth and Harlech. During the Great War, he was an agricultural lecturer under the University of Wales, being granted the degree of M.Sc. in 1918. He retired from teaching in 1924 and was elected A.L.S. in 1925. Living in retirement at Cheltenham he devoted all his energies to the encouragement of the study of mosses and lichens. During the last five years of his life he lived at Bristol, where he died, after an operation, upon October 6th, 1936.—P.M.H.

Miss Clara Ethelinda Larter (1847-1936). Though not personally a member of this Society, Miss Larter identified herself largely with its objects and was well known to many of our members, so that it is but fitting that reference should be made to her passing at the great age

of 89. Born in or near Leeds on June 27th, 1847, she came to Torquay in 1857 and remained there for the remainder of her life, except for an interlude of about 14 years (1885-1899) spent at Barmouth. On her return to Torquay she became identified with the Torquay Natural History Society and with the Botanical Section of the Devonshire Association. For many years she was Chairman of the Committee responsible for the publication of the new Flora of Devon but was compelled by ill-health to resign from this position when the completion of the work, to which she gave many years of her life, was almost in sight. Her publications included " Notes on the Botany of North Devon " (1897) and " A Manual of the Flora of Torquay " (1900). Her herbarium has been added to the collections of the Torquay N.H.S.

None privileged to have enjoyed Miss Larter's friendship will think of her as anything but an outstanding character. Until within a very few years of her death she conducted the meetings of the Botanical Section of the Devonshire Association in a manner that was an education to hear. Her letters, written in violet ink with lines crossed and re-crossed, were unique. Her memory and activity were alike unfailing: long after she had passed her 80th year, she would enjoy a longish walk and the writer has a lively recollection of seeing her partly pushed, partly pulled under a gate which could not be opened or climbed. Her faculties never failed and the esteem in which she was held in the county of her adoption may be judged by the references to her death in the pages of the Devonshire Association's Transactions.—P.M.H.

## EDITORIAL NOTES.

PATRICK M. HALL, Hon. Editor.

Although not the commencement of a new volume, this Report, for a sad reason, marks a change and it may, therefore, be an appropriate time at which to make a few remarks about the composition and arrangement of the Report.

The Editorial sub-committee have given much consideration to the arrangement, so that the contents should be set forth in an orderly and logical sequence. The sequence adopted here may not be the best that it is possible to find but it is hoped that with the co-operation of members the most suitable sequence will shortly be found and become a permanent feature of the Society's Reports. Suggestions from members for the improvement of the Report, either in the way of contents or arrangement, will be welcomed and given careful consideration.

Broadly speaking, the present arrangement divides the Report into two main sections, Secretarial and Editorial. The former deals with the various aspects of the activities of the Society: matters relating to membership, such as changes of address, the annual accounts, a résumé of the proceedings of General and Committee Meetings, Excursions and Obituary Notices. The second section, consisting of Notes, Records and

Papers, sets forth the results of those activities, and it is the arrangement of this section which I wish to explain in rather more detail.

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The order, which has been finally evolved after much thought, is as follows:—Editorial, Personalia, Plant Notes, Plant Records, Papers, Reviews, Abstracts and Bibliography.

"*Editorial*" needs no explanation.

"*Personalia.*" Under this heading will be printed such matters as members' lists of *desiderata*, notices of forthcoming publications and so on. It is suggested that this section might be made more useful to members than it is at present. For instance, notice might be given of special groups on which members are working so that others could not only send them their problems but also supply them with material for research: or members intending to visit certain localities or investigate certain areas could notify their intentions: or again, through the medium of this section, books or specimens could be borrowed or duplicates exchanged.

"*Plant Notes.*" This section of the Report has been restored to something of the importance which it formerly held, and includes not only original short notes but such Abstracts as affect British taxonomy and nomenclature. The primary object of this section is to acquaint members with newly-described British forms, with plants added to the British Flora and with changes of name.

"*Plant Records.*" All matters dealing with the distribution of plants in Britain, including such Abstracts as may be relevant, will be included under this heading. A word is necessary as to what records will be printed, and also to explain that any records will be welcomed but not necessarily published. It is the intention of the sub-committee to commence the formation of a card-index in which will be filed, by species and vice-counties, all records received whether published or not. Only such records will actually be published as are believed to represent some addition to knowledge; these need not necessarily be new county records, but may also be extensions of range, confirmations of old records not verified for many years, occurrences in unusual habitats or associations, and so forth.

It must be emphasized, however, that all records, whether subsequently published or not, will be placed in the card-index and so made available to those working up special areas or groups. Records need not, as was formerly required, be submitted in any particular form, since all will have to be transcribed, but all records must give the following essential data:—

(a) The specific (and, where applicable, varietal, etc.) name.
(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.

"*Papers.*" In conformity with the remainder of the Report these will be arranged in logical order. First, papers of general interest: then papers of topographical interest, arranged in vice-comital order: followed by systematic papers, arranged in systematic order.

"*Reviews*," "*Abstracts*" and "*Bibliography*" require little comment, except to say that "*Abstracts*" will be arranged in exactly similar order to that described for papers, while "*Bibliography*" comprises not merely a Bibliography for the Abstracts from Literature, but for the Report as a whole, excepting such papers as may have separate Bibliographies.

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One of the principal objects in the production of this Report has been to secure accuracy. In a publication of this kind it is perhaps impossible to obtain absolute accuracy, but great efforts have been made in the way of verifying doubtful records, settling points of nomenclature, and checking references. This has inevitably led to delay in production. The ambition of the Editorial sub-committee is to produce the Annual Report at such a time that it will be of use to members during the succeeding season. This can only be accomplished by the co-operation of all contributors, who will please note that *the latest date for the acceptance of Notes, Records and Papers is January 31st in each year, and that all such communications should be addressed to the Hon. Editor.* (Authors of papers are allowed 25 reprints gratis and further copies at cost price.)

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I should like to take this opportunity of expressing to the members of the Editorial sub-committee, to Mr Chapple and to other members too numerous to mention individually, my gratitude for constant and most willing help.

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## PERSONALIA.

### HERB. ARTHUR BENNETT.

This botanist's collections are now at the British Museum (Natural History), but certain specimens are missing and were never received. Would any botanists who borrowed portions of the collection and have

not returned them kindly do so, as their absence is holding up certain work? Especially sought are the Potamogetons of the *pusillus* and *pectinatus* groups (British herbarium), and the second halves of his special Caithness and Outer Hebrides collections. The latter are on foolscap-sized papers, and were tied up in cardboards no doubt labelled similarly to the first halves, which bear the appropriate vice-county number and "Ranunculaceae to Compositae." It seems clear that these had been loaned and not returned at the time of Bennett's death, for he had a small bundle of supplementary material from Caithness and the Outer Hebrides which was evidently awaiting incorporation when the main series was returned.

A. J. WILMOTT.

## A NEW FLORA FOR DEVON.

There has only been one general Flora for Devon, the *Flora Devoniensis* of Jones and Kingston, published in 1829. Since that date there have been only local plant-lists and, over fifty years ago, Briggs' *Plymouth Flora*, which only refers in part to Devon. As Devon consists of two vice-counties and contains much of interest, an up-to-date Flora is long overdue.

For many years work on the Flowering Plants and Ferns of Devon has been carried on with a view to such a publication. The late W. P. Hiern laid the foundations with his extensive MS. notes and Herbarium and afterwards the late Miss C. E. Larter became Editor. On her resignation owing to ill-health this work was undertaken by the Rev. W. Keble Martin, M.A., F.L.S., assisted by a Committee. The MS. will, it is hoped, be in the hands of the printers at an early date and an appeal for subscribers has been issued. The numerous Herbaria in Devon, as well as those at the British Museum and Kew, and those of the late Dr G. C. Druce, E. S. Marshall and others have been consulted. Many zealous helpers and observers in the county have given their assistance; much information has been collated from the Reports of this Society, from the Reports of the *Botanical Recorder for Devon*, from the *Journal of Botany* and other sources. Finally, the Committee is indebted to many leading Botanists for help in the determination of the more critical genera; in some cases complete sections have been compiled by such outside helpers.

It is hoped that this volume will be a valuable addition to the list of County Floras.

## FLORA OF GLOUCESTERSHIRE.

Will members possessing specimens or records, or both, of Gloucestershire plants (however common) notify Rev. H. J. Riddelsdell, 4 Wolverley House, Goring, near Reading, Berks, as Editor of the County Flora now in course of preparation? The name of the plant, locality, date (year only) and, in the case of critical plants, the authority for the determination should be given. At present there remain many gaps in the known distribution.

## FLORA OF OUTER HEBRIDES.

Miss M. S. Campbell, c/o Dept. of Botany, British Museum (Natural History), Cromwell Road, London, S.W.7, is collecting all data relating to the Flora of the Outer Hebrides. She would be glad to receive any information on the subject, particularly with reference to publications (excluding the *Journal of Botany*, *Annals of Scottish Natural History*, and the *B.E.C. Reports*), collections (other than those in the National Herbaria) and personal records and notes.

## VIOLA.

The Hon. Editor will be glad to receive fresh gatherings of Pansies. Correspondents are asked to attend to the following points:—

i. Entire plants are desirable, and rooted where circumstances permit.
ii. A gathering should be representative of all the plants seen growing in the locality, not a selection of the most conspicuous individuals.
iii. Information should be given as to the nature of the soil (e.g., whether heavy or light, calcareous, sandy, etc.), whether arable or pasture, and, if arable, the accompanying crop (e.g., growing corn, stubble, clover, etc.)
iv. It is particularly desired to see gatherings from precisely the same localities at different seasons of the year.

## HYPERICUM PERFORATUM L.

*Hypericum perforatum* L. has become such a serious pest in Australia that the Dominion Government has had to take steps to control it. In England the foliage of this plant is liable to damage by the larvae of certain small moths. These larvae spend the winter, in a half-grown state, clinging to the dead flower-heads. They are thus comparatively easily collected by sweeping areas of the *Hypericum* in the autumn. In order to obtain sufficient quantities for export, Mr Stanley Garthside, M.Sc., Research Officer of the Imperial Institute of Entomology, Farnham House Laboratory, Farnham Royal, Bucks, would be glad to hear of extensive areas of *H. perforatum* in the South of England suitable for sweeping. Ditches and hedgerows are not suitable.

## OENOTHERA.

In connection with the projected new British Flora under the editorship of Professor A. G. Tansley, Professor R. R. Gates has undertaken to prepare an account of the *Oenothera* species naturalised in various parts of the British Isles. In order to make this account as complete as possible, Professor Gates would be glad to hear, from local botanists or others, of localities in any part of the country where *Oenothera* is growing wild. A notification of the area would be still more useful if accompanied by notes and specimens, if possible in flower.

## UTRICULARIA.

The Hon. Editor will be glad to receive flowering material of this genus. Many records of *U. vulgaris* are undoubtedly errors for *U. major*, but this can only be decided by seeing the plant in flower. Flowers of *U. intermedia* and of *U. ochroleuca* (*except* from Dorset in the case of the latter species) are especially desired. Should members happen to find flowering material upon the Continent, that would also be most valuable.

## ORCHIS USTULATA L.

There have been very few recent reports of this species from many of the Midland and Eastern counties, for which it is recorded. The Hon. Editor would welcome any information throwing light upon the present status of this species.

## ALLIUM.

The Bailey Hortorium, Cornell University, New York, U.S.A., wish to obtain Herbarium specimens of this genus, particularly from the Eurasian area. Will any members, who have duplicates to spare, kindly send them to the Hon. Secretary, Yardley Lodge, Oxford, before December 1st, 1937, in order that he may forward them?

## NOTE.

Plants for naming should be sent to the Hon. Secretary, Yardley Lodge, Crick Road, Oxford.

## PLANT NOTES.

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

11/1b. AQUILEGIA VULGARIS L., var. MILLERIANA Dr. This varietal name is treated as a *nomen confusum* by Lousley (1936 A, 194-6), where there is a useful discussion of the British forms of this species.

54(2). BRASSICELLA Fourreau. The Lundy Island *Brassica*, recorded by Dr F. R. Elliston Wright in *Journal of Botany*, November 1933, as *Brassica Cheiranthus* Vill., is described by O. E. Schulz under the above generic name as "**Brassicella Wrightii,** spec. nov." (Elliston Wright, 1936). In an observation appended to his description, Schulz states that his new species is most closely related to *Brassica monensis* (L.) Huds., but Pugsley (1936 D) points out that it is more closely related to *B. Cheiranthus* Vill. Elliston Wright (*loc. cit.*) gives a fully detailed account of the plant illustrated by 17 photographic plates. The chromosome number is stated to be 2n = 24 in contrast to 2n = 48 in *B. Cheiranthus*, and it is suggested that this plant is older than both *B. monensis* and *B. Cheiranthus*, possibly dating from the early Pleistocene age, and that it is endemic on Lundy. The three British species of *Brassicella*, *B. monensis* (L.) O. E. Schulz, *B. Cheiranthus* (Vill.) Pugsl., "comb. nov.," and *B. Wrightii* O. E. Schulz, are discussed by Pugsley (*loc. cit.*), with a description of their characters. *B. Wrightii* may prove to be of Mediterranean origin, but at present must be treated as a new endemic British species. *B. monensis*, as far as is known, is also endemic. The plants from Lundy named *Brassica oleracea* L. by W. P. Hiern have been found to be *B. Wrightii*.

89/1b. POLYGALA SERPYLLIFOLIA Hose, var. VINCOIDES (Chodat) Druce. This variety was described in *Journ. Bot.*, 1906, 34, from specimens found by F. H. Davey in September 1905 in the parish of Gwennap, W. Cornwall, v.-c. 1. He states that it was first found on an exposed down about midway between Redruth and Truro (presumably Wheal Clifford Downs), and a week or two later on the top of a hill about 700 feet above sea-level (Carnmarth). In Herb. South Lond. Bot. Inst. there are specimens from both these stations collected by Davey dated 28/9/1905 and 30/9/1909 respectively. Prof. Chodat, to whom fresh specimens were sent, drew up a description which will be found in the above account and also in *Rep. Watson B.E.C.*, 1905-6, 43-4, where the plant is illustrated by a good photograph of a herbarium specimen. An account and illustration also appeared in the *Journ. Roy. Inst. Cornwall*, 1907, and there is a translation of the description

in Davey, *Fl. Cornwall*, 62-3, 1909. The most obvious features of this striking (when extreme) plant are the leathery leaves, subimbricate, and usually more or less equal in length along the stem, and the very condensed few-flowered terminal racemes. I have been unable to find any constancy in the floral characters given by Chodat. On June 15th, 1934, I gathered a series of *P. serpyllifolia* from Carnmarth, but all the specimens belonged to quite usual forms of this variable species, and I failed to find any which could be assigned to the variety. This was not very surprising in view of Davey's statement that " The normal time of flowering appears to be late autumn, only a few plants which manage to continue in bloom through the winter being found with flowers in spring " (*Rep. Watson B.E.C.*, 1906-7, 80), but his further remark in that note, that " The plant, to my mind, is quite deserving specific rank," seemed rather surprising. On September 19th, 1936, I again visited Carnmarth and found good specimens of the variety which exactly matched Davey's exsiccata in some plenty on bare ground amongst burnt off *Ulex Gallii*, var. *humilis*, on the flattish summit of the hill. But near these many intermediates occurred, and on the slopes of the hill the typical species was the only form found. In October 1936 I again met with good *vincoides* in a very similar situation in St Leonard's Forest, W. Sussex. It is my belief that *vincoides* is nothing more than a late autumn state of *serpyllifolia* such as one would expect in a situation exposed to strong moisture-laden winds, that it is often accentuated by the burning of the gorse and the consequent enrichment of the soil with ash and the reduction of shelter, and that in spite of its striking appearance it merits neither specific nor varietal rank. All the specimens I have seen have been gathered in late autumn.—**J. E.** LOUSLEY.

185/18(3). **Rubus polyoplus** nom. nov. (Series VULGARES.) *Rubus euoplus* W. Wats. in *B.E.C. 1932 Rep.*, 21 (1933); not *R. euoplus* Foerster, *Fl. Exc. Aachen*, 156 (1878).—WM. WATSON.

185/95. **R. rubristylus** spec. nov. (Series RADULAE, Sub-series FOLIOSI.) *Stem* angular, with concave or furrowed sides, brownish red to deep purple, glaucescent, considerably pilose. *Prickles* slender, rather short, patent or declining from a small base, almost confined to the angles; blackish purple stalked glands, acicles and pricklets very many and mostly short; a few intermediate prickles. *Leaves* quinate pedate, petiole long, furrowed above, deep purple; leaflets glabrescent above, yellowish green or greyish and rather shortly hairy beneath, especially on the veins, margin undulate, unequally and divaricately serrate-dentate, the principal teeth very salient and furnished usually with a secondary tooth on each side; *terminal leaflet* broadly obovate, often somewhat pentagonal, with a truncate, subcordate base and an acuminate-cuspidate point, twice as long as its petiolule.

*Flowering branch* acute-angled, armed with rather long, acicular, sharply declining, deep purple prickles. *Panicle* narrow, slightly dim-

inished upwards to a truncate apex, naked above, interrupted below, with 4-5 axillary branches exceeding the petiole of the subtending leaf, the middle and upper branches cymose, deeply divided, the terminal flower very long-stalked. Usually only one simple leaf, bearing a few stalked glands on the basal margin. *Rachis* purple, felted and villose, with numerous sunken stalked glands and acicles; pedicels more felted and less hairy, with a few of the stalked glands longer than the diameter of the pedicel. *Flowers* rather small; sepals white-margined, loosely reflexed after flowering; petals white, oblong, very hairy outside; stamens white, much longer than the red styles. Carpels pilose.

Synonym: "*Rubus oigocladus* Muell. & Lefv. ? var. *Newbouldii* (Bab.) ?" Rogers, *Handbook*, 66, not *Rubus Newbouldii* Bab., *Journ. Bot.*, 20-21, 1887.

Type specimen: No. 66, Set of British Rubi, as *Rubus Newbouldii* Bab., Edge Green, near Malpas, Cheshire, August 1893. Collected by A. H. Wolley-Dod. Two sheets in Herb. Mus. Brit.

Distribution: v.-cs. 37, 39, 40, 58. H. 38.

*Turio* acutangulus, canaliculatus, pilosus, purpureus, glaucescens, *aculeis* gracilibus, paene aequalibus, paucis aliis multo minoribus, e brevi basi patentibus vel declinatis, angulis plerumque insidentibus, glandulis stipitatis aciculisque brevibus instructus. *Folia* quinata pedata, petiolo sulcato. *Foliola* supra glabrescentia, subtus insuper in venis pilosa, viridia vel cinerea, margine undulata, inaequaliter ac diverse serrato-dentata, dentibus majoribus valde exstantibus, utrinque denticulo munitis. *Foliolum terminale* latum, obovatum, sat subito acuminatum, basi admodum truncata subcordata, quam proprium petiolulum bis longius.

*Ramus florens* inferne acutangulus, flexuosus, aculeis acicularibus, declinatis, haud longis instructus. *Paniculae* plerumque nudae, in apicem truncatum vix angustatae. *Ramuli* inferiores remoti, petiolum sed non totum folium subjaciens excedentes, superiores cymosi, saepe breviter pedunculati, flores in longis pedicellis ferentes. *Rachis* angulata, tomentoso-villosa, multis glandulis stipitatis aciculisque praedita, quarum perpaucae ex hirsutie emergentes. *Flores* sat parvi; sepala cinerea, albo-marginata, post anthesin laxe reflexa; petala alba, oblonga, extus pilosa; stamina alba, longa, stylos semper rubros superantia. *Germina* pilosa.—WM. WATSON.

185/128(2). **R. newbridgensis** Bart & Ridd. Described by Barton and Riddelsdell (1936) from E. Sussex, where it occurs in many places near Worth and eastwards to the Hartfield-Maresfield road. It is uniform, constant and without intermediate forms, and is easily distinguished from any other British bramble by the combination of very fully and variously armed stem, neat concave leaflets, and cylindrical panicle with hairy, densely-armed, glandular rachis.

185/132(2). **R. longifrons** nom. nov. (Series HYSTRICES.) *Rubus longifolius* W. Wats. in *London Naturalist*, 1934, 62-3 (1935); not *R. longifolius* Host in *Fl. Austr.*, ii, 30 (1835).—WM. WATSON.

199. SAXIFRAGA L. The British species of the Section *Robertsonia* are revised in Pugsley (1936 E), where all the English and Irish forms are dealt with in detail and compared with the Pyrenean and Asturian plants. The typical *S. umbrosa* L. occurs, possibly native, only in Yorkshire and is distinguished by its very obtusely crenate, spreading leaves, flattened, densely ciliated petioles, narrow petals with few red spots and large red capsules. *S. umbrosa* L., var. *crenato-serrata* Bab., the "London Pride" of gardens, is only naturalised in various parts of Britain, differing from the typical form by its more acute crenatures, broader petals with more numerous red dots and capsules which are generally barren and rarely develop. The native Irish species is *S. spathularis* Brot., which is a plant of Portugal and the Asturias, not of the Pyrenees. It is widely distinct from *S. umbrosa* in the shape and toothing of the leaves, which are less densely rosulate and more erect, with scarcely ciliated petioles, and by the greenish capsules.

The names *S. Geum* L., *S. hirsuta* L., and *S. punctata* L. have been applied erroneously in the past. The last named has generally been treated as a member of Sect. *Robertsonia*, but is now shown to be identical with *S. davurica* Willd., a Siberian species of the Sect. *Boraphila* Engl. The other two names have been transposed in the past, the true *S. Geum* L. being a cultivated hybrid form of Pyrenean origin, near *S. umbrosa*, but with cordate leaves. Typical *S. hirsuta* L. (*S. Geum* auct.) has round, crenate leaves, hirsute above and glabrous below, on long, pilose petioles, with flowers spotted with red and with reddish capsules. It is, however, considered probable that this also is not a pure species but another hybrid form, the second parent being a species with obtusely crenate leaves, hairy above and below, unspotted white flowers and greenish capsules. This plant, which is known from Asturias, the Pyrenees and Ireland, is the *S. Geum* of Lapeyrouse, *S. Geum* (ex parte) of Syme, Scully and other British authors, and *S. Geum*, var. *Lapeyrousii* of Sternberg. It is now given the name *S. lactiflora* Pugsl.

The British forms should now appear in the *British Plant List*, ed. 2, as follows:—

24. *umbrosa* L.
†b. *crenato-serrata* Bab. (naturalised).

24(2). *spathularis* Brot.
b. *serratifolia* (Don) Pugsl.

25. **lactiflora** Pugsl.
×*spathularis*=*hirsuta* L.
b. *dentata* (Haw.) Pugsl.
×*umbrosa*=*Geum* L. (naturalised).
b. *acutidens* (E.S.M.) Pugsl. (? naturalised).

213/3b. DROSERA ROTUNDIFOLIA L., var. **distachya** DC. Scape divided below the inflorescence into 2-5 very floriferous branches,

each 2.5-4 cm. in length. Near Clarkston, Renfrew, v.-c. 76, R. Mackechnie ex Lousley (1936 A, 197).

220/7(2)×3. **Epilobium adenocaulon** Hausskn. × **hirsutum** L. Waste ground between road and canal, Fleet, N. Hants, v.-c. 12, with both parents, P. M. HALL and W. A. SLEDGE. First British record of this hybrid; identification confirmed by G. M. Ash.

296/3d. GALIUM ERECTUM Huds., var. **hirtifolium** H. Br. in Oborny, *Fl. v. Möhren u. österr.-Schesien*, ii, 735 (1884). Described by Braun as differing from the typical plant in the pubescent stem and pubescent lower and median leaves, lax cymes and elongated pedicels: cf. *J.B.*, *72*, 248 (1934). The variety appears to be not infrequent in England.—C. E. BRITTON.

381/2b. DORONICUM PLANTAGINEUM L., var. **Willdenowii** (Rouy) A. B. Jackson. This plant, which is commonly cultivated in this country, has the leaves noticeably broader than in the typical species and often slightly cordate or cordate-truncate, resembling those of *D. pardalianches* in outline. It is the *D. plantagineum* of Gibson's *Flora of Essex*, 173 (1862), where it is stated to grow in a lane leading from Widdington to the Jock Wood, on the authority of Edw. Forster, 1800. It still grows in that locality. It is synonymous with *D. plantagineum* L., forme *Willdenowii* Rouy, in *Rev. Bot. Syst.*, 17 (1903); *D. emarginatum* Le Grand, ex Coste, *Fl. Fr.*, ii, 297 (1903); and *D. pardalianches* of *Eng. Bot.*, t. 630, to which plate a radical leaf of the true *D. pardalianches* was subsequently added, which explains why this plate has sometimes been quoted for both species.—Jackson (1936).

†415/3. PICRIS SPINULOSA Bertol. Although the summer of 1936 was wet and cool, this plant presented the same appearance in West Kent as it did in the dry summer of 1935. It is well-established over a considerable area about Longfield, Horton Kirby, and Fawkham, and is considered to be a recent introduction, not derived from the native *P. hieracioides*. There appears to be a difference in the first season rosettes of these two plants.—Britton (1936 A).

416/3. CREPIS BIENNIS L. As was briefly stated in *B.E.C. 1935 Rep.*, 138 (1936), the controversy with regard to the identification of the three disputed Yorkshire gatherings of *Crepis* was finally settled in favour of the view advanced by Mr R. J. Flintoff. The three gatherings were: (i) from Howden, S.E. Yorks, v.-c. 61, 1915, A. E. Greaves; (ii) from Burton Agnes, near Driffield, S.E. Yorks, v.-c. 61, 1923, M. Lawson; (iii) from Allerston, near Pickering, N.E. Yorks, v.-c. 62, 1931, W. C. Worsdell, J. Green, and R. J. Flintoff. All three have been named *C. biennis* L. by Professor Babcock, of the University of California, so that the addition of *C. oporinoides* to the *British Plant List* is cancelled. Those who wish to follow the whole course of the controversy will find a full list of references in Flintoff (1936 A).

423. TARAXACUM L. From plants grown in the Botanic Garden of Lund from seeds collected in Ireland and Wales by Drs Degelius and Nannfeldt, two new species are described and other species (many of them new to Britain) identified by Haglund (1935).

423/12(2). **T. Degelii** G. Haglund in *Bot. Not.*, 430, fig. 1 (1935). Kilmurvy and Inishmore, Aran Islands, Clare, v.-c. H. 9, 1933, G. Degelius. This species should be placed in the *Dissimilia* group, which is parallel to the *Erythrosperma* but differs chiefly by its fruits, which are usually grey or olive-coloured to straw-yellow, but not red. *T. Degelii* is a very distinct species, which may be recognised by its small light brownish fruits and intensely yellow-coloured heads. The ligulae of the marginal flowers have no, or practically no, coloured stripes on their undersides. The stigmas are greenish-black, and the anthers bear little or no pollen. The heads are small, light green with narrow, long, whitish-green, narrowly margined, usually patent or slightly recurved outer phyllaries, which often have a small horn. The leaves are light green, often curled with ± elongated acute-toothed lobes, and hastate or hastate-sagittate terminal lobes.—Haglund (1935).

423/14(2). **T. lissocarpum** Dahlst. in *Kungl. Svenska Vetenskapsakademiens Handlingar*, tredje serien, Band 6, No. 3, p. 24, fig. 6 (1928). Hitchin, Hertfordshire, v.-c. 20, 1933, H. PHILLIPS, det. G. HAGLUND.

423/23(2). **T. hibernicum** G. Haglund, *loc. cit.*, 433, fig. 2. Inishmore and Kilronan, Aran Islands, Clare, v.-c. H. 9, 1933, G. Degelius. This is a comparatively low-growing species in the *Spectabilia* group, with firm, long, dark, slightly bluish-green leaves, with short, acute claw-like lobes, unfringed or provided with few distant teeth. The terminal lobes are usually fairly small and triangular with the apex ± contracted with rounded margins. The petioles as well as the median nerves and pedicels are obscurely dark-red coloured. The heads are large with a square or slightly rounded base and dark-green phyllaries. The marginal ligulae are flat and slightly yellow with dark purple-coloured stripes beneath. The styles are long-protruding and slightly greenish, and the anthers rich in pollen. The fruits are light brownish-yellow with a conical beak about 0.7 mm. long, which passes into the fruit, which is shortly-spiny, or scaly, above but otherwise ± smooth.—Haglund (1935).

423/49(2). **T. cordatum** Palmgr. Inishmore and Kilronan, Aran Islands, Clare, v.-c. H. 9, 1933, G. Degelius.—Haglund (1935). [This name is said to be synonymous with and is substituted for 423/39. *T. amblycentrum* D. of the *British Plant List*, ed. 2.—ED.]

423/49(3). **T. crispifolium** Lindb. f. in *Acta Soc. Fauna Fl. Fenn.*, xxix, No. 9, 37 (1907). Killarney, N. Kerry, v.-c. H. 2; The University, Galway, N.E. Galway, v.-c. H. 17, 1933, G. Degelius.—Haglund (1935).

423/61(2). **T. hamatiforme** Dahlst. & Lindb. f., ex Florstr., in *Acta Soc. Fauna Fl. Fenn.*, xxxix, No. 4, 36 (1914). Fishguard, Pembroke, v.-c. 45, 1933, G. Degelius.—Haglund (1935).

423/62(4). **T. insigne** E. L. Ekm. Fishguard, Pembroke, v.-c, 45, 1933, G. Degelius.—Haglund (1935).

423/68(2). **T. latisectum** Lindb. f. in *Acta Soc. Fauna Fl. Fenn.*, xxix, No. 9, 26 (1907). Priory Road, Kew, Surrey, v.-c. 17, 1932, J. A. Nannfeldt; Church of St Joseph and the University, Galway, N.E. Galway, v.-c. H. 17, 1933, G. Degelius.—Haglund (1935).

423/70. **T. lingulatum** Marklund in *Acta Soc. Fauna Fl. Fenn.*, 20 (1926). Marcham, Berks, v.-c. 22, G. C. Druce.—Haglund (1935).

[In the *British Plant List*, ed. 2, under No. 423/70, appears *T. lingulatum* D. (*linguatum*). The name appeared in *B.E.C. 1921 Rep.*, 295 (1922), as "*T. lingulatum* Dahlst. nova species," without any description. But a specimen is cited, which is in Herb. Druce, and Dahlstedt's note on the specimen is " *Taraxacum linguatum* Dt. nov. sp." It appears, therefore, that *T. lingulatum* and *T. linguatum* are both *nomina nuda*, and therefore according to Art. 61 of the International Rules of Nomenclature the name *T. lingulatum* (or *linguatum*) is still available for publication. *T. lingulatum* Markl. (1926) is therefore valid. Haglund makes *T. lingulatum* Markl. synonymous with *T. subexpallidum* Dahlst., which is No. 423/84(5) in the *British Plant List*, ed. 2, see *B.E.C. 1928 Rep.*, 627 (1929).

The resulting position is, therefore, that 423/70 is *T. lingulatum* Markl., the plant named *T. lingulatum* (or *linguatum*) by Dahlstedt is at present without a name or a description, and 423/84(5) *T. subexpallidum* Dahlst. disappears in synonymy.—ED.]

423/82(4). **T. protractifrons** Dahlst. ex Raunk. in *Dansk exkursion flora* (1934). Roundstone, W. Galway, v.-c. H. 16, 1933, G. Degelius.—Haglund (1935).

423/84(7). **T. subcyanolepis** M. P. Christians. ex Raunk. in *Dansk exkursion flora* (1934). Inishmore and Kilronan, Aran Islands, Clare, v.-c. H. 9; Oughterard, W. Galway, v.-c. H. 16; Galway Town, N.E. Galway, v.-c. H.17, 1933, G. Degelius.—Haglund (1935).

439/1. OXYCOCCUS QUADRIPETALUS Gilib. The British forms of this species are discussed by Lousley (1936 A, 198-200), where in addition to the typical form three varieties are recognised and differentiated as follows:—

*O. quadripetalus* Gilib. Berry 5-10 mm. in diameter, globular or ovoid, suffused with a rich red (similar to that of the Red Currant) when ripe.

Var. *pyriformis* Druce. Berries pyriform. [Var. c. of *Br. Pl. List.*]

Var. **maculatus** Lousley, *loc. cit.*, 198. Berries uniformly covered

with dark brownish-red speckles, very astringent in taste. The type is described from Oakhanger Bog, N. Hants, v.-c. 12 (misprinted "11"); also known from Methven Bog, Perthshire, from the Austwick district, Mid-West Yorks and possibly elsewhere. [This var. will be numbered 439/1d. in *Br. Pl. List.*]

Var. *microcarpus* Turcz. Very much smaller in all parts. Flowers usually solitary. Berries 5-7 mm. in diameter. A plant of northernmost Europe, restricted to high altitudes in Britain. [Var. b. of *Br. Pl. List.* ]

†439/2. O. MACROCARPUS Pursh. The American Cranberry. Margins of leaves less revolute than in the preceding species. Pedicels arising in groups on an elongated rachis, usually terminated by a leafy shoot. Berry 1-2 cm. in diameter, variable in shape and size, but always much larger than in the preceding species. The name of the authority was misprinted " Pers." in *Br. Pl. List.*—Lousley (1936 A, 197-8).

460/3. COLOUR FORMS OF PRIMULA VERIS L. About six plants of *Primula veris* L. with reddish-brown flowers and about twelve with pale lemon-yellow flowers were found by one of the writers growing amongst an abundance of plants with flowers of the normal colour in a field at Wick, Glamorgan. Two or three plants with deep-red flowers were also seen in an orchard at Cefn Coed, Breconshire, by Mrs Arnold Jones. These appear to be quite wild, as Mrs Jones, to whom the orchard belongs, has no knowledge of such a colour form having been planted there.

The late Miller Christy states in *Journ. R.H.S.*, xlix, 19 (1924), that, like the primrose, the cowslip produces, in certain parts of its range, flowers varying from a pale reddish-brown, through terra-cotta, to a very rich dark orange-crimson.

We have found no reference in British works to the lemon-yellow form, but Hegi in his *Illustrierte Flora von Mittel-Europa*, iii, 1751, gives three colour forms, f. *hortensis* Pax., f. *pallida* P. Junge, and f. *albiflora* (Evers), with red, pale-yellow and white flowers respectively. —R. L. SMITH and A. E. WADE.

480/4. GENTIANA AXILLARIS (F. W. Schmidt) Rchb. This name is proposed to replace *G. Amarella* L. by Pugsley (1936 B). It is shown that there are two sheets in the Linnean Herbarium labelled " Amarella " in Linnaeus' hand, both there apparently in 1753. One sheet has two specimens of *G. axillaris* and the other sheet one of *G. germanica* Willd., so that it is impracticable to identify the Linnean name with certainty with either form. Evidence is given in support of Murbeck's view that this species is a true biennial. [*G. Amarella* L. cannot by the Rules of Nomenclature be thus superseded: one of the two sheets must be chosen as a lectotype. I here choose that of " *axillaris*."—A. J. WILMOTT.]

480/4c. G. AXILLARIS (F. W. Schmidt) Rchb., var **pallida** Pugsl. A form of low and slender growth, with fewer internodes than in the

typical species, the upper often unusually long, and with greenish-white flowers, is thus described by Pugsley, *loc. cit.*, 165-6 and 169.

480/5. G. SEPTENTRIONALIS (Druce) Druce. This is maintained as a species by Pugsley, *loc. cit.*, 167-170. It appears to be an endemic Scottish plant, unknown from the Faeroes and Scandinavia.

480/6. **G. anglica** Pugsl. This name is adopted for the plant previously known as *G. lingulata* Ag., var. *praecox* (Towns.) = *G. Amarella* L., var. *praecox* Towns. This plant is an overwintering annual, whereas *G. lingulata* is a biennial, and for this reason, as well as on account of the different distribution of *lingulata*, it is treated as a separate species, endemic in South England, by Pugsley, *loc. cit.*, 166-7 and 170.

545. EUPHRASIA L. The whole Subgenus *Eu-Euphrasia* Jørgensen is reclassified in an Enumeration by Pugsley (1936 C), numerous new species having been described from various quarters of the Northern Hemisphere since the publication of Wettstein's *Monograph*.

545/2f. E. NEMOROSA (Pers.) Löhr, var. **obtusata** Pugsl. An early-flowering variety recorded only from Sussex and Dorset. Rather dwarf, stem 6-15 cm. high, moderately branched with rather short internodes. Leaves relatively obtuse, scarcely spreading and not recurved.—Pugsley (1936 A, 73).

545/6. E. CAMBRICA Pugsl., forma ELATIOR Pugsl. A luxuriant form described from material gathered by J. E. Lousley on Snowdon in 1935. It differs from the typical form in having *stem* up to 15 cm. high, flexuous with internodes often exceeding the leaves, *leaves* to 8 mm. long, often more hirsute, *corolla* larger, *capsule* retuse rather than emarginate.—Pugsley (1936 A, 72).

558/9. ×MENTHA VERTICILLATA L., forma CALVA Still. This plant was originally collected by J. E. Lousley at Stanmore Common, Middlesex, 10th September 1928, and distributed by him under the reference number Z.107 through the Watson B.E.C. It was determined by the late J. Fraser as ×*M. gentilis*, but it is considered that he gave too much attention to a single variable character, the glabrous pedicel and calyx-tube. This plant differs from *gentilis* in being softly hairy on stem and leaves, and in the shape of the calyx, which is not campanulate, but narrowly tubular and devoid of the glands so conspicuous in *gentilis*.—Still (1936, 202-3).

558/13o. M. ARVENSIS L., var. **decipiens** Still. This variety is characterised by the acuminate leaves, especially the floral ones, with regular acuminate prominent serratures. It is described by Still (1936, 201-2) from specimens from Buckfastleigh, S. Devon.

†618/30. RUMEX MAGELLANICUS Griseb. This species appears in *British Plant List*, ed. 2, with a ?. In a note on *R. cuneifolius* Campd. (Gilmour, Thomas, and Vachell, 1936), it is stated that two gatherings of that species, Leith Docks, 1921, J. Fraser, and Cardiff Docks, 1925, C. and N. Y. Sandwith, were named *magellanicus*. If, as appears probable, the inclusion of *magellanicus* in *British Plant List* is based on these two gatherings, then this species should be struck out.

650/2×1. SALIX FRAGILIS L. × PENTANDRA L. =× **S. Meyeriana** Rostkov. in Willd., *Berl. Baumz.*, ed. 2, 427 (1811) =× S. CUSPIDATA Schultz, *Prodr. Fl. Starg.*, Suppl. 47 (1819), the name adopted in *Br. Pl. List*, ed. 2. Previously supposed to be confined to Shropshire and a few other western counties, this hybrid is now known to be widespread throughout the upper Eden valley, Westmorland, over an area of not less than 60 square miles. It is most remarkable that in Westmorland only male trees occur, while in Shropshire and adjoining counties the hybrid is exclusively female. Since both parents are native, there is no reason to suppose that the hybrid is other than native.—Sprott (1936).

669/7b. ORCHIS LATIFOLIA L., var. OCHROLEUCA (Boll.) Pugsl. The existence of this variety in Britain was uncertain until confirmed by the discovery by Mr J. E. Lousley in 1936 of specimens in a fen near Diss, Norfolk, agreeing exactly with Continental examples.—Pugsley (1936 F, 125).

669/7×9. O. LATIFOLIA L. × PURPURELLA Steph. =× **O. latirella** P. M. Hall. This hybrid, which was previously referred to in *B.E.C. 1934 Rep.*, 804 (1935), has been described by Hall (1936 B).

669/9(2)b. O. MAJALIS Reichb., subsp. OCCIDENTALIS Pugsl., in *Proc. Linn. Soc.*, 1935-6, Pt. 3, 124. The status of this plant, previously described as a variety, is changed to subspecies by Pugsley (1936 F).

669/9(3). O. MAJALIS Reichb., subsp. **Traunsteinerioides** Pugsl., *loc. cit.* This subspecies, described from two localities in Co. Wicklow, and as yet unknown elsewhere, differs from subsp. *occidentalis* Pugsl., in its more slender habit, flexuous stem, and narrow foliage. This plant appears to agree to some extent with Ascherson and Graebner's *O. latifolius*, race B 1 *brevifolius* (founded on Reichenbach's bb *brevifolia*), and also with *O. Traunsteineri* Saut., but is considered to be distinct from both.—Pugsley (1936 F), with plate. (See also p. 332).

669/9(4). O. KERRYENSIS Wilm. in *Proc. Linn. Soc.*, 1935-6, Pt. 3, 126 (Plates 3 and 4). This species is described from specimens gathered at Dingle, Co. Kerry, and differs from subsp. *occidentalis* Pugsl., principally on account of its wide, dotted labellum and unspotted leaves.—Wilmott (1936 B). (For a fuller treatment of this plant see p. 331.)

669/9(5). **O. Francis-Drucei** Wilm., *loc. cit.*, 128 (Plates 3 and 5). This species, described from specimens gathered above Loch Maree, W. Ross, and named in honour of the Society's Hon. Treasurer, resembles *O. Traunsteineri* Saut. in many characters. It is a small plant of slender habit, with few narrow leaves, and a short lax spike of few flowers. The labellum is subdeltoid in outline with a long projecting midlobe and is notable for the brilliant crimson markings upon a white background.—Wilmott (1936 B).

669/10×9(4). ×**O. dinglensis** Wilm., *loc. cit.*, 128 (? O. ELODES Griseb. × KERRYENSIS Wilm.). This plant is described by Wilmott (1936 B) as a hybrid between his *O. kerryensis* "with some form of Spotted Orchis," probably *O. elodes* Griseb. [i.e., *O. maculata* L., sec. Druce, which was subsequently found by myself and Mr N. D. Simpson to grow in the type-locality of *O. kerryensis* Wilm.—ED.]

740/1(2). **Zostera Hornemanniana** Tutin. This newly-described species (Tutin, 1936 A) is probably the same plant as that described by Hornemann as *Z. marina*, var. *angustifolia*; at least it is clear that it is the same as the plant which has been so named in this country. It is described as differing from *Z. marina* L. by its narrower leaves with obtuse apex, by having three primary and two marginal nerves, by its smaller inflorescences and flowers, by the broader scarious margins of the spathe, by the style twice as long as, not equalling, the stigma and by the smaller seeds. It is said to be apparently fairly common round the British Isles and the coasts of Western Europe. It has been tested in cultivation and found to be distinct from *Z. marina*, var. *stenophylla* A. & G. The chromosome number of this species is 12, which is the same as in *Z. marina* and *Z. nana*. The chromosomes are small and very similar to those of *Z. marina*, whereas those of *Z. nana* are considerably larger, so that there appears to be no question of hybrid origin.

753/14. CAREX CAPILLARIS L., forma MAJOR Blytt, *Norg. Fl.*, 243 (1861)=var. ELONGATA [Olney ex] Fernald, *Proc. Amer. Acad. Sci.*, *37*, 509 (1902)=subsp. KAROI Freyn, *O.B.Z.*, *40*, 303 (1890). "This is only a luxuriant state, due to local conditions," says Marshall (*B.E.C. 1915 Rep.*, 380), apparently rightly, and it is usually ignored in botanical works, in spite of its different look from the small forms found in more exposed and better-drained places. In *C. capillaris* the colour of the glumes and fruits varies from pale to dark irrespective of the height of the plant, which varies continuously from dwarf to very tall. The tall form is one of those unfortunate plants which must bear a different name according to the rank given to it, for I cannot find any trace of var. *major* (Blytt) earlier than 1916; it should, however, at present be regarded merely as a form. Its only characters seem to be its size (–3 dm.), and its distant lower spikes and greater number of flowers per spike, both of which may be due to the greater size.

British specimens referable to this form are in the British Museum herbarium from:—N.W. Yorks, v.-c. 65, Gordale, W. West, June 1878;

Mid-Perth, v.-c. 88, Craig na Caillaich, R. Brown, August 1794; Angus, v.-c. 90, Glen Fiagh, E. F. Linton, 15th July 1889; S. Aberdeen, v.-c. 92, or Banff, v.-c. 94, Carn Mor, P. Ewing and C. E. Salmon, 25th July 1912; E. Sutherland, v.-c. 107, Armadale Bay, E. S. Marshall (No. 4143), 16th July 1915; W. Sutherland, v.-c. 108, Tongue Bay (Ardsgionaich Point), E. S. Marshall (No. 1941), 24th July 1897.

Some other gatherings approach the same height, and no exact line can be drawn to separate these from those cited above. It is probably best not to include this form in any list.

The above note is due to another record from Ben Lawers, Mid-Perth, v.-c. 88, by Colonel G. Watts, determined by the late W. H. Pearsall as var. *elongata* Olney, ex Fernald.—A. J. WILMOTT.

753/31 and 33. C. TOMENTOSA L. and DIVERSICOLOR Crantz. At the three stations where I have seen *C. tomentosa* in Surrey, Middlesex and N. Wilts, it has always been accompanied by abundant plants of quite normal *C. diversicolor*. So far as typical specimens are concerned there could be no possible difficulty in distinguishing between the two species, but near Chertsey, on both sides of the Thames, I have noticed very occasional forms of *diversicolor* which closely resemble *tomentosa*. One such specimen in my herbarium from Chertsey Mead, June 17th, 1933, has very narrow leaves slightly glaucous, a sterile shoot such as is common in *tomentosa*, two short ♀ spikes shaped similarly to those of *tomentosa*, the upper almost sessile, the lower very shortly stalked, and only two male spikes, the lower of which is very small. The fruit bears minute white hairs round the edge. It is extremely difficult to assign the specimen to either species, but pending further investigation I have placed it with the extremely variable *diversicolor*.

Kükenthal's experience with these two species is remarkable. In 1890 he published an account of the hybrid between them as ×*C. Bruckneri* with a description and three hybrid forms—*superglauca*, *intermedia* and *supertomentosa* (*Deutsche Bot. Monatsschr.*, viii, 107, 1890). Five years later he withdrew the whole article (*op. cit.*, xiii, 26, 1895). With the exception of a discredited report from Brügger, the only other record of this hybrid which I can trace is that of Kneucker (*BV. Baden*, iii, 303, 1895), and in that case doubt was expressed.

Careful observation on the variations of these two species should be made wherever they grow together.—J. E. LOUSLEY.

753/45. C. HUDSONII Arth. Bennett. This handsome and very distinct sedge occurs in the greatest abundance in many fen and broadland districts of Cambridge, Norfolk and Suffolk, where there are therefore exceptional opportunities of studying the great variation within the species. Here it hybridises frequently with the large forms of *Goodenowii*, and probably also with *gracilis*. Within almost any large fen the following variations (plants suspected of being hybrids being excluded) may be observed:—(1) Female spikes long or short (1.5-7 cm.),

broad or thin. (2) Glumes of female spike pale brown, chestnut, or black, with or without a paler midrib, almost covering the fruit or only about half its length, with or without a distinct membranous margin. (3) Female spikes with or without a prominent spike of male flowers at their extremity, or with male flowers mixed with the female. (4) Leaves broad or narrow (2-6 mm.). (5) Plant tall and slender or short and stout. So far I have been unable to find any correlation between these characters. The form with female glumes pitch-black throughout is very striking and is f. *nigrans* (*C. stricta* Good., var. *nigrans* Beck, *Fl. N.-Österr.*, 136, 1890; *C. stricta*, var. *aterrima* Asch. & Graebner, *Fl. Nordostdeutsch. Flachl.*, 153, 1898). I gathered specimens this year from near Oxborough, W. Norfolk, v.-c. 28, and A. L. Still gathered it at Cwm-y-glo, Llanberis, Caernarvon, v.-c. 49. Although *C. Hudsonii* is a very variable plant throughout its range in Britain, this variation appears to reach its maximum where it occurs in the greatest quantity, thus in some of the stations where it is a scarce plant material is far more uniform. Although I have searched in the recorded localities in North Devon and West Cornwall (both of which are not typical habitats for the species) I have been unable to see *Hudsonii* in either county, neither have I traced herbarium specimens. If any member can produce material from these counties I shall be grateful for an opportunity of examining it.—J. E. Lousley.

753/63×64. C. PANICULATA L. × C. PARADOXA Willd. =× **C. solstitialis** E. Figert, *Deutsche Bot. Monatsschr.*, vii, 86, 1889. When botanising with Col. Watts in June 1936, in fenland near Upton Broad, East Norfolk, v.-c. 27, I was attracted by a sedge which was clearly distinct from any other *Carex* I had previously seen in this country. About five tufts were noticed growing close together amongst an abundance of *C. paradoxa* from which they differed in their taller stronger growth and infertile appearance. Further search revealed several plants of *C. paniculata* on the banks of a dyke about six yards away, and closer inspection of the specimens at home confirmed that they were undoubtedly the hybrid with this species. In size they were about intermediate between the two parents—averaging about 80 cm. in height. The specimens may be briefly described as follows:—Densely caespitose, base of stem sheathed with entire leaf bases (not a dark coloured fibrous mass as in *paradoxa*); stem stout, leafy, about 80 cm. tall; leaves 3 mm. broad, grey-green; spikes very congested 2.5-4 cm. long and about 1 cm. broad; glumes acuminate with narrow hyaline border; fruits all abortive, winged, with a serrate beak. The evidence of *paradoxa* is seen in the closely caespitose habit, the shorter branches of the spike, and the narrower glumes with a narrow membranaceous border. *Paniculata* is evidenced by the character of the leaf base, the more leafy stem, the grey-green leaves, and the winged fruits with serrate beak. Size of plant and width of leaf are intermediate between the two parents. Figert (*loc. cit.*) remarked of his plant "Am meisten erinnert die Rispe an *paradoxa*, aber die Früchte haben wieder mehr

Ähnlichkeit mit denen von *panniculata (sic)*"—a statement which applies equally to my plant from Upton Broad.

On the Continent the hybrid has been observed by Haussknecht (*Irmischia* i, 36, 1881), Schmidt (*Deutsche Bot. Monatsschr.*, xvi, 24), and Appel (*BV. Ges. Thür.*, viii, 43, 1890). It may be the *C. Rotae* described by De Notaris, *Ind. sem. hort. Genuens.*, 24, 1848, but I have been unable to see a copy of this rare catalogue. Specimens from the Danube collected by Dr A. de Degen, 1917, *Hung. Exsicc.*, No. 223, in Herb. Mus. Brit., labelled ×*C. solstitialis* Figert, exactly match my specimens in the nature of the stem base, leaf colour and arrangement of leaves, and shape of fruit.

There is one previous record for this hybrid in Britain. A plant gathered by E. S. Marshall in a swamp between Barton Mills and Icklingham, W. Suffolk (Ref. 3764), is reported in *B.E.C. 1912 Rep.*, 294 (1913). A specimen from this gathering in Herb. Mus. Brit. is clearly correctly named, but the hybrid has not been included in *The London Catalogue*, Edition 11, or in Druce's *Plant List*, Ed. 2.

Ascherson & Graebner (*Synopsis*, ii, 47, 1902) divide the forms of *C. paniculata* × *paradoxa* into two series as follows:—

A. *subparadoxa*. Stem slender, with comparatively abundant fibres at the base. Leaves narrow. Spike with rather elongated, but erect spikelets. Glumes with narrow, whitish membranous edge. Utricle rather globular. Apparently the rarer form—nearest to *paradoxa* in habit and colour.

B. *subpaniculata*. Plant strong and tall. Stem at the base with only moderately developed, often almost lacking, lighter fibres. Leaves broad or rather broad. Inflorescence very large with elongated, often strongly spreading spikelets. Glumes usually with a rather broad membranous edge. Utricles ovate. Appears commoner. Is nearest to *paniculata*.

The specimens collected from Upton Broad (all from the first plant found) do not agree exactly with either of these descriptions, which, however, should prove valuable as indicating the range of variation within the hybrid.—J. E. Lousley.

787/1×2. **Ammophila arenaria** (L.) Link × **baltica** (Fleugge) Link. Ross Links, Cheviotland, v.-c. 68. The discovery of one specimen of this hybrid is described by Heslop Harrison (1936 D). The supposed hybrid origin of *A. baltica* itself is supported by the fact that, whilst every head of *A. arenaria* examined yielded quantities of good seeds, none at all were produced by *A. baltica*.

824/2b. Poa angustifolia L., forma albida C. E. Hubbard. This form, newly described by Hubbard (1936, 108-9) from specimens from Windsor Home Park, Frogmore, Berks, has whitish panicles; this character persists in cultivation. This is a parallel form to the albino form of *Melica uniflora* Retz., distributed from Matfield, W. Kent, by W. H.

Pearsall, *B.E.C. 1932 Rep.*, 456 (1933) = *M. uniflora* Retz., f. *albida* Erick., ex Papp, in *Engl. Bot. Jahrb.*, lxv, 332 (1932).

*Poa angustifolia* L. (*P. pratensis* L., var. *angustifolia* (L.) Sm.) may be distinguished from *P. pratensis* L. by its more caespitose habit, extremely narrow leaf-blades of the innovations, and smaller spikelets.

825(2). PUCCINELLIA Parlatore. The British species of this group are discussed by Lousley (1936 B), who, following Jansen and Wachter, adopts Parlatore's name for the maritime species, which were formerly included in the genus *Glyceria* R. Brown. This paper includes a key of the British species, a full description with text-figure of *P. pseudodistans* (Crépin) Jans. & Wacht., and an account of the determinations made of British gatherings by P. Jansen, of Amsterdam. The adoption of the opinions expressed in this paper involves a number of changes in the nomenclature in *Br. Pl. List*, ed. 2, and the following forms are referred to:—

825(2)/1=825/5. P. MARITIMA (L.) Parl., with forma REPTANS, forma MAJOR Holmb., forma NANA Lange, and var. DEFLEXA Syme. The last name is that given to the gathering (Lousley, F.25) from Egloshayle Salt-marsh, Wadebridge, E. Cornwall, v.-c. 2, 20th June 1934, discussed in *B.E.C. 1934 Rep.*, 996 (1935).

825(2)/2=825/4. P. DISTANS (L.) Parl., with forma VIRESCENS Jans. & Wacht.

Var. b. **litoralis** Hack. A tall strong plant with thick stems, broad flat leaves, large panicles with branches up to 1 dm. long and many-flowered spikelets, near Shoreham New Bridge, W. Sussex, v.-c. 13 (Pickard and Lousley).

825(2)/2×1. P. DISTANS (L.) Parl. × MARITIMA (L.) Parl. W. and E. Sussex and E. Kent, v.-cs. 13-15 (Lousley and Wallace). Divided into two forms, *submaritima* and *subdistans*.

825(2)/2×5. **P. distans** (L.) Parl. × **fasciculata** Bickn. Gatherings from Shoreham New Bridge, W. Sussex, v.-c. 13 (Lousley) and Salthouse, near Blakeney, E. Norfolk, v.-c. 27 (Still) were determined as probably this hybrid.

825(2)/3=825/4(2). P. RETROFLEXA (Curtis) Holmb. There were no British specimens of this species in the material examined by Jansen.

825(2)/4. **P. pseudo-distans** (Crép.) Jans. & Wacht. in *Nederl. Kruidk. Archief*, xiv, 10 (1935). This species, described by Crépin from the Mediterranean, and recently discovered by Jansen and Wachter in the Zuider Zee area, is an addition to the British List. It is intermediate in general appearance between *P. distans* and *P. fasciculata* (*Glyceria Borreri* Bab.). From the former it is distinguished by the panicle-branches never becoming deflexed and lacking tubercles in their axils, by the almost sessile spikelets, the narrower margin to the pale and the stronger,

usually excurrent mid-nerve, smaller anthers and stouter, less graceful panicle. From the latter it may be known by the longer panicle-branches, more elongate spikelets and less revolute leaves, and in the fresh state by the rhomboidal (instead of asymmetrical) projection of the panicle. As yet only known in Britain from Salt-Dyke west of Seasalter, E. Kent, v.-c. 15, and near Grain Fort, W. Kent, v.-c. 16 (Lousley).

825(2)/5=825/7. P. FASCICULATA Bickn. (=GLYCERIA BORRERI Bab.).

825(2)/6=825/8. P. RUPESTRIS (With.) Fernald & Weatherby (=GLYCERIA PROCUMBENS Dum.).

No reference is made in this paper to the Irish plant, *G. festucaeformis* Praeger.

825(2)/2×6. P. DISTANS (L.) Parl. × RUPESTRIS (With.) Fernald & Weatherby. Canal-side near Higham, W. Kent, v.-c. 16, 8th July 1899, A. H. Wolley-Dod, as *G. distans* (L.) Wahl., var. *pseudo-procumbens* W.-Dod in *Journ. Bot.*, 84 (1895); see also Marshall and Hanbury, *Fl. Kent*, 405-6 (1899), *B.E.C. 1894 Rep.*, 462 (1895), and *B.E.C. 1902 Rep.*, 64 (1903). The parentage, which has been confirmed as above by P. Jansen, was suggested both by Wolley-Dod and by H. and J. Groves, but the plant has remained in the *London Catalogue*, though not in Druce's *British Plant List*, ed. 2, under the varietal name, which the finder gave to it in deference to the rather undecided opinion of Prof. Hackel. Notes on this plant by Jansen and Wachter will be found in *Ned. Kr. Arch.*, 256 (1930) and 302 (1932). I have frequently searched for it without success in Lt.-Col. Wolley-Dod's Higham station.—J. E. LOUSLEY.

826(2). NARDURUS Reichb.

826(2)/1. N. MARITIMUS (L.) Janchen in *Mitteil. Naturwiss. Ver. Wien*, v, 86 (1907) [=N. TENUIFLORUS Boiss., var. ARISTATUS Rouy, *Fl. France*, xiv, 300 (1913)]. This name replaces *Festuca maritima* L., No. 826/24 in *Br. Pl. List*, ed. 2.—Hubbard (1936, 109).

827/19(2). BROMUS LEPIDUS Holmb., forma LASIOLEPIS Holmb. in *Bot. Not.*, 1924, 326. Most species of *Bromus* of the Section *Serrafalcus* have forms with glabrous or hairy spikelets. *B. lepidus* normally has glabrous spikelets but the form with hairy spikelets has been recorded from Germany and Sweden, as well as from a few localities in Britain. In Richmond Park, Surrey, it was found growing in association with normal *B. lepidus* Holmb., *B. hordeaceus* L. and *B. hordeaceus* L., var. *glabratus* Druce.—Hubbard (1936, 108).

829/1k. LOLIUM PERENNE L., var. **longiglume** Grantzow, *Fl. Uckerm.*, 351 (1880); Rouy, *Fl. France*, xiv, 307 (1913). Roadside, East Meon, S. Hants, v.-c. 11, July 1932, Escombe. This variety has the lower glume as long as or longer than the remainder of the spikelet,

thus resembling *L. temulentum* L., from which it may be distinguished by the slender florets.—Hubbard (1936, 109).

833(2). PHOLIURUS Trin.

833(2)/1. P. FILIFORMIS (Roth) Schinz & Thellung = 833/1. LEPTURUS FILIFORMIS Trin. of *Br. Pl. List*, ed. 2.

833(2)/2. P. INCURVUS (L.) Schinz & Thellung = 833/3. LEPTURUS INCURVUS (L.) Druce of *Br. Pl. List*, ed. 2. The genus *Pholiurus* Trin. is separated from *Lepturus* R. Br. by the fact that both glumes are developed and placed side by side, whereas in *Lepturus* only one glume is developed. *P. incurvus* (L.) S. & T. is based on *Aegilops incurva* L.; the synonymy is discussed by Hubbard (1936, 111-3), where it is suggested that this species is probably native on the south and east coasts of Britain. (See also pp. 291-2 for an account of the British records of this species).

*P. incurvus* may be distinguished from *P. filiformis* by its spreading or ascending habit, mostly shorter culms, curved and usually shorter rigid spikes, and especially by the very small anthers, 0.5-1 mm. in length. In *P. filiformis* the culms are usually taller and more erect, the spikes elongated and mostly straight, while the anthers are 2-3 mm. in length.

836/1×830/2. ELYMUS ARENARIUS L. × AGROPYRON PUNGENS R. & S. A single plant of this supposed hybrid was seen between Heacham and Snettisham, W. Norfolk, v.-c. 28, Hubbard and Turrill (Hubbard, 1936, 109). Habit of *E. arenarius*, leaf-blades narrower, culms and inflorescence more slender, spikelets with fewer florets, glumes narrower and tapering to a fine awned tip. "The inflorescence is somewhat similar to that of *Elymus geniculatus* Curt., which suggests that the latter may be a hybrid between *Elymus arenarius* L. and a species of *Agropyron*." [Druce, *Brit. Pl. List*, ed. 2, 135, under number 836/2, includes "*E. geniculatus* Curt. ? (*arenarius* × *Agropyron*)" and encloses the name in ⟨ ⟩ brackets signifying extinction.—ED.]

864/1b. OSMUNDA REGALIS L., var. **cristata** Moore. *Nature Printed British Ferns*, Vol. 2, p. 315 (1859). "Fronds, pinnae and pinnules multifid-crisped at the apex." This was described by Moore from plants in the possession of Messrs Osborn & Sons of Fulham, who obtained the plants from a hawker. The wild locality was unknown. Pembrokeshire specimens (see p. 293) exactly match Moore's figure.—A. E. WADE.

## PLANT RECORDS.

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

In the case of direct contributions, the name of the contributor is printed in small capitals. In the case of records which are Abstracts, the author's name and date, or the date alone, are enclosed in brackets.

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†1/2. CLEMATIS FLAMMULA L. Persistent on a sandy hillock, Sandwich Bay, E. Kent, v.-c. 15, A. H. CARTER, comm. J. E. LOUSLEY.

1/1b. CLEMATIS VITALBA L., var. INTEGRATA DC. Graig Hill, near Grosmont, Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES.

2/2(5). THALICTRUM BABINGTONII Butch. Good fruiting material, Berry Head, Brixham, S. Devon, v.-c. 3, P. M. HALL and G. T. FRASER. Det. R. W. BUTCHER.

5/1. MYOSURUS MINIMUS L. Abundant in garden, Ampfield, S. Hants, v.-c. 11, A. WHITE, comm. P. M. HALL; still near Claygate, Surrey, v.-c. 17, at a station which was most probably one of those known to H. C. Watson over 75 years ago and recorded in Brewer's *Flora of Surrey*, 1863, J. E. WOODHEAD and J. E. LOUSLEY; Oughton, *S.E. Yorks, v.-c. 61, J. KENDALL, comm. W. A. SLEDGE.

6/6. RANUNCULUS LINGUA L. Chertsey, Surrey, v.-c. 17, C. E. BRITTON, W. JOHNSON and H. W. KEW: although not given for Surrey in *C.F., Top. Bot.* or either *Suppl.*, Salmon (*Fl. Surr.*) records it with the comment "very rare and now extinct in the county." Pond on Benton Moor, near Wallsend, S. Northumberland, v.-c. 67, Temperley (1936, 46): though decreasing in the district generally, this species has colonised this recently-formed pond.

6/22. RANUNCULUS TRICHOPHYLLUS Chaix. Mill-race below Staverton Bridge, G. T. FRASER; pond, Sharpham, Totnes, T. STEPHENSON; both S. Devon, v.-c. 3, det. W. H. PEARSALL—"peds. very short—under 1.5 cm. This [Staverton] is the first authentic record of this species for v.-c. 3, so far as I am aware." Dunnett, Caithness, v.-c. 109, Miss E. S. TODD, det. R. W. BUTCHER.

6/24. RANUNCULUS HETEROPHYLLUS Weber. Thurso golf links and Dunnett Stream, Caithness, v.-c. 109, Miss E. S. TODD. Det. R. W. BUTCHER.

6/24c. RANUNCULUS HETEROPHYLLUS Weber, var. SUBMERSUS Bab. Slightly brackish ditch, Lancing, W. Sussex, v.-c. 13, H. W. KEW. Det. R. W. BUTCHER.

*6/27. RANUNCULUS SPHAEROSPERMUS Boiss. & Blanch. R. Test at Stockbridge, S. Hants, v.-c. 11, Mrs G. FOGGITT. Det. W. H. PEARSALL.

6/29. RANUNCULUS TRIPARTITUS DC. Pools on Gittisham Common, near Honiton, S. Devon, v.-c. 3, B. GODFREY. Det. W. H. PEARSALL.

6/33e. RANUNCULUS FICARIA L., var. BULBIFERA Marsden-Jones. Lostwithiel and other localities, E. Cornwall, v.-c. 2, Thurston (1936, 3); persistent garden weed, Cardiff, Glamorgan, v.-c. 41, Miss E. VACHELL and A. E. WADE (in this case the bulbils are seldom present but when they are present, they appear in great quantities).

7/2. CALTHA RADICANS T. F. Forster. Loch Ussie, W. Ross, v.-c. 105, J. E. LOUSLEY.

9/1b. HELLEBORUS VIRIDIS L., var. OCCIDENTALIS (Reut.) Dr. Orchard hedge-bank, Beer Ferrers, S. Devon, v.-c. 3, E. MASSON PHILLIPS; Llandeilo-graban, *Radnor, v.-c. 43, J. G. WILLIAMS, comm. DEPT. BOT., NAT. MUS. WALES.

9/2. HELLEBORUS FOETIDUS L. Near Wrotham, W. Kent, v.-c. 16, in some quantity, Mrs R. A. L. COLE, comm. L. A. W. BURDER.

*19/1. NUPHAR LUTEA Sm. Aucha Lochy, Kintyre, v.-c. 101, LATIMER MCINNES.

20/1c. NYMPHAEA OCCIDENTALIS (Ostenf.) Moss. Hartland Moor, near Corfe Castle, Dorset, v.-c. 9, P. M. HALL and E. C. WALLACE; small pool near Recess, W. Galway, v.-c. H. 16, P. M. HALL and N. D. SIMPSON (the only previous Irish record is from Cregduff Lough, Roundstone).

21/2. PAPAVER RHOEAS L. Occasional in cornfields, Kintyre, v.-c. 101, LATIMER MCINNES. [Add to *C.F.* but not N.C.R., see *Top. Bot., Supp.* i, 7.—ED.]

†21/5. PAPAVER ARGEMONE L. Barry Docks, Glamorgan, v.-c. 41, J. E. DELHANTY, F. NORTON, and R. L. SMITH; railway bank, near Black Rock, Tenby, Pembroke, v.-c. 45, J. E. ARNETT, comm. DEPT. BOT., NAT. MUS. WALES.

22/1. MECONOPSIS CAMBRICA (L.) Vig. Exbourne, N. Devon, v.-c. 4, E. MASSON PHILLIPS.

†30/3. DICENTRA EXIMIA Torr. Garden escape, established on hedge-bank, Yelverton, S. Devon, v.-c. 3, E. MASSON PHILLIPS. Det. KEW.

32. FUMARIA L. All the following have been determined by H. W. PUGSLEY.

32/1b. FUMARIA CAPREOLATA L., var. BABINGTONII Pugsl. Hugh Town, St Mary's, Isles of Scilly, v.-c. 1, J. E. LOUSLEY.

32/2. FUMARIA OCCIDENTALIS Pugsl. Old Town, St Mary's, Isles of Scilly, v.-c. 1, J. E. LOUSLEY.

32/5. FUMARIA BORAEI Jord. Near Crose Mere, Salop, v.-c. 40, J. E. LOUSLEY and R. C. L. BURGES.

32/5c. FUMARIA BORAEI Jord., var. GRACILIS Pugsl. Porthcothun Bay, near St Merryn, W. Cornwall, v.-c. 1, J. E. LOUSLEY.

32/5d. FUMARIA BORAEI Jord. var. BRITANNICA Pugsl. Rozel, Jersey ("approaching *F. muralis* Sond."), J. CHAPPLE; St Mary's, Isles of Scilly, v.-c. 1 (" probably var. *britannica* "), J. E. LOUSLEY; Tor Cross, S. Devon, v.-c. 3, J. CHAPPLE.

*32/6. FUMARIA MURALIS Sond. " Near var. *decipiens* Pugsl., but with subrotund fruits "—hedgebank near Old Castle Farm, Cardigan, v.-c. 46, Lousley (1936 A, 196).

32/9. FUMARIA BASTARDI Bor. Paignton, S. Devon, v.-c. 3, HERB. G. H. DOUGLAS in Torquay Museum, comm. G. T. FRASER.

32/10. FUMARIA OFFICINALIS L. Stoke-in-Teignhead, and Berry Head, Brixham, S. Devon, v.-c. 3, G. T. FRASER.

32/10d. FUMARIA OFFICINALIS L., var. WIRTGENI Hausskn. Wilbury Hill, Herts, v.-c. 20, J. CHAPPLE.

*†32/13. FUMARIA PARVIFLORA Lam. "Abnormal alien plants"—Burton-on-Trent, Staffs, v.-c. 39, J. E. LOUSLEY, R. C. L. BURGES, W. H. HARDAKER and C. THOMAS.

32/13c. FUMARIA PARVIFLORA Lam., var. SYMEI Pugsl. In *B.E.C. 1935 Rep.*, 22 (1936) the last sentence, " Add 'S' to *Comital Flora* but not N.C.R.," was misplaced and should have been printed under 32/5 *F. Boraei*.

†32/14. FUMARIA AGRARIA Lag. Malting alien, Burton-on-Trent, Staffs, v.-c. 39, J. E. LOUSLEY, R. C. L. BURGES, W. H. HARDAKER and C. THOMAS.

†33/1. MATTHIOLA INCANA Br. Add * for E. Kent, v.-c. 15, *B.E.C. 1935 Rep.*, 102 (1936).

†33/2. MATTHIOLA SINUATA Br. No mention is made in *C.F.* of the fact that this species was formerly native in W. and E. Cornwall, v.-cc. 1 and 2, but has long disappeared. It was introduced to Mullion Cliffs from seeds from Saunton, N. Devon (Davey, *Fl. Cornw.*, 29).—ED. Two

small plants on cliff at Falmouth, W. Cornwall, v.-c. 1, Miss Hayman, ex Thurston (1936, 4).

*†34/1. CHEIRANTHUS CHEIRI L. An occasional escape, Kintyre, v.-c. 101, LATIMER MCINNES.

*35/2. NASTURTIUM SYLVESTRE R. Br. Tal-y-Bont, Carnarvon, v.-c. 49 (J. D. Massey, *N.W. Nat.*, *11*, No. 3, 274).

†36/2. BARBAREA VERNA Asch. Bank of R. Wye, Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES [add to *Com. Fl.* but see *Welsh Flowering Plants* for previous record.—ED.]. *Kintyre, v.-c. 101, once only, LATIMER MCINNES.

36/3b. BARBAREA VULGARIS Br., var. CAMPESTRIS Fr. Staverton, S. Devon, v.-c. 3, G. T. FRASER. Det. KEW.

36/3c. BARBAREA VULGARIS Br., var. TRANSIENS Dr. Abbotskerswell, S. Devon, v.-c. 3, T. STEPHENSON. Det. KEW.

36/4. BARBAREA VULGARIS Br., var. ARCUATA Fr. Canal bank, Teigngrace, and Abbotskerswell, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON. Confirmed by KEW.

*†36/5. BARBAREA INTERMEDIA Bor. Christow, S. Devon, v.-c. 3, T. STEPHENSON. Confirmed by KEW.

†40/2. LUNARIA ANNUA L. St John, near Plymouth, E. Cornwall, v.-c. 2; Yealmpton, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

*43/3. DRABA INCANA L. Machrihanish and Dunaverty Golf Links, Kintyre, v.-c., 101, LATIMER MCINNES.

†43/4. DRABA MURALIS L. "In a semi-wild bit of garden at Bosahan [W. Cornwall, v.-c. 1], where the only plant put in is a *Potentilla* from Winchester a few feet away," Miss C. Vivian, ex Thurston (1936, 5): cf. Rayner, *Supp. Fl. Hants*, 10 (1929) "in a nursery at Winchester, adventive, 1923, Jackson."—ED.

†47/2. HESPERIS MATRONALIS L. Abundantly naturalised at Ledwyche Brook, Salop, v.-c. 40, W. H. HARDAKER.

†49/3. SISYMBRIUM ALTISSIMUM L. Exminster and Wolborough, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON.

†49/4. SISYMBRIUM ORIENTALE L. Keston Common, W. Kent, v.-c. 16; Boxhill, Surrey, v.-c. 17, P. H. COOKE; West Wycombe, Bucks, v.-c. 24, BOLTON KING.

49/6b. SISYMBRIUM OFFICINALE (L.) Scop., var. LEIOCARPUM DC. Kingsteignton and Wolborough, S. Devon, v.-c. 3, G. T. FRASER.

†50/1. ERYSIMUM CHEIRANTHOIDES L. Arable ground, Marchwood Manor, S. Hants, v.-c. 11, H. J. GODDARD. Det. KEW.

*54/5. BRASSICELLA MONENSIS (L.) O. E. Schulz. Woolacombe, N. Devon, v.-c. 4, 23rd June, 1909, W. T. Wainwright in Herb. Hiern, ex Pugsley (1936 D, 326).

54/14b. BRASSICA ARVENSIS Kuntze, var. ORIENTALIS (L.) Aschers. Moretonhampstead, S. Devon, v.-c. 3, F. M. DAY; Ogwell and Ashprington, S. Devon, v.-c. 3, G. T. FRASER; Sarratt, Hertfordshire, v.-c. 20, F. M. DAY.

*†61/3. LEPIDIUM DRABA L. Askomil Walk roadside, Kintyre, v.-c. 101, LATIMER MCINNES. [No Scottish records are given in *C.F.* but many localities are recorded in Buchanan White's *Flora of Perthshire*, Hayward and Druce's *Adventive Flora of Tweedside*, J. R. Lee's *Flora of the Clyde Area*, etc.—R. H. CORSTORPHINE.]

*†61/3b. LEPIDIUM DRABA L., var. SUBINTEGRIFOLIUM Mich. Near Plymouth, S. Devon, v.-c. 3, W. B. WATERFALL, c. 1880; Odiham, N. Hants, v.-c. 12, C. C. PALMER, 1905; near Malpas, Monmouth, v.-c. 35, A. E. WADE [add to *Com. Fl.*, but see *Welsh Flowering Plants* for previous record.—ED.]; Barry, Glamorgan, v.-c. 41, A. E. WADE. All comm. DEPT. BOT., NAT. MUS. WALES. Det. A. E. WADE.

61/7c. LEPIDIUM SMITHII Hook., var. PAPILLOSUM Dunn. Morpha Ponds, Glamorgan, v.-c. 41, Miss E. M. THOMAS and Miss E. VACHELL.

†61/24. LEPIDIUM NEGLECTUM Thell. Dixton, Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES. Det. A. E. WADE.

*†64/1. THLASPI ARVENSE L. Casual, Kintyre, v.-c. 101, LATIMER MCINNES.

†76/3. RAPISTRUM RUGOSUM (L.) All. Hillingdon gravel-pits, Middlesex, v.-c. 21, P. H. COOKE.

77/1b. CAKILE MARITIMA Scop., var. SINUATIFOLIA DC. Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER.

†85/1. RESEDA ALBA L. Two plants near the sea front, Bude, E. Cornwall, v.-c. 2, Adams, ex Thurston (1936, 6).

88. VIOLA L. All the following except two, which are indicated, were determined by P. M. HALL.

88/1. VIOLA STAGNINA Kit. Still at West Dereham Fen, W. Norfolk, v.-c. 28, but decreasing through drainage and fires, J. E. LOUSLEY and G. WATTS; near Lincoln, N. Lincs, v.-c. 54, F. T. BAKER.

88/3. VIOLA SYLVESTRIS Lam. Garryland demesne, S.E. Galway, v.-c. H. 15, P. M. HALL and N. D. SIMPSON.

88/4f. VIOLA RIVINIANA Reichb., f. VILLOSA N.W. & M. Gap of Dunloe, S. Kerry, v.-c. H. 1, P. M. HALL and N. D. SIMPSON.

*88/6. VIOLA CANINA L. Common, Kintyre, v.-c. 101, LATIMER MCINNES. [Spec. non vidi, P.M.H.]

88/7. VIOLA LACTEA Sm. Heathy ground, near Three Castles Head, W. Cork, v.-c. H. 3; by Cregduff L. and Bunowen Hill, *W. Galway, v.-c. H. 16, P. M. HALL and N. D. SIMPSON. [*C.F.* makes no reference to Irish records, although *Irish Topographical Botany* gives records from W. Cork (Inchigeela) and Clare (Ballyvaghan). Praeger (1935) records it from v.-cc. H. 1-3, 9, but only repeats the two records previously noted and gives no details for Kerry (H. 1 and 2).—ED.]

88/7×4. VIOLA LACTEA Sm. × RIVINIANA Reichb. Kit Hill, near Callington, E. Cornwall, v.-c. 2, E. MASSON PHILLIPS; heathy ground near Three Castles Head and Gortyowen, W. Cork, v.-c. H. 3, P. M. HALL and N. D. SIMPSON.

88/8g. VIOLA ODORATA L., var. SULPHUREA (Car.) R. & F. Patch by roadside, near Castle-an-dinas, Gulval, W. Cornwall, v.-c. 1, Rees, ex Thurston (1936, 6). [Spec. non vidi, P.M.H.]

88/9×8. VIOLA HIRTA L. × ODORATA L. Becca Banks, Aberford and Boston Spa, Mid-West Yorks, v.-c. 64, W. A. SLEDGE.

†88/13. VIOLA CORNUTA L. Grassy clearing in wood, far removed from any cultivation, Savernake Forest, N. Wilts, v.-c. 7, J. D. GROSE.

*88/15. VIOLA VARIATA Jord. Cultivated field, Llansantffraid, Anglesey, v.-c. 52, J. D. GROSE.

88/15b. VIOLA VARIATA Jord., var. SULPHUREA Drabble. Mellands, near Powderham, S. Devon, v.-c. 3, P. M. HALL and G. T. FRASER; Llansantffraid, Anglesey, v.-c. 52, J. D. GROSE.

88/24. VIOLA SEGETALIS Jord., f. OBTUSIFOLIA (Jord.) Drabble. West Charlton and Prawle Point, S. Devon, v.-c. 3, J. CHAPPLE; near Lairg, *E. Sutherland, v.-c. 107; Murkle, *Caithness, v.-c. 109, Miss E. S. TODD.

88/26. VIOLA RURALIS Bor. Mellands, near Powderham, S. Devon, v.-c. 3, P. M. HALL and G. T. FRASER; field by Combe Wood, Oxon, v.-c. 23, J. CHAPPLE.

88/27. VIOLA ANGLICA Drabble. West Charlton, S. Devon, v.-c. 3, J. CHAPPLE.

88/28. VIOLA DESEGLISEI Jord. Near Pangbourn, Berks, v.-c. 22, J. CHAPPLE; cultivated field and heath, Penrhos Fedw, *Anglesey, v.-c. 52, J. D. GROSE.

*88/31. VIOLA LEPIDA Jord. Lairg, E. Sutherland, v.-c. 107, Miss E. S. TODD.

88/34. VIOLA LUTEA Huds., f. CURTISII (Forst.) Drabble. Aberffraw, Anglesey, v.-c. 52, J. D. GROSE; Derrynane, S. Kerry, v.-c. H. 1, P. M. HALL and N. D. SIMPSON.

88/35. VIOLA LUTEA Huds., f. MACKAII (H. C. Wats.) Drabble. Aberffraw, Anglesey, v.-c. 52, J. D. GROSE [add to *Com. Fl.*, but see *Welsh Flowering Plants* for previous record.—ED.]; dunes at W. end of Lough Gill, near Castlegregory, S. Kerry, v.-c. H. 1, P. M. HALL and N. D. SIMPSON.

*89/2. POLYGALA VULGARIS L. Common, Kintyre, v.-c. 101, LATIMER McINNES.

†96/16. SILENE DICHOTOMA Ehrh. Waste ground, Ipswich, E. Suffolk, v.-c. 25, Miss E. RAWLINS; Jersey Marine, Glamorgan, v.-c. 41, established and spreading, F. NORTON and R. L. SMITH.

98/3×4. LYCHNIS ALBA Mill. × DIOICA L. Dawlish Warren, Buckland-tout-Saints, and Thurlestone, S. Devon, v.-c. 3, G. T. FRASER.

100/2. CERASTIUM ARVENSE L. Near Wendover, Bucks, v.-c. 24, new to the Thame district, J. CHAPPLE, Sir ROGER CURTIS and D. B. FANSHAWE.

100/4. CERASTIUM ARCTICUM Lange. Aonach Beag, Westerness, v.-c. 97, E. C. WALLACE.

100/4×5. CERASTIUM ARCTICUM Lange × VULGATUM L. Aonach Beag, Westerness, v.-c. 97, E. C. WALLACE.

100/5l. CERASTIUM VULGATUM L., var. PRATENSE (Diard) Dr. Water meadows near Wareham Station, Dorset, v.-c. 9, J. E. LOUSLEY and P. M. HALL.

100/9. CERASTIUM TETRANDRUM Curt. Milk Hill, N. Wilts, v.-c. 7, in considerable quantity, recorded from "Downs above Alton Barnes" by E. S. Marshall, 1904, perhaps the same locality, J. CHAPPLE and J. D. GROSE; Cambusavie, Loch Fleet, E. Sutherland, v.-c. 107; Coldbackie, Tongue, W. Sutherland, v.-c. 108, J. E. LOUSLEY and J. E. WOODHEAD; cliffs at Dunbeath, Caithness, v.-c. 109, Miss E. S. TODD.

*101/6b. STELLARIA DILLENIANA Moench, var. PALUSTRIS (Retz.) Dr. Near Mathry, Pembroke, v.-c. 45, B. LLOYD and C. OLDHAM, comm. DEPT. BOT., NAT. MUS. WALES.

*102/1. ARENARIA TRINERVIA L. Glenramskil, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

102/3. ARENARIA NORVEGICA Gunn. The usual station visited by botanists near Inchnadamph, W. Sutherland, v.-c. 108, is the original one discovered by Gray (*Scot. Nat.*, ix, 93 (1887-8)), which is at an altitude of just over 200 feet, and where the plant occurs in extremely small quantity. Subsequently E. S. Marshall found a second station on limestone rocks at 1100-1200 feet, where the plant still occurs in good quantity. Marshall suggested that the real habitat was on the higher rocks, whence it had been washed down. The higher ground round Inchnadamph has not been well worked and it is highly probable that there are yet other stations for this rarity to be discovered in the district. In the meanwhile there is no excuse for gathering specimens in the all too accessible old station.—J. E. LOUSLEY.

102/5b. ARENARIA SERPYLLIFOLIA L., var. VISCIDULA Roth. Berry Head, Brixham and Bee Sands, Stokenham, S. Devon, v.-c. 3, G. T. FRASER; Barry, and near Laleston, Glamorgan, v.-c. 41, A. E. WADE, comm. DEPT. BOT., NAT. MUS. WALES.

102/5c. ARENARIA SERPYLLIFOLIA L., var. STRICTA Towns. Penally, Pembrokeshire, v.-c. 45, Miss E. VACHELL.

102/5d. ARENARIA SERPYLLIFOLIA L., var. MACROCARPA Lloyd. Berry Head, Brixham and Bee Sands, Stokenham, S. Devon, v.-c. 3, G. T. FRASER.

102/8. ARENARIA TENUIFOLIA L. Kingskerswell, S. Devon, v.-c. 3, G. T. FRASER and Rev. T. STEPHENSON.

†102/14. ARENARIA BALEARICA L. Naturalised in several localities, Kintyre, v.-c. 101, LATIMER MCINNES.

103/2. SAGINA SUBULATA (Sw.) Presl. Burcombe, Simonsbath, S. Somerset, v.-c. 5, J. E. LOUSLEY.

103/7b. SAGINA FILICAULIS Jord. Garden weed, Oxted, Surrey, v.-c. 17, D. B. FANSHAWE; chalk-pit, Guildford, Surrey, v.-c. 17, A. J. WILMOTT.

103/8. SAGINA APETALA Ard. West Charlton, S. Devon, v.-c. 3, J. CHAPPLE.

103/10. SAGINA MARITIMA Don. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES. [Add to *C.F.* but not N.C.R., see *Top. Bot.*, ed. 2, 69,—ED.]

*104/1. SPERGULA ARVENSIS L. Common, Kintyre, v.-c. 101, LATIMER MCINNES. [*Top. Bot.*, *Supp. i*, 20, gives "All" for *S. arvensis*, but did not at that time recognise the segregate *S. sativa*.—ED.]

*104/2. SPERGULA SATIVA Boenn. Killean, Kintyre, v.-c. 101, LATIMER MCINNES.

105/1b. SPERGULARIA RUPICOLA Lebel, var. GLABRESCENS (Lebel) Bréb. St Brelades, Jersey, J. CHAPPLE [det. J. E. LOUSLEY]; Skokholm I., Pembroke, v.-c. 45, R. M. LOCKLEY, comm. DEPT. BOT., NAT. MUS. WALES.

105/2×3. SPERGULARIA MARGINATA Kittel × SALINA Presl. Intermediate in general appearance between the two parents, flowers the size and colour of the first, winged seeds present but extremely scarce, sea-wall between Grain and Port Victoria, W. Kent, v.-c. 16, J. E. LOUSLEY.

105/4. SPERGULARIA BOCCONEI (Soleir.) Steud. Dixcart Bay, Sark, Channel Islands, G. C. BROWN.

106/1. POLYCARPON TETRAPHYLLUM L. Near Hugh Town, and also near Old Town, St Mary's, Isles of Scilly, v.-c. 1, possibly introduced with horticultural stock from Guernsey, or, less likely, brought in by natural agencies from the Lizard, which is about 35 miles distant and where it occurs in very small quantity, not noticed by Townsend, *Journ. Bot.*, 102 seq. (1864), J. E. LOUSLEY; spontaneous in greenhouse, Layer Marney, *†N. Essex, v.-c. 19, Miss M. S. CAMPBELL.

†107/1. PORTULACA OLERACEA L. To record in *B.E.C. 1935 Rep.*, 25 (1936), add "Det. KEW."

†107(2). **Calandrinia** H.B.K.

†107(2)/1. **Calandrinia Menziesii** (Hook.) Torr. & Gr. In quantity in a stubble field on the cliffs between Dawlish and Dawlish Warren, S. Devon, v.-c. 3, 22nd June 1936, in association with *Lycopsis arvensis* L., *Spergula arvensis* L., *Chrysanthemum segetum* L., *Silene anglica* L., *Scleranthus annuus* L. and *Antirrhinum Orontium* L.; this plant produces a large quantity of seed, which is scattered by an explosive dehiscence of the capsule, hence it may be expected to establish itself in this locality, E. M. PHILLIPS. Det. KEW—"a native of N. America and occasionally found as an alien in the British Isles."

*†108/1. CLAYTONIA ALSINOIDES Sims. Boscawen, Hea Moor, Penzance, W. Cornwall, v.-c. 1, Rees ex Thurston (1936, 8); Stoke Fleming, S. Devon, v.-c. 3, Miss BAKER, comm. G. T. FRASER; occasionally as an escape, *Kintyre, v.-c. 101, LATIMER MCINNES.

*†108/2. CLAYTONIA PERFOLIATA Donn. Sandhills, Mablethorpe, N. Lincs, v.-c. 54, Miss D. MARSDEN, comm. Lady DAVY; occasionally as an escape, *Kintyre, v.-c. 101, LATIMER MCINNES.

111/2. ELATINE HEXANDRA DC. Pond near Hatchett's Pond, Miss K. PICKARD, and Hatchett's Pond, S. Hants, v.-c. 11, Lady DAVY.

*112/1. HYPERICUM ANDROSAEMUM L. Site of a felled wood near Riding Mill (Eltringham: *Vasc.*, *22*, No. 4, 158), and near Stocksfield, S. Northumberland, v.-c. 67, G. W. TEMPERLEY.

112/7. HYPERICUM MONTANUM L. Railway bank, opposite Dixton, and Garth Wood, near Monmouth, v.-c. 35, S. G. CHARLES; Saundersfoot, Pembroke, v.-c. 45, J. E. ARNETT. Both comm. DEPT. BOT., NAT. MUS. WALES.

112/9b. HYPERICUM PULCHRUM L., var. PROCUMBENS Rostr. Bolt Tail, Malborough; Lustleigh; Bee Sands, Stokenham, S. Devon, v.-c. 3, G. T. FRASER.

116/2. LAVATERA CRETICA L. Still at Old Grimsby, Tresco, Isles of Scilly, v.-c. 1, but scarce, J. E. LOUSLEY.

*†117/1. MALVA MOSCHATA L. Occasional, always near cottage gardens, Kintyre, v.-c. 101, LATIMER MCINNES.

*†117/2. MALVA SYLVESTRIS L. Occasional, always near cottage gardens, Kintyre, v.-c. 101, LATIMER MCINNES.

*†117/3. MALVA NEGLECTA Wallr. (*M. rotundifolia* L. sec. auct. angl.) Occasional, always near cottage gardens, Kintyre, v.-c. 101, LATIMER MCINNES.

†117/4. MALVA PUSILLA Sm. St Martin's, Isles of Scilly, v.-c. 1, J. E. LOUSLEY; a single plant as garden weed, Belford, *Cheviotland, v.-c. 68 (Hull: *Vasc.*, *22*, No. 4, 157).

*123/3. TILIA CORDATA Mill. Near Wylam (R. B. Cooke), and Whittle Dene, S. Northumberland, v.-c. 67, "considered likely to be a genuine native" (Heslop Harrison: *Vasc.*, *22*, No. 3, 112).

125/3b. LINUM CATHARTICUM L., var. DUNENSE Dr. Bee Sands, Stokenham, S. Devon, v.-c. 3, G. T. FRASER.

†127/2. GERANIUM VERSICOLOR L. Lane near Trematon Castle, E. Cornwall, v.-c. 2, E. MASSON PHILLIPS.

127/7. GERANIUM PYRENAICUM Burm. f. Brixton and Elburton, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

128/1. ERODIUM MARITIMUM L'Hérit. Port du Moulin, Sark, Channel Islands, G. C. BROWN.

132/1b. OXALIS ACETOSELLA L., var. SUBPURPURASCENS DC. Dunsford and Bridford, S. Devon, v.-c. 3, G. T. FRASER.

*†132/2. OXALIS CORNICULATA L. Dunstanburgh Castle, Cheviotland, v.-c. 68 (Hull: *Vasc.*, *22*, No. 4, 157).

†132/3. OXALIS STRICTA L. In allotments, Tanner's Lane, near Lymington, S. Hants, v.-c. 11, A. H. CARTER, comm. J. E. LOUSLEY.

137/1d. EUONYMUS EUROPAEUS L., var. LEUCOCARPUS Dr. A small bush with cream-coloured fruits, near Truro, Cornwall, v.-c. 1 or 2 (Nicholson, 1936).

†145/1(2). LUPINUS ARBOREUS L. Established in two places in Marazion Marsh, W. Cornwall, v.-c. 1, J. DONALD GROSE. Det. KEW.

†145/3. LUPINUS LUTEUS L. Well established and covering some acres between the links and the sea, St Andrews, Fife, v.-c. 85, P. H. COOKE.

†145/4. LUPINUS ANGUSTIFOLIUS L. Arable ground, Broadheath, Worcester, v.-c. 37, W. H. HARDAKER.

147/1b. GENISTA ANGLICA L., var. SUBINERMIS R. & F. An t-Aonach, Cairngorm, Easterness, v.-c. 96, at about 1700 feet, J. E. LOUSLEY.

149/2. ULEX GALLII Planch. Near Haslemere, Surrey, v.-c. 17: not admitted for Surrey by Salmon, though given by *C.F.* (Britton, 1936 B.).

149/2b. ULEX GALLII Planch., var. HUMILIS Planch. Coast at Bolt Tail, Malborough, S. Devon, v.-c. 3, G. T. FRASER.

*151/2. ONONIS REPENS L. Crochery Hill and Brunerican, Kintyre, v.-c. 101, LATIMER MCINNES.

151/2b. ONONIS REPENS L., var. HORRIDA Lange. Slapton Sands, S. Devon, v.-c. 3, Miss C. E. LARTER, A. CRAWSHAW, and G. T. FRASER.

151/2c. ONONIS REPENS L., var. MARITIMA Dum. Slapton Sands, S. Devon, v.-c. 3, G. T. FRASER.

*151/3. ONONIS SPINOSA L. La Gièvre de la Ville, Sark, new to the Channel Islands, G. C. BROWN.

152/1. TRIGONELLA ORNITHOPODIOIDES DC. Hollybed Common, Castlemorton, Worcester, v.-c. 37, F. M. DAY.

†152/12. TRIGONELLA HAMOSA L. Dagenham, S. Essex, v.-c. 18, J. P. M. BRENAN, N. Y. SANDWITH, and H. K. A. SHAW.

†153/3. MEDICAGO SATIVA L. Mill Lane, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

†153/4. MEDICAGO HISPIDA Gaertn. Grangetown, Cardiff, Glamorgan, v.-c. 41, F. NORTON and R. L. SMITH. [Submitted under the name *M. polycarpa* Willd., which appears to be a synonym of *M. hispida* Gaertn., placed by Ascherson and Graebner under sub-sp. *microcarpa* Urban, which includes vars. *denticulata*, *apiculata*, and *confinis* of the British Plant List.—ED.]

†153/4f. MEDICAGO HISPIDA Gaertn., var. CONFINIS (Koch) Burnat. Quarry Moor, near Ripon, Mid-West Yorks, v.-c. 64, 1905, N. D. SIMPSON. Det. G. ŠIRJAEF.

†153/4j. MEDICAGO TUBERCULATA Willd. Knapp Mill, Christchurch, S. Hants, v.-c. 11, 1923, N. D. SIMPSON. Confirmed by G. ŠIRJAEF.

153/5. MEDICAGO ARABICA Huds. Very luxuriant by stream, Plaxtoe, W. Kent, v.-c. 16, E. C. WALLACE.

†153/5b. MEDICAGO ARABICA Huds., var. LONGISPINA Rouy. Railway yard, Weymouth, Dorset, v.-c. 9, N. D. SIMPSON. Confirmed by G. ŠIRJAEF.

153/6f. MEDICAGO MINIMA (L.) Desr., forma VISCIDA (Koch). Littlestone, E. Kent, v.-c. 15, N. D. SIMPSON.

*153/7. MEDICAGO LUPULINA L. Waste ground, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

153/7b. MEDICAGO LUPULINA L., var. SCABRA S. F. Gray. Coombe Martin, N. Devon, v.-c. 4, 1933; Mudeford, S. Hants, v.-c. 11, 1920; Craigmillar, Edinburgh, v.-c. 83, 1921, N. D. SIMPSON. Confirmed by G. ŠIRJAEF.

*154/1. MELILOTUS ALTISSIMA Thuill. Sporadic, Kintyre, v.-c. 101, LATIMER MCINNES.

*154/3. MELILOTUS ARVENSIS Wallr. Waste ground, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

†154/4. MELILOTUS INDICA (L.) All. Delete * for v.-c. 13, *B.E.C. 1935 Rep.*, 26 (1936), see *J.B.*, 14 (1906).

*†155/4. TRIFOLIUM INCARNATUM L. Occasional, Kintyre, v.-c. 101, LATIMER MCINNES.

155/7c. TRIFOLIUM ARVENSE L., var. PERPUSILLUM Ser. Exmouth and Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER.

155/8. TRIFOLIUM SQUAMOSUM L. Near Crinnis beach, E. Cornwall, v.-c. 2, Tresidder ex Thurston (1936; 11). [V.-c. 2 is bracketed in *C.F.* Davey, *Fl. Cornw.*, 119, says "Native?" Further information as to the status of the species in Cornwall is desirable.—ED.]

155/11b. TRIFOLIUM STRIATUM L., var. ERECTUM Gaspar. Ashburton and Drewsteignton, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON.

*155/14. TRIFOLIUM STRICTUM L. Stanner Rocks, Radnorshire, v.-c. 43. Discovered independently by F. M. DAY and W. H. HARDAKER. [A very remarkable extension of range and one must suppose a recent arrival in this locality. Were seeds transported accidentally by human agency from The Lizard? There is an unconfirmed record for Anglesey not referred to in *Comital Flora*.—ED.]

*†155/15. TRIFOLIUM HYBRIDUM L. Occasional, Kintyre, v.-c. 101, LATIMER MCINNES.

*†155/19. TRIFOLIUM AGRARIUM L. Brixham and Ogwell, S. Devon, v.-c. 3, G. T. FRASER.

160/6. LOTUS TENUIS W. & K. Shingle, Midrips near Lydd, E. Kent, v.-c. 15, E. C. WALLACE.

†165/1. COLUTEA ARBORESCENS L. A magnificent clump on waste ground near Rainham, S. Essex, v.-c. 18, J. E. LOUSLEY and R. MELVILLE.

166/3. ASTRAGALUS DANICUS Retz. in Wiltshire.

*Astragalus danicus* was first recorded for Wiltshire by T. B. Flower in 1863 (*Wilts. Arch. and Nat. Hist. Mag.*). It was first observed by Dr Southby (c. 1860) near Bulford, and shortly afterwards by Miss Talbot "on the downs between Netheravon and Tidworth, growing in large patches." This may possibly refer to the same station. Flower himself saw the plant near Upavon in 1861, and it was gathered near Netheravon by F. Raikes in 1876. These localities form an area of about 15 square miles on the eastern border of Wiltshire; and very probably the plant does not now exist outside this district in the county.

There is an old record by T. Coward for Roundway, near Devizes in North Wilts, but it has never been verified, although the district has been well explored. This record, therefore, must remain doubtful.

Preston's *Flowering Plants of Wilts*," published in 1888, gives no further information, and the listed stations are bracketed as never having been confirmed. Indeed, the plant does not seem to have been seen again in Wiltshire for over fifty years.

The following note was published in *B.E.C. 1928 Rep.*:—"*Astragalus danicus* Retz. Near Swindon; between Amesbury and Salisbury Wilts. Rev. G. Gwatkin and Rev. E. H. Goddard."

The reference to Swindon is misleading, as it refers only to Canon Goddard's garden at Clyffe Pypard, where a few roots were transplanted. The native station is some miles south of those already mentioned, but by 1934 the small patch had completely disappeared owing

to destruction of the turf. It was Canon Goddard's intention to restart the species in its old home, but I do not think this has been done.

In December 1933, Mr E. W. M. Magor noticed what, by the leaves, he thought must be *A. danicus* growing on the down above Bulford. Through his kindness I was able to visit the spot in 1936, and to find several plants in flower. This, I think, is probably Dr Southby's original locality.

In Wiltshire, *A. danicus* reaches its most southerly British limit. It is an undoubted native in the county, and its present scarcity is probably due in part to the extensive shelling and trenching to which the military authorities subject its headquarters.

Mr P. M. Hall has long expressed the opinion that *Astragalus danicus* should occur in the extreme north-west corner of Hants—the only district in Hants where *Geranium pratense* is found frequently.

There is an old record in Smith-Pearse's *Handlist of Flowering Plants of Marlborough* for "downs near Tidworth." More recently the Marlborough College Natural History Society's Report for 1907 gives "A few scattered patches of this handsome vetch were found by C. C. Foss, Esq., on downs round Tidworth." It was again found near Tidworth by Mr M. C. Halton in 1921. North Tidworth is in Wiltshire and South Tidworth in Hants, but the hills near South Tidworth seem to be the more likely habitat for the plant. Thus it is probable that these records, or some of them, refer to Hampshire.

In 1926, Mr E. W. M. Magor saw the plant in very small quantity on the downs behind Shipton Bellinger. An extended search was made here in 1936 in company with Messrs P. M. Hall and E. C. Wallace, but without success. Both Tidworth and Shipton Bellinger are within two or three miles of the Wiltshire locality where the species still exists. Mr Magor's station was almost certainly within the Hampshire border and it is hoped that renewed efforts to find the plant in Hants will be rewarded with success in 1937.—J. D. GROSE.

*†170/1. CORONILLA VARIA L. Once only, waste ground, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

171/2. ORNITHOPUS PERPUSILLUS L. Near Stargate Colliery, Durham, v.-c. 66 (Eltringham: *Vasc.*, *22*, No. 4, 158; recorded as from v.-c. 67, for which it would have been N.C.R., but, *teste* G. W. Temperley, the locality is in v.-c. 66).

†176/2. VICIA TENUIFOLIA Roth. Jersey Marine, Glamorgan, v.-c. 41, thoroughly established and spreading, F. NORTON and R. L. SMITH.

176/8b. VICIA SEPIUM L., var. OCHROLEUCA Bast. Peterston-super-Ely, Glamorgan, v.-c. 41, E. P. PERMAN, comm. DEPT. BOT., NAT. MUS. WALES.

†177/3. **Ervum orientale** Boiss., *Diagn.*, ser. i, 9, p. 115; *Fl. Orient.*, ii, 598. Alien from the Orient. Waste ground, Dagenham, S. Essex, v.-c. 18, J. P. M. BRENAN and N. Y. SANDWITH. Det. N. Y. SANDWITH.

*†178/3. LATHYRUS TUBEROSUS L. In a thicket between Farnham and Godalming, Surrey, v.-c. 17, since 1928, W. E. WARREN. Det. W. H. PEARSALL, who stated in a note:—" the late C. E. Salmon saw and named this in 1928 but it was not included in the *Flora of Surrey*, as *Lathyrus* was already in print."

178/4. LATHYRUS MARITIMUS Bigel. A note in the *Western Morning News* in July 1936 stated that a specimen of this plant had been found on a beach near St Keverne, W. Cornwall, v.-c. 1, by Miss K. Sobey, and that Miss K. M. Goad, who acts as referee for plants to the *W.M. News* office, had confirmed the naming. Mr E. A. Rees, of Penzance, tells me that he has seen the plant (a single bushy specimen) *in situ* and that it is certainly *L. maritimus*. The only previous record for the species in Cornwall is " on the beach near Penzance," Gibson, *Camden's Britannica*, ed. 2, 1722.—F. RILSTONE. [This confirmation of an old record after a lapse of more than 200 years is of great interest. Gibson's record is referred to in Davey's *Flora of Cornwall* with the comment " extinct." *Top. Bot.*, ed. 2, brackets the record for v.-c. 1 as " dubious," while *Comital Flora* ignores it. There is no reference to *L. maritimus* in the paper by Thurston, *B.E.C. 1933 Rep.* (1934), 555, " Addenda and Corrigenda to the *Comital Flora*," which dealt almost entirely with Cornish records.—ED.]

183/4. PRUNUS CERASUS L. Common in hedges, two miles south of Maryborough, Leix, v.-c. H. 14, P. M. HALL and N. D. SIMPSON.

183/7b. PRUNUS SPINOSA L., var. FRUTICANS Weihe. Kingsbridge, Kingskerswell and Brixham, S. Devon, v.-c. 3, G. T. FRASER.

†185/38. RUBUS LACINIATUS Willd. Sandpit, Wareham, Dorset, v.-c. 9, J. E. DELHANTY.

†185/159. RUBUS PHOENICOLASIUS Maxim. To record in *B.E.C. 1935 Rep.*, 28 (1936), add " Det. KEW."

187/2×1. GEUM RIVALE L. × URBANUM L. = × INTERMEDIUM Willd. Greywell, N. Hants, v.-c. 12, J. E. LOUSLEY; Fernhill Wood and Ebnal Lane, Gobowen, Oswestry, Salop, v.-c. 40 (Lloyd: *N.W.Nat.*, *11*, No. 1, 56).

†188/1. FRAGARIA MOSCHATA Duchesne. Totnes and Edginswell, Torquay, S. Devon, v.-c. 3, G. T. FRASER.

189/3b. POTENTILLA ANSERINA L., var. NUDA S. F. Gray. Sandhills, Thurlestone, S. Devon, v.-c. 3, G. T. FRASER.

189/3d. POTENTILLA ANSERINA L., var. SERICEA Hayne. Sandhills, Thurlestone, S. Devon, v.-c. 3, G. T. FRASER. [Synonymous with var. *concolor* Wallr. of the *Br. Pl. List*, but Hayne's name is the earlier.—ED.]

189/7b. POTENTILLA REPTANS L., var. MICROPHYLLA Tratt. Sharkham, Brixham, S. Devon, v.-c. 3, G. T. FRASER.

189/8. POTENTILLA PROCUMBENS L. Clachan and Southend, Kintyre, v.-c. 101, LATIMER McINNES. [Add to *C.F.*, but not N.C.R., see *Top. Bot., Supp.* i, 32.—ED.]

†189/13. POTENTILLA RECTA L. Near Burford, Oxon, v.-c. 23, Lady SEVERN; waste ground, Campbeltown, Kintyre, v.-c. 101, once only, LATIMER McINNES.

†189/17. POTENTILLA INTERMEDIA L. Grangetown, Cardiff, Glamorgan, v.-c. 41, quite established, F. NORTON and R. L. SMITH; road-side, Leuchars, Fife, v.-c. 85, 1914, Miss E. S. TODD.

190/2. ALCHEMILLA PRATENSIS Schmidt. River bank, Caher Lower, Clare, v.-c. H. 9; left bank of R. Shannon, Lanesborough, Longford, v.-c. H. 24, N. D. SIMPSON and P. M. HALL.

190/4. ALCHEMILLA MINOR Huds. Railway bank near Oaksey Halt, N. Wilts, v.-c. 7, P. M. HALL and N. D. SIMPSON; roadside near Muckle Moss,* S. Northumberland, v.-c. 67 (Cooke and Heslop Harrison: *Vasc.*, *22*, No. 4, 156); near Newcastle West, Limerick, v.-c. H. 8, P. M. HALL and N. D. SIMPSON.

*190/19. ALCHEMILLA ALPINA L. Glenlussa and Mull Gap, Kintyre, v.-c. 101, LATIMER McINNES.

191/2. AGRIMONIA ODORATA (Gouan) Mill. Small wood, near Breamore Wood, S. Hants, v.-c. 11, N. D. SIMPSON.

†193/2. POTERIUM POLYGAMUM W. & K. Field-side bank between Headley and Boxhill, Surrey, v.-c. 17, P. H. COOKE.

*194/2h. ROSA ARVENSIS L., var. GALLICOIDES (Déségl.) Crép. Beckhole, N.E. Yorks, v.-c. 62, H. BRITTEN, comm. W. A. SLEDGE. Det. A. H. WOLLEY-DOD.

194/10. ROSA DUMETORUM Thuill. Add * for Orkney, v.-c. 111, *B.E.C. 1935 Rep.*, 71 (1936).

194/13. ROSA CORIIFOLIA Fr. Add * for Mid-west Yorks, v.-c. 64, *B.E.C. 1935 Rep.*, 74 (1936); add * for West Perth, v.-c. 87, *loc. cit.*, 76; add * for Elgin, v.-c. 95, *loc. cit.*, 75.

194/14d. ROSA MICRANTHA Sm., var. OPERTA Pug. Near Nottage, Glamorgan, v.-c. 41, Miss M. THOMAS. Det. A. H. WOLLEY-DOD.

194/15a. ROSA RUBIGINOSA L., var. TYPICA W.-Dod towards f. CORSTORPHINAE Druce. Flodigarry, Skye, v.-c. 104, Miss E. VACHELL. Det. A. H. WOLLEY-DOD.

194/19. ROSA TOMENTOSA Sm. Add * for Derby, v.-c. 57, *B.E.C. 1935 Rep.*, 78 (1936).

*195/10. SORBUS PORRIGENS Hedlund. Specimens in Torquay Herb. from Torquay, 1847, C. E. Parker, and from Babbacombe, *n.d.*, Miss C. E. Larter, as "*P. rupicola*, Devonshire form," belong here, *teste* A. J. Wilmott, comm. G. T. FRASER.

195/14. SORBUS LATIFOLIA Lam. agg. Little Haldon, near Bishopsteignton, S. Devon, v.-c. 3, G. T. FRASER, P. M. HALL, and T. STEPHENSON, previously recorded from this locality by Torquay botanists as *S. Aria*. Det. A. J. WILMOTT as belonging to this aggregate.

†197/2. COTONEASTER MICROPHYLLA Wallich. A solitary plant on open hillside, Foxcote Hill, E. Gloster, v.-c. 33, Miss L. ABELL.

†197/8. **Cotoneaster thymifolia** Host. Gatcombe Hill, N. Wilts, v.-c. 7, in quite a wild spot, probably bird-sown, J. D. GROSE. Det. KEW.

*†199/17. SAXIFRAGA GRANULATA L. Roadside hedge, Charlestown, E. Cornwall, v.-c. 2, Tresidder, ex Thurston (1936, 19)—" no sign of being a garden escape." [In view of the fact that *Sedum album* is recorded on the same page, also from " roadside hedge, Charlestown," though it is not stated to be the same hedge, it is probably wise not to regard this species as a native of Cornwall at the present time.—ED.]. Laneside, N. Sydmonton Common, N. Hants, v.-c. 12, J. E. LOUSLEY; Hurstmonceux churchyard, E. Sussex, v.-c. 14, E. C. WALLACE (f. *flore pleno*); Petty France Farm, Wellington Heath, Hereford, v.-c. 36, F. M. DAY.

199/19. SAXIFRAGA RIVULARIS L. Abundant on earthy slopes, Aonach Beag, Westerness, v.-c. 97, R. MACKECHNIE and E. C. WALLACE.

ROBERTSONIAN SAXIFRAGES. The following were determined by H. W. Pugsley.

199/24(2). SAXIFRAGA SPATHULARIS Brot. Near Church Cove (also a form with pure white flowers and an apetalous form) and Gap of Dunloe, S. Kerry, v.-c. H. 1; near Ballyrisode House, Glengarrif, W. Cork, v.-c. H. 3; Mallarranny, W. Mayo, v.-c. H. 27, P. M. HALL and N. D. SIMPSON. These have been selected from a larger number of gatherings as ± typical.

199/24(2)b. SAXIFRAGA SPATHULARIS Brot., var. SERRATIFOLIA (Don) Pugsl. Many gatherings were determined as approaching this var.: the following are selected as coming nearest to it:—Connor Hill Pass, Dingle Peninsula, S. Kerry, v.-c. H. 1; near Clifden, W. Galway, v.-c. H. 16; Lugnaquilla, Wicklow, v.-c. H. 20, P. M. HALL and N. D. SIMPSON.

199/25. SAXIFRAGA LACTIFLORA Pugsl. Between Cloghane and Mullaughveale, west of Mullaghveale, Connor Hill Pass, all Dingle Peninsula, S. Kerry, v.-c. H. 1; Glengarrif, W. Cork, v.-c. H. 3, P. M. HALL and N. D. SIMPSON. The Robertsonian Saxifrages hybridise so freely that it is very difficult to find pure colonies. Of the above, Ref. No. (P.M.H.) 1703 from W. of Mullaghveale, was named "good *lactiflora*," while all the other gatherings contained some plants "nearly pure *lactiflora*."

199/25×24(2). =×SAXIFRAGA HIRSUTA L. *sensu lato*. Between Cloghane and Mullaghveale, S. Kerry, v.-c. H. 1; Glengarrif, W. Cork, v.-c. H. 3, P. M. HALL and N. D. SIMPSON.

199/25×24(2)b. SAXIFRAGA LACTIFLORA Pugsl. × SPATHULARIS Brot., var. SERRATIFOLIA (Don) Pugsl. "Cf. this hybrid," [Ref. No. (P.M.H.) 1690a], Connor Hill Pass, S. Kerry, v.-c. H. 1, P. M. HALL and N. D. SIMPSON.

211/1b. SEDUM TELEPHIUM L., subsp. FABARIA (Koch) Schinz & Keller. Dale, Pembroke, v.-c. 45, E. P. PERMAN, comm. DEPT. BOT., NAT. MUS. WALES.

*213/2. DROSERA LONGIFOLIA L. Gortein Moss, Kintyre, v.-c. 101, LATIMER MCINNES.

†215/2. **Gunnera peltata** Phil. Near Coverack, W. Cornwall, v.-c. 1, escaped from nearby gardens, but now spreading for some distance along the roadside, J. DONALD GROSE. Det. KEW.

217/5. CALLITRICHE INTERMEDIA G. F. Hoffm. Glenlussa, Kintyre, v.-c. 101, LATIMER MCINNES. [Add to *C.F.*, but not N.C.R., see *Top. Bot.*, *Supp.* i, 38.—ED.]

217/7b. CALLITRICHE TRUNCATA Guss., var. OCCIDENTALIS (Rouy) Dr. Ditch in the Arun valley, near Arundel, W. Sussex, v.-c. 13, E. C. WALLACE. [An exceptionally interesting record, recorded by Borrer from Amberley in 1829, but there has been no recent Sussex record.—ED.]

220. EPILOBIUM L. All the following were determined by G. M. ASH, who has also examined the material in Herb. Druce, necessitating the corrections indicated.

220/3. EPILOBIUM HIRSUTUM L. Ref. No. 2145, Westcott, Surrey, v.-c. 17, and Ref. No. 2138, Ockham, Surrey, v.-c. 17, C. E. BRITTON, as *hirsutum* × *parviflorum*, *B.E.C. 1919 Rep.*, 820 (1920); Kilsby, Northants, v.-c. 32, L. CUMMING, as *hirsutum* × *montanum*, *B.E.C. 1915 Rep.*, 266 (1916) (delete record in *Fl. Northants*, p. 93).

220/3×4. EPILOBIUM HIRSUTUM L. × PARVIFLORUM Schreb. Bank of Cherwell, Marston Meadows, Oxon, v.-c. 23, J. CHAPPLE (a very

small-flowered plant with flowers no larger than ordinary *parviflorum*: *hirsutum* in this locality is also abnormally small-flowered); Groby quarry, near Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE; Silverdale, N. Lancs, v.-c. 69, with wholly female flowers, INTERNATIONAL PHYTOGEOGRAPHICAL EXCURSION IN THE BRITISH ISLES, 1911.

220/3×5. EPILOBIUM HIRSUTUM L. × TETRAGONUM L. Groby quarry, near Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/3×10. EPILOBIUM HIRSUTUM L. × MONTANUM L. Castle Coch Woods, Glamorgan, v.-c. 41, Miss E. VACHELL; Groby quarry, near Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/4. EPILOBIUM PARVIFLORUM Schreb. Marston, Oxon, v.-c. 23, G. C. DRUCE, 1888, as *lanceolatum* × *parviflorum*; Farthinghoe, Northants, G. C. DRUCE, 1911, as *parviflorum* × *roseum* (delete Farthinghoe record from *Fl. Northants*, p. 94); Symond's Yat, W. Gloster, v.-c. 34, S. H. BICKHAM, as *adnatum* × *parviflorum*, *B.E.C. 1905 Rep.*, 171 (31), (1906); Derbyshire, v.-c. 57, A. R. S. PROCTOR, as *montanum* × *parviflorum*, *B.E.C. 1928 Rep.*, 738 (1929).

220/4×5. EPILOBIUM PARVIFLORUM Schreb. × TETRAGONUM L. em. Curt. Chalk pit, near Guildford, Surrey, v.-c. 17; Groby quarry, near Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/4×8. EPILOBIUM PARVIFLORUM Schreb. × ROSEUM Schreb. Near Amberley, W. Sussex, v.-c. 13, G. C. DRUCE, as *lanceolatum* × *parviflorum* (*teste* E. S. Marshall), "a new hybrid to Britain," *B.E.C. 1918 Rep.*, 284 (1919); by the R. Ouzel, Salford, Bucks, v.-c. 24, and Beds, v.-c. 30, G. C. DRUCE, 1896, as *montanum* × *parviflorum*.

220/5. EPILOBIUM TETRAGONUM L. em. Curt. Bovey Tracey, S. Devon, v.-c. 3, (f. *minor*); S. Hayling, S. Hants, v.-c. 11, P. M. HALL.

220/6. EPILOBIUM LAMYI F. Schultz. Swithland Wood, Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/6. EPILOBIUM LAMYI F. Schultz, f. ANNUA. Odiham, N. Hants, v.-c. 12, 1897, Miss C. E. PALMER. See *B.E.C. 1897 Rep.*, 547 (1898), where E. S. Marshall names it "a small (probably shade-grown) seedling state of *E. parviflorum* Schreber."

220/6×10. EPILOBIUM LAMYI F. Schultz × MONTANUM L. Henley, Oxon, v.-c. 23, 1924, G. C. DRUCE, as "? *montanum* × *obscurum*." New to Oxfordshire.

220/7. EPILOBIUM OBSCURUM Schreb. St Saviour's Valley, Jersey, 1850, J. PIQUET, as *palustre*; Kingsbridge, S. Devon, v.-c. 3, 1858, HB. LIGHTFOOT, as *palustre*; Melmerby, Cumberland, v.-c. 70, 1920, W.

WRIGHT MASON; Banks of Tweed, Melrose, Roxburgh, v.-c. 80, 1883, C. E. PALMER, as *palustre*.

220/7×4. EPILOBIUM OBSCURUM Schreb. × PARVIFLORUM Schreb. Abbotskerswell, S. Devon, v.-c. 3, T. STEPHENSON; Tor Cross, S. Devon, v.-c. 3, J. CHAPPLE; S. Hayling, S. Hants, v.-c. 11, P. M. HALL; near Tilford, Surrey, v.-c. 17, 1890, E. S. MARSHALL, as *montanum* × *obscurum*, near the latter; Sunningwell, Berks, v.-c. 22, 1893, G. C. DRUCE, as *adnatum* × *parviflorum*; Banbury, T. BEESLEY in Herb. Druce, and Shotover Bog, J. CHAPPLE, both Oxon, v.-c. 23; Swithland Reservoir, Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/7×14. EPILOBIUM OBSCURUM Schreb. × PALUSTRE L. Peakirk, Northants, v.-c. 32, 1913, G. C. DRUCE, as *palustre*. New to Northants.

*220/7(2). EPILOBIUM ADENOCAULON Haussk. Portishead Dock, N. Somerset, v.-c. 6, J. P. M. BRENAN and N. Y. SANDWITH; Crab Wood, Winchester, S. Hants, v.-c. 11, Rev. H. PUREFOY FITZGERALD, comm. P. M. HALL; Tonbridge Tip, W. Kent, v.-c. 16, J. P. M. BRENAN; ditch in alluvial flats near Dagenham, S. Essex, v.-c. 18, N. Y. SANDWITH; Avonmouth Dock, W. Gloster, v.-c. 34, 1935, Mrs C. I. SANDWITH. In *Journ. Bot.*, *73*, 328, 1935, I reported the finding of a specimen of this species in Herb. Druce under the name of *E. obscurum* × *roseum* from Cropstone reservoir, Leicester, 1894. This proved to be the earliest known record from Britain. Curious to know whether it still existed there, in company with Mr G. M. Ash, I paid a visit to Cropstone at the end of August 1936, and after a considerable search around the reservoir we came across a few plants of *E. adenocaulon* scattered over a limited area. It is evidently not nearly so plentiful as it was in 1894, when it is described as forming the most conspicuous part of a vast belt of *Epilobium* on the muddy shores left dry by the receding water. We, however, found the reservoir very full of water and the few willow-herbs there were growing among the reeds and rushes. On the disused sluice-way of Swithland reservoir—about three miles from Cropstone in a straight line—one or two plants of *E. adenocaulon* were also found. —JOHN CHAPPLE.

220/7(2)×10. EPILOBIUM ADENOCAULON Hausskn. × MONTANUM L. Crab Wood, Winchester, S. Hants, v.-c. 11, Rev. H. PUREFOY FITZGERALD, comm. P. M. HALL.

220/8. EPILOBIUM ROSEUM Schreb. Exeter, S. Devon, v.-c. 3, 1908, G. C. DRUCE, as *parviflorum*×*roseum*; Headington, Oxon, v.-c. 23, 1915, G. C. DRUCE, as *parviflorum* × *roseum*; grounds of Ruthin Castle, Denbigh, v.-c. 50, 1925, L. CUMMING, as *montanum*.

220/9. EPILOBIUM LANCEOLATUM S. & M. In several places and in some quantity in and about Tor Cross, and at Blackpool, S. Devon, v.-c. 3, J. CHAPPLE.

220/9×7. EPILOBIUM LANCEOLATUM S. & M. × OBSCURUM Schreb. Tor Cross, S. Devon, v.-c. 3, J. CHAPPLE.

220/9×10. EPILOBIUM LANCEOLATUM S. & M. × MONTANUM L. Near St Andrew's, Guernsey, 1906, G. C. DRUCE, as *lanceolatum* × *obscurum*; Falmouth, W. Cornwall, v.-c. 1, 1911, G. C. DRUCE, as *lanceolatum*; garden weed, Polperro, E. Cornwall, v.-c. 2, 1924, F. RILSTONE, distributed as *lanceolatum*, but one of the plants in Herb. Druce is this hybrid.

220/10×4. EPILOBIUM MONTANUM L. × PARVIFLORUM Schreb. Woodbury and Kingskerswell, S. Devon, v.-c. 3, T. STEPHENSON; Tor Cross, S. Devon, v.-c. 3, J. CHAPPLE; Groby quarry, Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/10×7. EPILOBIUM MONTANUM L. × OBSCURUM Schreb. Tor Cross, S. Devon, v.-c. 3, J. CHAPPLE; Rake, W. Sussex, v.-c. 13, E. C. WALLACE; Valley of the Jed, Roxburgh, v.-c. 80, 1909, H. E. FOX, as *montanum*.

220/10×8. EPILOBIUM MONTANUM L. × ROSEUM Schreb. Swithland Wood, Leicester, v.-c. 55, G. M. ASH and J. CHAPPLE.

220/12. EPILOBIUM ALSINIFOLIUM Vill. Above Loch Maolach-Coire, Inchnadamph, W. Sutherland, v.-c. 108, J. E. LOUSLEY.

220/14×4. EPILOBIUM PALUSTRE L. × PARVIFLORUM Schreb. Hickling, E. Norfolk, v.-c. 27, Miss E. S. TODD.

*†223/2. OENOTHERA LAMARKIANA Seringe. Dawlish Warren, Wolborough, Abbotskerswell, Torquay and Coffinswell, S. Devon, v.-c. 3, G. T. FRASER and W. KEBLE MARTIN.

†224(2). **Gaura** L., *Gen. Pl.*, ed. v, p. 163, No. 425 (1754).

†224(2)/1. **Gaura coccinea** L. Pembrey Burrows, Carmarthen, v.-c. 44, G. W. HOLLIS, comm. DEPT. BOT., NAT. MUS. WALES, see *B.E.C. 1935 Rep.*, 175 (1936). Native of N. America. Det. H. A. HYDE.

225/2. CIRCAEA CANADENSIS Hill. Trislaig, Ardgour, Westerness, v.-c. 97, E. C. WALLACE. [Add to *Com. Fl.*, but see *Top. Bot., Supp.* i, 36, for previous record.—ED.]

†234/1. CARPOBROTUS EDULIS (L.) N. E. Br. Abundant by railway at Dawlish and increasing rapidly, S. Devon, v.-c. 3, G. T. FRASER.

†234/1b. CARPOBROTUS EDULIS (L.) N. E. Br., var. RUBESCENS Dr. Abundant on Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER.

†236/1. TETRAGONIA EXPANSA Murr. Gravel pits, Petersham, Surrey, v.-c. 17, P. H. COOKE.

†239/1. ERYNGIUM CAMPESTRE L. A small colony of 3 or 4 plants, Hope's Nose, Torquay, S. Devon, v.-c. 3, 1934, G. T. FRASER. In the Plymouth district during 1935 and 1936 *Eryngium campestre* L. was found by several observers to be flourishing and spreading at Devil's Point, Stonehouse, Plymouth. This is very pleasing, because in the Floras of the latter part of the last century it was said to be " nearly extinct " at this well-known station. On 20th July 1935, it was recorded by Mr G. W. Copeland as growing in fair quantity on an artificial bank (gun emplacement) at Devil's Point. I saw it in the same place on 24th July, but on 19th August I found that the lush vegetation on the bank had all been cut (prior to firing practice) and the *Eryngium* had been cut right down to the roots. However, in 1936, it had recovered, and on 8th July it was growing as strongly as before. Furthermore, I then discovered a large number of plants growing on the extreme edge of the limestone cliffs above the sea, and there seems to be no reason why the plants should not persist indefinitely in this natural habitat, although the other plants on the bank may finally be exterminated by cutting on the occasion of each firing practice. On 26th July 1936, *Eryngium campestre* L. was found on the cliffs at Bovisand, near Plymouth, by Mr E. W. Clarke. I saw it in this station on 1st August, and there was a large number of plants forming two patches separated by a narrow cliff-top path. Bovisand is in Wembury parish, and it is uncertain whether the above is the same station as " between Wembury and Bovisand," whence the plant was recorded in 1908.—E. MASSON PHILLIPS.

244/1. SMYRNIUM OLUSATRUM L. Growing in a hedge along the road from Newport Pagnell to Bletchley, Bucks., v.-c. 24, some 3½ miles from Fenny Stratford, Sir R. CURTIS. In *Fl. Bucks*, 150, it is stated " this appears to be now extinct."

†245/1. BUPLEURUM FRUTICOSUM L. Abundant on both sides of a railway cutting, near Horton Kirkby, W. Kent, v.-c. 16 (Britton, 1936 C).

247/6. APIUM MOOREI (Syme) Dr. Pool in limestone pavement, left bank of R. Shannon, Lanesborough, Longford, v.-c. H. 24, P. M. HALL and N. D. SIMPSON. [The distribution given for this and many other Irish plants in *Com. Fl.* is imperfect; the up-to-date figures are given in Praeger (1935).—ED.]

†252/1. FALCARIA VULGARIS Bernh. Littleham and Churston Ferrers, S. Devon, v.-c. 3, 1934, E. MILTON, comm. G. T. FRASER; edge of grass field, Hayes, W. Kent, v.-c. 16, D. MCCLINTOCK.

255/2. PIMPINELLA SAXIFRAGA L., with red flowers, perhaps var. ROSEIFLORA Drabble. Downs above Eastbourne, E. Sussex, v.-c. 14, E. C. WALLACE.

259/1. SCANDIX PECTEN-VENERIS L. Very small, in aboriginal downland turf, Birling Gap, E. Sussex, v.-c. 14, J. E. LOUSLEY.

*†263/1. FOENICULUM VULGARE Mill. An escape, Kintyre, v.-c. 101, LATIMER MCINNES.

265/3. OENANTHE CROCATA L. Pin Mill, between Ipswich and Shotley, E. Suffolk, v.-c. 25, Miss E. RAWLINS. Det. W. H. PEARSALL. [Add to *C.F.*, given for v.-c. 25, in *Top. Bot.*, ed. 2, 197, without personal authority.—ED.]

265/4. OENANTHE PIMPINELLOIDES L. Woking, Surrey, v.-c. 17, W. E. WARREN; given as "excessively rare" by Salmon, *Fl. Surrey*, 346. Det. W. H. PEARSALL and A. J. WILMOTT.

277/2b. HERACLEUM SPHONDYLIUM L., var. ANGUSTIFOLIUM Huds. Greatham, Cockenford, Birtley, Lanchester, etc., Durham, v.-c. 66, Heslop Harrison (1936 A).

†279/1. CORIANDRUM SATIVUM L. Young specimens of this scarce alien from Sandwich Bay, E. Kent, v.-c. 15, were brought to me by Mr A. H. Carter, and on August 16th, 1936, I visited this station in the company of Mr E. C. Wallace. The plant was extremely inconspicuous being very small (tallest specimen 22 cm. in fruit) and growing along the edge of the marram grass amongst debris cast up by the highest tides. Many specimens in full flower still had the cotyledons attached and not shrivelled. Taking Mr Carter's observations in conjunction with our own, Coriander evidently occurred along approximately a ½ mile of shore, and there were probably at least a hundred plants. From the situation in which it was growing the seeds must have floated in from the sea, and may well have come from a shipwreck on the Goodwin Sands. There are three other British records from similar situations as follows:—(1) Shore between Clontarf and Howth, Dublin, v.-c. H. 21, W. Wade in *Plantae rariores in Hibernia inventae*, 1804). (2) Under the cliff below Shoebury Church, S. Essex, v.-c. 18, 1804, Edw. Forster in Hb. Mus. Brit. (3) Shingly beach near Netley, S. Hants, v.-c. 11, "seemed well established," 1874, H. & J. Groves in Hb. Mus. Brit. Although omitted from Druce's *Comital Flora* the plant has a long history in Britain, and is worthy of retention in our lists. *Coriandrum sativum* is on record from the following vice-counties:—6, 10, 11, 15, 16, 17, 18, 20, 21, 24, 25, 29, 32, 37, 41, 53, 55, 58, 59, 63, 64, 66, 67, 80; C.I.; H. 8, 21, 39. In some of these it has been a mere casual, in others a relic of cultivation, and in Surrey and S. Essex it has become established for a period. Coriander was widely cultivated from very ancient times for the use of the fruit as a flavouring and as a carminative, and although there is reason to believe that it is a native of the Levant, it has become so widely and completely naturalised throughout the Mediterranean region that its true distribution as a native plant is obscure. In this country it was formerly well known in cultivation,

and was included by almost all the authors of our older floras as an "escape"—usual habitats being pathsides, arable fields, and village rubbish-dumps. In more recent times it was cultivated in Essex and thus we find it given as a not uncommon Essex plant about Althorne, Canewdon, etc., in *Essex Naturalist*, iii, 277, 1889. At Mitcham, Surrey, which was long a centre for the cultivation of plants used in confectionery, perfumery and medicine the plant persisted for many years. The earliest Mitcham specimen in my herbarium is dated 1916, but since the Herb industry was then long past its prime, it is probably mere chance that there are not early specimens in the National Herbaria. I have myself seen it in three stations near Mitcham, from one of which specimens were distributed (*Rep. Watson B.E.C.*, 1930-1, 73). Owing to the greater attention which has been given to adventive floras in recent years, Coriander has been frequently recorded from docks, public rubbish dumps, railway sidings, etc.—habitats which give a lower impression of its standing in our lists than it truly deserves.—J. E. LOUSLEY. [*Coriandrum* has also been recorded as a casual from v.-cc. 1 and 2 (Davey, *Fl. Cornw.*, 220), and more recently from waste ground, Penryn, W. Cornwall, v.-c. 1, Tresidder, ex Thurston (1936, 21).—ED.]

†280/1. CUMINUM CYMINUM L. Dagenham, S. Essex, v.-c. 18, J. P. M. BRENAN, N. Y. SANDWITH, and H. K. A. SHAW.

†283/2. CAUCALIS DAUCOIDES L. Cardiff Docks, Glamorgan, v.-c. 41, R. L. SMITH.

†283/8. CAUCALIS LATIFOLIA L. Cardiff Docks, Glamorgan, v.-c. 41, R. L. SMITH; Tanfield, *N.W. Yorks, v.-c. 65, W. A. SLEDGE.

†285/4. CORNUS MAS L. Growing freely in a copse on the Cotswolds, near Cheltenham, E. Gloster, v.-c. 33, W. R. ROBERTS, comm. DEPT. BOT., NAT. MUS. WALES.

†287/2b. SAMBUCUS NIGRA L., var. LACINIATA L. Wood south of Garon's wood, between Horsley and Clandon, Surrey, v.-c. 17, H. J. BURKILL.

287/3. SAMBUCUS EBULUS L. About 2 acres in field, Torbryan, S. Devon, v.-c. 3, Miss C. DICK, comm. G. T. FRASER; Jennycliffe, near Plymouth, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

290/1. LINNAEA BOREALIS L. Druce's *Comital Flora* records this species from three English vice-counties, 11, 62 and 67. It is shown conclusively by Flintoff (1936 B) that the plant is not known to exist in any of these at the present time. The Hampshire and two of the three Yorkshire records are based on misidentifications; in the third Yorkshire locality it has not been seen since first discovered in 1863, while it has disappeared from each of the two neighbouring localities in Northumberland.

†292/1. LEYCESTERIA FORMOSA Wall. Ivybridge Woods, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

296/1. GALIUM BOREALE L. One clump on river bank, Maxwelltown by Dumfries, v.-c. 73, P. H. COOKE.

296/2c. GALIUM MOLLUGO L., var. PYCNOTRICHUM H. Br. Exeter, Clyst St George, Bishopsteignton, and Torquay, S. Devon, v.-c. 3, HERB. HIERN; Kingsteignton, S. Devon, v.-c. 3, G. T. FRASER; Sampford Courtenay, N. Devon, v.-c. 4, HERB. HIERN. Det. C. E. BRITTON.

296/2d. GALIUM MOLLUGO L., var. ANGUSTIFOLIUM Leers. Beer Head, Kingsteignton and Torquay, S. Devon, v.-c. 3, HERB. HIERN; Dawlish West, S. Devon, v.-c. 3, G. T. FRASER; Sampford Courtenay, N. Devon, v.-c. 4, HERB. HIERN. Det. C. E. BRITTON.

296/2×9. GALIUM MOLLUGO L. × VERUM L. Near Old Romney, E. Kent, v.-c. 15, N. D. SIMPSON.

296/3d. GALIUM ERECTUM Huds., var. HIRTIFOLIUM H. Br. Moretonhampstead, S. Devon, v.-c. 3, G. T. FRASER. Det. C. E. BRITTON.

*296/6. GALIUM ULIGINOSUM L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES.

296/8. GALIUM DEBILE Desv. There are specimens of this species (*teste* C. E. BRITTON) in Torquay Museum from Chudleigh Knighton, S. Devon, v.-c. 3, June 1851, C. E. Parker, as *G. saxatile*, comm. G. T. FRASER; near Hatchett's Pond, Beaulieu, S. Hants, v.-c. 11, Lady DAVY.

*†296/12b. GALIUM VAILLANTII DC. Allotments, Burton-on-Trent, Staffs, v.-c. 39, J. E. LOUSLEY, R. C. L. BURGES, W. H. HARDAKER and C. THOMAS.

298/3. ASPERULA CYNANCHICA L. Fishcombe, Churston Ferrers, S. Devon, v.-c. 3, a slight extension from the Berry Head area, G. T. FRASER.

†298/5. ASPERULA ARVENSIS L. Single plant in school garden, Mullion, W. Cornwall, v.-c. 1, Perry, ex Thurston (1936, 22); Cardiff Docks, Glamorgan, v.-c. 41, R. L. SMITH.

300/1b. SHERARDIA ARVENSIS L., var. MARITIMA Griseb. Dawlish Warren and Daddyhole, Torquay, S. Devon, v.-c. 3, G. T. FRASER, also a white-flowered form from Churston Ferrers (noted also by T. Archer Briggs at Newton Ferrers and Plymstock).

304/3b. VALERIANELLA DENTATA (L.) Poll., var. MIXTA (L.) Dufresne. Tor Cross, S. Devon, v.-c. 3, growing with *V. dentata* and *V. rimosa*, J. CHAPPLE.

306/2. DIPSACUS PILOSUS L. By River Mole, Norbury Park, Leatherhead, Surrey, v.-c. 17, an old station, apparently last recorded from here in Brewer's *Fl. Surrey* (1863), J. E. LOUSLEY; Patrishaw, Brecon, v.-c. 42, E. P. PERMAN, comm. DEPT. BOT., NAT. MUS. WALES.

†311/5. **Grindelia chiloensis** (Cornelissen) Cabrera. (*Hoorebekia chiloensis* Cornelissen, *Grindelia speciosa* Gill., ex. Hook & Arn.). Bank of Tweed, Galafoot, Selkirk, v.-c. 79, growing among wool casuals, 14th September 1909, J. FRASER in Herb. Kew. Native of the dry mountains and steppes of Patagonia, where it is abundant. An addition to *The Adventive Flora of Tweedside*, as well as a new British alien. It has been long known in cultivation as a showy garden plant and is nearly hardy in S. England. Figured in *Bot. Mag.*, t. 9471, 193, where this record is mentioned. Det. N. Y. SANDWITH.

†318/18(5). **Aster microcephalus** (Mig.) Franch. & Sav. Native of Japan. Probably a garden outcast, Hooe Meavy, S. Devon, v.-c. 3, E. MASSON PHILLIPS. Det. KEW.

†327/1. ANAPHALIS MARGARITACEA C. B. Clarke, var. SUBALPINA A. Gray. Quarry, Narberth, Pembroke, v.-c. 45, E. P. PERMAN, comm. DEPT. BOT., NAT. MUS. WALES.

334/2. PULICARIA VULGARIS Gaertn. This seems to be becoming much rarer on Barnard's Green, Worcestershire, v.-c. 37, where it used to be fairly plentiful, F. M. DAY.

†341/3. XANTHIUM SPINOSUM L. One large plant in a cabbage-field, one mile West of Faversham, E. Kent, v.-c. 15, G. HAYNES; on refuse near the docks, Felixstowe, E. Suffolk, v.-c. 25, Miss V. M. LEATHER, comm. R. BURN.

†354/1. GALINSOGA PARVIFLORA Cav. Common weed in Messrs Watts Ltd.'s Nurseries, Redhill, Bournemouth, S. Hants, v.-c. 11, N. D. SIMPSON; allotments, Burton-on-Trent, Staffs, v.-c. 39, W. H. HARDAKER, C. THOMAS, R. C. L. BURGES and J. E. LOUSLEY.

†365/7. ACHILLEA NOBILIS L. Waste ground, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES. Det. R.B.G., EDINBURGH.

*†368/4. ANTHEMIS COTULA L. Fort Argyll Quarry, Kintyre, v.-c. 101, LATIMER MCINNES.

*†371/2. MATRICARIA CHAMOMILLA L. N. Askomil Road and occasionally in stack yards, Kintyre, v.-c. 101, LATIMER MCINNES.

†378/16. ARTEMISIA BIENNIS Willd. Seaford, E. Sussex, v.-c. 14, one plant, L. A. W. BURDER. Det. MUS. BRIT.

*†380/2. PETASITES ALBUS (L.) Gaertn. Middleton Tyas, N.W. Yorks, v.-c. 65 (Lucas: *Vasc.*, *22*, No. 2, 82).

†381/1. DORONICUM PARDALIANCHES L. Garden escape, Yelverton, S. Devon, v.-c. 3, E. MASSON PHILLIPS; lane behind Market Weston Rectory, W. Suffolk, v.-c. 26, where it was known to Hind (*Fl. Suffolk*, 1889) [delete " 25 or " in *Com. Fl.*—ED.]; Woodchester Park, in quantity in a thick wood, near Frocester, W. Gloster, v.-c. 34, J. E. LOUSLEY; Kymin Hill, Troy Park Wood and railway bank near Hadnock, Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES [add to *Com. Fl.*, but see *Welsh Flowering Plants* for previous record. —ED.]; escape, New Orleans Glen, *Kintyre, v.-c. 101, LATIMER MCINNES; very " wild " by the river in Brahan Castle grounds, Conon Bridge, W. Ross, v.-c. 105, J. E. LOUSLEY.

†383/7. SENECIO SQUALIDUS L. Goodrington, Paignton, S. Devon, v.-c. 3, A. CRAWSHAW, comm. G. T. FRASER; increasing at Salisbury, *S. Wilts, v.-c. 8, H. J. GODDARD; Coatham, N.E. Yorks, v.-c. 62, W. A. SLEDGE; railway embankment, a little North of Doncaster, *S.W. Yorks, v.-c. 63 (Dallman, 1936 B); Stockton race-course and at the Durham end of Newport Bridge, *Durham, v.-c. 66 (Elgee, 1936).

†383/8. SENECIO VISCOSUS L. Teignmouth and Goodrington, Paignton, S. Devon, v.-c. 3, A. CRAWSHAW, comm. G. T. FRASER.

383/10e. SENECIO VULGARIS L., var. RADIATUS Koch. Railway at Leominster station, Herefordshire, v.-c. 36, F. M. DAY.

†395/1c. CARDUUS NUTANS L., var. MACROCEPHALUS Desf. Whitehawk, Brighton, E. Sussex, v.-c. 14, L. A. W. BURDER. Confirmed by KEW.

†395/8. **Carduus leiophyllus** Petrov. This species, recorded in *B.E.C. 1935 Rep.*, 32 (1936), being an addition to *Br. Pl. List*, should have been printed as above. Add " Det. J. E. LOUSLEY."

396/3×9. CIRSIUM HETEROPHYLLUM (L.) Hill × PALUSTRE (L.) Scop. Two plants near Roybridge, Glen Spean, Westerness, v.-c. 97, E. C. WALLACE.

396/4b. CIRSIUM ACAULE (L.) Weber, var. CAULESCENS (Pers.) DC. Kingskerswell Common, S. Devon, v.-c. 3, G. T. FRASER.

396/8b. CIRSIUM ARVENSE (L.) Scop., var. MITE Koch. The Potteries, Bovey Tracey, and Abbotskerswell, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON.

396/8e. CIRSIUM ARVENSE (L.) Scop., var. SETOSUM C. A. Mey. The Potteries, Bovey Tracey, Wolborough Decoy and Abbotskerswell, S. Devon, v.-c. 3, G. T. FRASER.

396/8f. CIRSIUM ARVENSE (L.) Scop., var. SETOSUM C. A. Mey., subvar. INTEGRIFOLIUM (Koch), f. INCANUM (Ledeb.). Avonmouth Docks, W. Gloster, v.-c. 34, W. H. HARDAKER. Det. J. E. LOUSLEY.

396/9×10. CIRSIUM PALUSTRE (L.) Scop. × PRATENSE (Huds.) DC. Aylesbeare, S. Devon, v.-c. 3, G. T. FRASER.

†397/1. ONOPORDON ACANTHIUM L. Wolborough Decoy, S. Devon, v.-c. 3, G. T. FRASER; chalk cliffs east of Cuckmere Haven, E. Sussex, v.-c. 14, E. C. WALLACE.

†399/1. SILYBUM MARIANUM Gaertn. Lower Ashton, S. Devon, v.-c. 3, P. M. HALL; Pembrey, *Carmarthen, v.-c. 44, HERB. MOTLEY, R. Institution of S. Wales, comm. DEPT. BOT., NAT. MUS. WALES.

405. CENTAUREA L. Determined by C. E. BRITTON.

405/8. CENTAUREA OBSCURA Jord. Moretonhampstead, S. Devon, v.-c. 3, F. M. DAY.

405/8b. CENTAUREA OBSCURA Jord., var. SUBNEMORALIS C.E.B. Teignmouth, S. Devon, v.-c. 3, F. M. DAY.

405/11c. CENTAUREA NEMORALIS Jord., var. SUBINTEGRA C.E.B. Preston, Kingsteignton, S. Devon, v.-c. 3, G. T. FRASER.

405/11d. CENTAUREA NEMORALIS Jord., var. MINIMA C.E.B. Beer Head, S. Devon, v.-c. 3, Rev. W. KEBLE MARTIN; a rayed form, Sharkham Pt., Brixham, S. Devon, v.-c. 3, F. M. DAY.

*405/12. CENTAUREA CYANUS L. Occasional in corn fields, Kintyre, v.-c. 101, LATIMER MCINNES.

†405/25. CENTAUREA DIFFUSA Lam. Topcliffe, N.E. Yorks, v.-c. 62, W. A. SLEDGE.

†405/31. CENTAUREA SOLSTITIALIS L. Bee Sands, S. Devon, v.-c. 3, 1934, since destroyed, G. T. FRASER.

†409/1. CICHORIUM INTYBUS L. Casual, Kintyre, v.-c. 101, LATIMER MCINNES. [Add to *C.F.*, but not N.C.R., see *Top. Bot.*, *Supp.* i, 50.—ED.]

415/1. PICRIS ECHIOIDES L. A form without prickles, Orecombe, Exmouth, S. Devon, v.-c. 3, G. T. FRASER. "A very uncommon glabrous form," KEW.

*416/3. CREPIS BIENNIS L. Road near Mitford (Miss M. E. Urton) and Stocksfield, S. Northumberland, v.-c. 67 (Temperley: *Vasc.*, *22*, No. 3, 118).

416/5h. CREPIS CAPILLARIS (L.) Wallr., var. ANGLICA Dr. & Th. Coldbackie, Tongue, W. Sutherland, v.-c. 108, J. E. LOUSLEY.

*†419/8. HIERACIUM AURANTIACUM L. Known for over 20 years on a railway embankment near Birtley, J. W. HESLOP HARRISON and well established, Thistly Cock Hill, Crawcrook, Durham, v.-c. 66 (Eltringham: *Vasc.*, *22*, No. 4, 159) [the latter locality is recorded as in v.-c. 67, but *teste* G. W. Temperley it is in v.-c. 66.—ED.]

419/11. HIERACIUM ANGLICUM Fr. Poulsallagh, Clare, v.-c. H. 9; Clifden, W. Galway, v.-c. H. 16, P. M. HALL and N. D. SIMPSON. Det. H. W. PUGSLEY.

419/224. HIERACIUM RIGIDUM Hartm. A form of this species, Laffan's Plain, near Aldershot, N. Hants, v.-c. 12, P. M. HALL. Det. H. W. PUGSLEY.

419/241j. HIERACIUM UMBELLATUM L., approaching var. CORONOPIFOLIUM Bernh. Bank of Canal, near Fleet, N. Hants, v.-c. 12, P. M. HALL. Det. H. W. PUGSLEY.

*421/1. HYPOCHAERIS MACULATA L. A single plant on coast near Easington, Durham, v.-c. 66, 1928 (Cooke: *Vasc.*, *19*, 150, 1933); as there was some doubt about the plant, Mr Cooke sowed some of the seed in a cold frame in his garden. The seedlings flowered in 1933 and from these the identification was confirmed.—G. W. TEMPERLEY.

423. TARAXACUM Zinn. All the following determinations are by Dr G. HAGLUND. The records attributed to Dr G. DEGELIUS and Dr J. A. NANNFELDT refer to plants grown at Lund, Sweden, by Dr Haglund from seeds collected by them in Britain (Haglund, 1935).

423/1. TARAXACUM BRACHYGLOSSUM Dahlst. Byfleet, Surrey, v.-c. 17, H. PHILLIPS.

423/5(2). TARAXACUM GLAUCINIFORME Dahlst. Woking, Surrey, v.-c. 17, H. PHILLIPS; on limestone rocks, Inishmore, Kilronan, Aran Islands, Clare, v.-c. H. 9, G. DEGELIUS.

423/10(2). TARAXACUM RUBICUNDUM Dahlst. The Quenvais, Jersey, H. PHILLIPS.

423/17. TARAXACUM BRITANNICUM Dahlst. Lisdoonvarna, Clare, v.-c. H. 9, G. DEGELIUS.

423/23. TARAXACUM FAEROENSE Dahlst. Redgrave Fen, E. Suffolk, v.-c. 25, J. CHAPPLE.

423/25. TARAXACUM LANDMARKII Dahlst., forma. Byfleet, Surrey, v.-c. 17; Hitchin, Hertfordshire, v.-c. 20, H. PHILLIPS.

423/29. TARAXACUM NORDSTEDTII Dahlst. Oughterard, W. Galway, v.-c. H. 16, G. DEGELIUS.

423/32. TARAXACUM SERRATILOBUM Dahlst. Hitchin, Hertfordshire, v.-c. 20, H. PHILLIPS.

423/35. TARAXACUM UNGUILOBUM Dahlst. Oughterard, W. Galway, v.-c. H. 16; Church of St Joseph, Galway, N.E. Galway, v.-c. H. 17, G. DEGELIUS.

423/47(2). TARAXACUM CONNEXUM Dahlst. Harbour-wall, ? Fishguard, Pembrokeshire, v.-c. 45, G. DEGELIUS.

423/51. TARAXACUM DAHLSTEDTII Lindb. f. Fishguard, Pembrokeshire, v.-c. 45, G. DEGELIUS.

423/55. TARAXACUM EXPALLIDIFORME Dahlst. Lawn, Kew Gardens, Surrey, v.-c. 17, J. A. NANNFELDT.

423/62(2). TARAXACUM HAMIFERUM Dahlst. Killarney, N. Kerry, v.-c. H. 2, G. DEGELIUS.

423/79(2). TARAXACUM PLATYLOBUM Dahlst. Hitchin, Hertfordshire. v.-c. 20, H. PHILLIPS.

423/80. TARAXACUM POLYODON Dahlst. Hitchin, Hertfordshire, v.-c. 20, H. PHILLIPS.

423/80(2). TARAXACUM PORRECTIDENS Dahlst. Hitchin, Hertfordshire, v.-c. 20, H. PHILLIPS.

425/1. LACTUCA VIROSA L. Moor Monkton and E. Cowton, N.E. Yorks, v.-c. 61, Miss C. M. ROB.

†425/2c. LACTUCA SERRIOLA L., var. **dubia** (Jord.) Rouy. Waste ground, Norham Road, Oxford, v.-c. 23, Lady DOUIE. Martrin-Donos, *Florule du Tarn*, 408, 1864, gives the following account of *Lactuca dubia* Jord., *Pugillus*, 119:— "Leaves oblong-entire, of a pale green; flowers pale yellow, bright underneath, in drooping clusters before flowering. Achenes pale olive-coloured, with 6-8 nerves on each side." Det. J. E. LOUSLEY.

†425/8. LACTUCA MACROPHYLLA (DC.) A. Gray. *L. alpina* was recorded for Cumberland in *B.E.C. 1933 Rep.*, 532 (1934) and *1934 Rep.*, 831 (1935). The late W. H. PEARSALL left the following note:—"The Glenridding plant locally known as 'Bob Nixon's Helvellyn plant.' Mr Albert Wilson sent me a fresh flowering specimen of this in July and it proved to be the Caucasian species *L. macrophylla*. Det. KEW."

†425/9. LACTUCA TATARICA C. A. Meyer. Well established on the sand-dunes near Freshfield, S. Lancs, v.-c. 59, where it was first seen

in 1934 by H. E. BUNKER. It has now (1936) nearly doubled its area. Det. J. CHAPPLE.

427/2c. SONCHUS ARVENSIS L., var. ANGUSTIFOLIUS Meyer. A maritime form of cliffs and estuaries, as Dawlish Warren, Torquay, Brixham and Kingsbridge, S. Devon, v.-c. 3, G. T. FRASER.

*431/2. LOBELIA URENS L. Four miles from Monmouth, but in Herefordshire, v.-c. 36 (Mrs P. Wiseman, ex Hyde, 1936).

432/1b. JASIONE MONTANA L., var. MAJOR M. & K. Manaton and Thurlestone, S. Devon, v.-c. 3, G. T. FRASER.

433/1. WAHLENBERGIA HEDERACEA (L.) Reichb. Exceptionally large in a fairly dry sloping pine-wood, St Leonard's Forest, W. Sussex, v.-c. 13, J. E. LOUSLEY.

†435/4. CAMPANULA RAPUNCULOIDES L. Whitehawk, Brighton, E. Sussex, v.-c. 14, in great quantity in derelict arable field, L. A. W. BURDER.

†435/6. CAMPANULA PERSICIFOLIA L. Wood near Clapham Station, Mid-West Yorks, v.-c. 64, "not native but far removed from any garden," W. A. SLEDGE.

435/8. CAMPANULA PATULA L. Near Brookwood, Distr. iv, Surrey, v.-c. 17, W. E. WARREN.

439/1b. OXYCOCCUS QUADRIPETALUS Gilib., var. MICROCARPUS Turcz. Bog near Rannoch Station, Mid-Perth, v.-c. 88, J. E. LOUSLEY.

†439/2. OXYCOCCUS MACROCARPUS Pursh. Bogs near Lyndhurst, S. Hants, v.-c. 11, June 1927, R. Melville in Herb. Kew, ex Lousley (1936 A; 198).

†440/1. ARBUTUS UNEDO L. Introduced trees very fine in the woods on Cliff between Porlock Weir and Culbone, S. Somerset, v.-c. 5, J. E. LOUSLEY.

†443/1. GAULTHERIA SHALLON Pursh. Naturalised about 1 mile north of Toy's Hill, Brasted, W. Kent, v.-c. 16, Lousley (1936 A; 200).

453/1. PYROLA ROTUNDIFOLIA L. In fen near Upton Broad, E. Norfolk, v.-c. 27, J. E. LOUSLEY and G. WATTS.

456/1. MONOTROPA HYPOPITYS L. Ampfield Wood, S. Hants, v.-c. 11, A. WHITE, comm. P. M. HALL; Grin Wood, near Buxton, Derby, v.-c. 57 (F. T. Hall: *N.W. Nat.*, *11*, No. 3, 275-6).

457/1b. LIMONIUM VULGARE Mill., var. PYRAMIDALE Dr. Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER. [This form has been mis-

taken for *L. humile* but all Devon records for that species are errors.—W. KEBLE MARTIN.]

*†459/1. HOTTONIA PALUSTRIS L. Fishpond, Lyneham, N. Wilts, v.-c. 7, a single plant, undoubtedly brought in with fish and not seen since 1930, J. DONALD GROSE.

†463/3. LYSIMACHIA PUNCTATA L. Waste land at the Water Works, Wylam, S. Northumberland, v.-c. 6 (Eltringham: *Vasc.*, *22*, No. 4, 159).

467/2b. ANAGALLIS ARVENSIS L., var. CARNEA Schrank. Plentiful on sand-dunes, Carn Near, Tresco, Isles of Scilly, v.-c. 1, J. E. LOUSLEY; sand-dunes, Darrynane, S. Kerry, v.-c. H. 1, P. M. HALL and N. D. SIMPSON.

467/2c. ANAGALLIS ARVENSIS L., var. VERTICILLATA Diard. Near Brockenhurst, S. Hants, v.-c. 11, Miss G. YOUNG.

469/1. SAMOLUS VALERANDI L. Cherwell Bank, Oxford, v.-c. 23, G. M. ASH [an increasingly rare plant in the county, J. CHAPPLE]; Hollybed Common, Castlemarton, Worcestershire, v.-c. 37, F. M. DAY.

†470/1. SYRINGA VULGARIS L. Abundantly naturalised in hedges, north of Abbey Leix, Leix, v.-c. H. 14, P. M. HALL and N. D. SIMPSON.

*476/1. MICROCALA FILIFORMIS H. & L. Damp slacks behind Seaton Sluice dunes, Blyth, S. Northumberland, v.-c. 67, Heslop Harrison (1936 B), a very remarkable extension of range.

*479/1. CICENDIA PUSILLA Griseb. Raasay I., v.-c. 104, J. W. HESLOP HARRISON. This is one of the most remarkable extensions of range ever recorded. Coming on top of the discovery of the two *Juncí*, *pygmaeus* and *capitatus*, it leads one to hope for other new discoveries in the Islands of the West Coast of Scotland.—ED.

480/6. GENTIANA ANGLICA Pugsley (=*G. lingulata* Ag., var. *praecox* (Towns.) Murbeck). Milk Hill, N. Wilts, v.-c. 7, in small quantity, J. CHAPPLE and J. D. GROSE.

†488/1. PHACELIA CILIATA Benth. Felixstowe Docks, E. Suffolk, v.-c. 25, Miss E. RAWLINS. Det. A. J. WILMOTT.

†496/4. AMSINCKIA INTERMEDIA F. et M. Felixstowe Docks, E. Suffolk, v.-c. 25, Miss E. RAWLINS. Det. A. J. WILMOTT.

*497/2. SYMPHYTUM TUBEROSUM L. Roadside near Maresfield, E. Sussex, v.-c. 14, July 1934, A. H. WOLLEY-DOD, *B.E.C. 1935 Rep.*, 179 (1936).

†498/1. BORAGO OFFICINALIS L. Cliffs at Looe, E. Cornwall, v.-c. 2; South Huish, S. Devon, v.-c. 3, E. MASSON PHILLIPS; Pembrey Burrows, Carmarthen, v.-c. 44, HERB. MOTLEY, Royal Institution of S. Wales, comm. DEPT. BOT., NAT. MUS. WALES; Machrihanish, Kintyre, v.-c. 101, LATIMER MCINNES.

*†500/1. ANCHUSA SEMPERVIRENS L. Roadside near Machrihanish House, Kintyre, v.-c. 101, LATIMER MCINNES.

†503/1. PULMONARIA OFFICINALIS L. Established in a small remnant of a wood, near Aberdare, Glamorgan, v.-c. 41, MYRDDIR WILLIAMS, comm. DEPT. BOT., NAT. MUS. WALES. [Add to *Com. Fl.*, but see *Welsh Flowering Plants* for previous record.—ED.]

506/2. MYOSOTIS BREVIFOLIA C.E.S. Near Winch Bridge, N.W. Yorks, v.-c. 65; Weardale, *Durham, v.-c. 66, H. W. PUGSLEY.

506/7. MYOSOTIS SYLVATICA (Ehrh.) Hoffm. Wood at Chittoe, v.-c. 7, N. Wilts; wood near Shalbourne, v.-c. 8, S. Wilts, J. D. GROSE. Both det. A. E. WADE. [These records not only remove the brackets from v.-c. 8 in *C.F.* but also confirm the occurrence of this species in v.-c. 7. Mr Grose points out that in many instances in previous B.E.C. Reports records from the Shalbourne district have been given as for v.-c. 7 instead of for v.-c. 8. It is very possible that the record, on which the entry in *C.F.* for v.-c. 7 is based, really refers to v.-c. 8. —ED.]

506/9b. MYOSOTIS COLLINA Hoffm., var. MITTENII Baker. Dainton Common, Ipplepen, S. Devon, v.-c. 3, G. T. FRASER.

506/9c. MYOSOTIS COLLINA Hoffm., var. LEBELII (G. & G.) Corb. Risby Poors Heath, W. Suffolk, v.-c. 26, J. CHAPPLE. Det. A. E. WADE.

506/10c. MYOSOTIS VERSICOLOR Sm., var. PALLIDA Bréb. St Catherine's Point, Jersey, J. CHAPPLE [det. A. E. WADE]; Cornwood, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

513/1d. CONVOLVULUS ARVENSIS L., var. OBTUSIFOLIUS Choisy. Near Cardiff, Glamorgan, v.-c. 41, Miss E. VACHELL.

513/1e. CONVOLVULUS ARVENSIS L., var. STONESTREETH Dr. Constant for 16 years near Taunton, S. Somerset, v.-c. 5, H. PHIPPARD, comm. J. E. LOUSLEY.

*†515/4. CUSCUTA TRIFOLII Bab. Landscove, Brixham, S. Devon, v.-c. 3, 1934, E. MILTON, comm. G. T. FRASER.

†515/7. CUSCUTA SUAVEOLENS Ser. On clover, Catton, N.E. Yorks, v.-c. 62, Miss C. M. ROB.

†520/2. LYCIUM HALIMIFOLIUM Mill. Pendine, Carmarthen, v.-c. 44, Miss F. M. LEWIS; waste land, Penrhyn Bay, Denbigh, v.-c. 50, Miss A. W. MORRIS: both comm. DEPT. BOT., NAT. MUS. WALES. **Det. A. E. WADE.**

†522/1. DATURA STRAMONIUM L. Thorpfield, near Thirsk, N.E. Yorks, v.-c. 61, W. A. SLEDGE.

*†524/1. HYOSCYAMUS NIGER L. Casual, once only, Kintyre, v.-c. 101, LATIMER MCINNES.

527/3. VERBASCUM THAPSUS L. Herm, Channel Islands, first record for the island, G. C. BROWN.

*†527/4. VERBASCUM VIRGATUM Stokes. Roadside near Dagenham Dock, S. Essex, v.-c. 18, A. H. CARTER and H. S. REDGROVE, comm. J. E. LOUSLEY; waste ground, Colchester, *N. Essex, v.-c. 19, G. C. BROWN, *B.E.C. 1935 Rep.*, 180 (1936).

†527/5. VERBASCUM BLATTARIA L. Waste ground, Dixton, Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES.

†527/18. VERBASCUM PHOENICEUM L. Jersey Marine, Glamorgan, v.-c. 41, a true alien and not a garden escape, R. L. SMITH.

†532/2. LINARIA PURPUREA Mill. Clearbrook and Mutley, near Plymouth, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

532/3. LINARIA REPENS (L.) Mill. Bickleigh, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

532/3×1. LINARIA REPENS (L.) Mill. × VULGARIS Mill. Par, W. Cornwall, v.-c. 1, J. E. LOUSLEY; Richborough, E. Kent, v.-c. 15, A. H. CARTER, comm. J. E. LOUSLEY.

†532/5. LINARIA SUPINA Desf. Railway line, Clearbrook, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

*532/7. LINARIA MINOR (L.) Desf. On narrow-gauge track leading from Cocklaw Quarry, S. Northumberland, v.-c. 67 (Temperley: *Vasc.*, *22*, No. 3, 118).

*†532/26. LINARIA CYMBALARIA (L.) Mill. Naturalised in several places and spreading rapidly, Kintyre, v.-c. 101, LATIMER MCINNES.

†537/1. MIMULUS GUTTATUS DC. Large-flowered dwarf plants about 12 cm. in height on river shingle below the Sow of Atholl, Dalnaspidal, Mid-Perth, v.-c. 88, J. E. LOUSLEY.

†537/1d. MIMULUS LUTEUS L., var. YOUNGANUS Hook. A very ornamental plant with dark-coloured blotches on the corollas, by

stream, Reay Golf Course, Caithness, v.-c. 109, where it was known to E. S. Marshall, J. E. Lousley.

†537/2. Mimulus moschatus Dougl. Deancombe, near Burrator, S. Devon, v.-c. 3, E. Masson Phillips; by pond on Holmwood Common, Surrey, v.-c. 17, E. C. Wallace; naturalised in some quantity by a stream, Bach Howey, near Llanstephan, Radnor, v.-c. 43, J. G. Williams, comm. Dept. Bot., Nat. Mus. Wales.

*543/5. Veronica montana L. Frequent, Kintyre, v.-c. 101, Latimer McInnes.

543/18b. Veronica Tourneforth Gmel., var. Corrensiana (Lehm.) Hayek & Hegi. High Brooms Tip, Tunbridge Wells, W. Kent, v.-c. 16, J. P. M. Brenan.

543/20. Veronica polita Fries. The note under this number in *B.E.C. 1935 Rep.*, 35 (1936) should be deleted. That note and the following one referred to the same plant, the correct determination of which was *V. Crista-galli* Stev.

545. Euphrasia L. A large number of additional vice-county records are given in Pugsley (1936 A).

545. Euphrasia L. All the following were determined by H. W. Pugsley.

545/3. Euphrasia brevipila B. & G. Arisaig, Westerness, v.-c. 97, J. E. Lousley; between Cloghane and Mullaghveale, S. Kerry, v.-c. H. 1; Achill Island, W. Mayo, v.-c. H. 27, P. M. Hall and N. D. Simpson.

545/3b. Euphrasia brevipila B. & G., var. subeglandulosa Towns. Manaton, S. Devon, v.-c. 3, T. Stephenson.

545/9. Euphrasia curta Fries ex Wettst. Bee Sands, S. Devon, v.-c. 3, J. Chapple. "About the best British examples I have seen," H. W. Pugsley.

545/9b. Euphrasia curta Fr. ex Wettst., forma glabrescens (Wettst.). Arisaig, Westerness, v.-c. 97, J. E. Lousley.

545/5×10. Euphrasia nemorosa (Pers.) Löhr × occidentalis Wettst. Wall's Hill, Torquay, S. Devon, v.-c. 3, G. T. Fraser.

*545/10. Euphrasia occidentalis Wettst. Walney Island, N. Lancs, v.-c. 69, Mrs Foggitt.

545/10d. Euphrasia occidentalis Wettst., var. calvescens Pugsley. A dwarf form, Corbière, Jersey, J. Chapple; Kingskerswell and Berry Head, Brixham, S. Devon, v.-c. 3, T. Stephenson and P. M.

HALL; "probably this," Sinah, S. Hayling, S. Hants, v.-c. 11, **P. M. HALL.**

545/12b. EUPHRASIA FRIGIDA Pugsl., var. LAXA Pugsl. At 3200 ft., Coire an t-Sneachda, Cairngorm, Easterness, v.-c. 96: the type-locality is "Cairngorm," and it may be useful to indicate a definite corrie in which it occurs, **J. E. LOUSLEY.**

545/13. EUPHRASIA FOULAENSIS Towns. Invernaver, Bettyhill, W. Sutherland, v.-c. 108, **J. E. LOUSLEY.**

545/15. EUPHRASIA MICRANTHA Reichb. Canal bank, Whixall, Salop, v.-c. 40, **R. C. L. BURGES.**

*545/16. EUPHRASIA SCOTICA Wettst. In turf, Holborn Head, Caithness, v.-c. 109, **J. E. LOUSLEY.**

545/18. EUPHRASIA CONFUSA Pugsl., f. ALBIDA Pugsl. Roadside near Spur Bog, South Haven Peninsula, Dorset, v.-c. 9, **P. M. HALL.**

545/18×5. EUPHRASIA CONFUSA Pugsl. × NEMOROSA (Pers.) Löhr. Hennock, Kingskerswell and Churston Ferrers, S. Devon, v.-c. 3. **T. STEPHENSON.**

545/18×10. EUPHRASIA CONFUSA Pugsl. × OCCIDENTALIS Wettst. Berry Head, Brixham, S. Devon, v.-c. 3, **T. STEPHENSON.**

546/4. BARTSIA VISCOSA L. Roadside, Hugh Town, St Mary's, Isles of Scilly, v.-c. 1, **J. E. LOUSLEY**; in "slack" behind sand-dunes between Hunstanton and Holme-next-the-Sea, *W. Norfolk, v.-c. 28 (Tutin, 1936 B); near Strumble Head, Pembroke, v.-c. 45, B. LLOYD, comm. DEPT. BOT., NAT. MUS. WALES as N.C.R. [This species is not given for v.-c. 45 in *Welsh Flowering Plants* but was recorded from Goodwick, Pembroke, by B. Lloyd in *B.E.C. 1931 Rep.*, 662 (1932).—ED.]

546/5f. BARTSIA ODONTITES Huds., var. DIVERGENS (Jord.) Dr. Nottage, Glamorgan, v.-c. 41, **Miss E. VACHELL.**

548/5. RHINANTHUS STENOPHYLLUS Schur. Manaton, S. Devon, v.-c. 3. **T. STEPHENSON.**

548/6. RHINANTHUS MONTICOLA (Stern.) Dr. In an account of a walk from Settle to Arncliffe, Mid-West Yorks, v.-c. 64, on 11th July 1844, *Phyt.*, i, 1126 (November 1844), James Backhouse referred to "a remarkable form of *R. Crista-Galli* seen above the head of Gordale toward Malham Tarn. This was the species now known as *R. monticola* which grows in the place described, together with *Bartsia alpina* (Sledge, 1936 C).

549. MELAMPYRUM L. Determined by C. E. BRITTON.

549/2. MELAMPYRUM ARVENSE L. Stagsden, Beds, v.-c. 30, D. M. HIGGINS, comm. C. E. BRITTON. [Add to *C.F.*, but not N.C.R., see *Rep. Wats. B.E.C.*, 1904-5, 21.—ED.]

549/3d. MELAMPYRUM PRATENSE L., var. ERICETORUM D. Oliver. Bovey Tracey, S. Devon, v.-c. 3, T. STEPHENSON; Highland Water, S. Hants, v.-c. 11, P. M. HALL.

549/3g. MELAMPYRUM PRATENSE L., var. VULGATUM (Pers.) Beck, sub-var. LAURIFOLIUM Beauv. Marwell, Owslebury, S. Hants, v.-c. 11, P. M. HALL.

549/3h. MELAMPYRUM PRATENSE L., var. OVATUM Spenn. Lower Lake, Killarney, N. Kerry, v.-c. H. 2, W. A. SLEDGE.

549/3i. MELAMPYRUM PRATENSE L., var. LANCEOLATUM Spenn. Woodbury and Shute, S. Devon, v.-c. 3, B. GODFREY and C. H. WRIGHT, comm. G. T. FRASER; Cahir River, Clare, v.-c. H. 9, W. A. SLEDGE.

549/3j. MELAMPYRUM PRATENSE L., var. HIANS Dr. Near Fingal Bridge, Drewsteignton, S. Devon, v.-c. 3, G. T. FRASER and P. M. HALL; Stockghyll Force, Ambleside, Westmorland, v.-c. 69, P. M. HALL and W. A. SLEDGE. [This is the common Devon form; of 24 gatherings submited to Mr Britton in 1936 all except one were *hians* forms. The colour ranges from deep orange to white in the same association; Mr Britton remarks that he has not previously met with the pale-flowered forms of *hians* which occur in Devon.—G. T. FRASER.]

549/3j. MELAMPYRUM PRATENSE L., var. HIANS Dr., f. PLATYPHYLLUM Beauv. (=var. HIBERNICUM Dr.). Gweek Drive, The Lizard, W. Cornwall, v.-c. 1, P. M. HALL; Ilsington, Buckland, Holne, Staverton and Bridford, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON (also recorded by Druce from Bere Alston in 1919); St Ann's, near Blarney, W. Cork, v.-c. H. 3; wooded shore, S.E. corner of L. Conn, W. Mayo, v.-c. H. 27, P. M. HALL and N. D. SIMPSON.

550/4. OROBANCHE MAJOR L. Keyingham, S.E. Yorks, v.-c. 61, J. DAVIES, comm. W. A. SLEDGE.

550/7. OROBANCHE HEDERAE Duby. Devil's Point, Stonehouse, Plymouth, S. Devon, v.-c. 3, E. MASSON PHILLIPS.

551/1. LATHRAEA SQUAMARIA L. Raywell, near Hull, S.E. Yorks, v.-c. 61, very rare in this vice-county, R. BEARDSHAW, comm. W. A. SLEDGE; steep bank of Keltney Burn, Mid Perth, v.-c. 88 (rare in Highland districts of Perthshire), J. E. LOUSLEY.

552/1. UTRICULARIA VULGARIS L. Peaty pool, near Upton Broad, E. Norfolk, v.-c. 27, J. E. LOUSLEY.

558. MENTHA L. All the following records (except one, which is indicated) were named or confirmed by A. L. STILL.

558/1. MENTHA ROTUNDIFOLIA (L.) Huds. Saints Bay, Guernsey, Channel Islands, G. C. BROWN.

558/1×4. MENTHA ROTUNDIFOLIA (L.) Huds. × SPICATA Huds. = × CORDIFOLIA (Opiz) Fraser. Trungle Moor, Paul; farmyard, Tresamble Common; roadside near Goonbell Halt, all W. Cornwall, v.-c. 1, J. E. LOUSLEY; near G.W.R. goods yard, Newton Abbot, S. Devon, v.-c. 3, F. M. DAY, G. T. FRASER and T. STEPHENSON; Flat Holm, Glamorgan, v.-c. 41, IVOR EVANS. Det. Mrs C. SANDWITH (last record only).

558/3c. MENTHA LONGIFOLIA (L.) Huds., var. MOLLISSIMA (Borckh.) Rouy. Near G.W.R. goods yard, Newton Abbot, S. Devon, v.-c. 3, F. M. DAY, G. T. FRASER, and T. STEPHENSON; near Dundee, Angus, v.-c. 90, P. H. COOKE.

†558/4. MENTHA SPICATA L. Stream-side, near Dundee, Angus, v.-c. 90, P. H. COOKE. "A form of *M. spicata*, near to what Fraser called *nervoso-spicata* but less hairy."

558/6a. ×MENTHA PIPERITA L., var. OFFICINALIS Sole. Danehill, E. Sussex, v.-c. 14, A. L. STILL; near the Horse and Jockey Inn, Colwall and Evendine, Colwall, Hereford, v.-c. 36, F. M. DAY and M. L. WILLIAMS; canalside, Ladywell, Whixall, Salop, v.-c. 40, J. E. LOUSLEY and R. C. L. BURGES.

558/6d. ×MENTHA PIPERITA L., var. SUBCORDATA Fraser. Brookside, Kidderminster, Worcester, v.-c. 37, R. C. L. BURGES.

558/7c. MENTHA AQUATICA L., var. LOBELIANA Briq. Old canal, Exeter, S. Devon, v.-c. 3, T. STEPHENSON.

558/7d. MENTHA AQUATICA L., var. MINOR Sole (=*capitata* (Opiz) Briq.). Kidderminster, Worcester, v.-c. 37, R. C. L. BURGES.

558/7h. MENTHA AQUATICA L., var. NICAEENSIS Briq. Exminster marshes, S. Devon, v.-c. 3, G. T. FRASER.

558/8. ×MENTHA HIRCINA (Hull) Fraser (=×*M. piperita* L., var. *sylvestris* Sole). Bedwyn Brail, N. Wilts, v.-c. 7, J. D. GROSE and A. L. STILL; Danehill, E. Sussex, v.-c. 14, A. L. STILL; brookside, Kidderminster, Worcester, v.-c. 37, R. C. L. BURGES.

558/9e. ×MENTHA VERTICILLATA (L.), nearest to var. OVALIFOLIA Briq. Prawle Point, S. Devon, v.-c. 3, J. CHAPPLE.

558/9f. ×MENTHA VERTICILLATA (L.), var. ADULTERINA Briq. Scabbacombe and Coffinswell, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON; Rye Green, Odiham, N. Hants, v.-c. 12, A. L. STILL.

558/9n. ×MENTHA VERTICILLATA (L.), var. RUBROHIRTA (L. & C.) Briq. Brixham and The Potteries, Bovey Tracey, S. Devon, v.-c. 3, F. M. DAY.

558/10h. ×MENTHA GENTILIS L., var. VARIEGATA (Sole) Sm. Kingskerswell, S. Devon, v.-c. 3, T. STEPHENSON.

*558/11. ×MENTHA CARDIACA Baker. Near Castle Combe, N. Wilts, v.-c. 7, J. D. GROSE.

558/12. ×MENTHA RUBRA Huds. Side of cultivated field, Tresamble Common, W. Cornwall, v.-c. 1, J. E. LOUSLEY; brook-side, Kidderminster, Worcester, v.-c. 37, R. C. L. BURGES.

562/5. CALAMINTHA ASCENDENS Jord. On a hedgebank, High Coniscliffe, Durham, v.-c. 66 (Nicholson: *Vasc.*, *21*, 154, 1935). Det. H. W. PUGSLEY. [A confirmation of an old record of "*Thymus calamintha*" by Edward Robson in Winch's "Flora." *Top. Bot.* has "66 Durham ? Extinct" and *Com. Fl.* gives 66 in brackets.—ED.]

562/5b. CALAMINTHA ASCENDENS Jord., var. BRIGGSII Syme. St Blazey, E. Cornwall, v.-c. 2, Tresidder, ex Thurston (1936; 34).

562/7. CALAMINTHA NEPETA (L.) Scheele. Ford End, near Pleshey, N. Essex, v.-c. 19, J. E. LOUSLEY and R. MELVILLE.

†565/1. MELISSA OFFICINALIS L. Near the Palace, St David's, Pembroke, v.-c. 45, Lousley (1936 A; 200). [Add to *Com. Fl.*, but not N.C.R., previously recorded in *Welsh Flowering Plants*.—ED.]

†566/1. SALVIA PRATENSIS L. Millbrook, S. Hants, v.-c. 11, S. A. WARNER; meadow which may have been originally sown, near Farnborough, W. Kent, v.-c. 16, H. W. MANSFIELD, comm. J. E. LOUSLEY.

†566/7. SALVIA AETHIOPIS L. Fowl-run, Polperro, St Agnes, W. Cornwall, v.-c. 1, Skinner, ex Thurston (1936; 34).

569/1. NEPETA CATARIA L. Bovey Tracey, S. Devon, v.-c. 3, Mrs ADAMSON, comm. G. T. FRASER.

572/2. SCUTELLARIA MINOR Huds. Plentiful on Breighton Common, near Howden, S.E. Yorks, v.-c. 61, only the second recorded locality in the vice-county, A. E. GREAVES, comm. W. A. SLEDGE.

573/2. PRUNELLA LACINIATA L. Foxcote Hill, E. Gloster, v.-c. 33, Lady BIRCHALL.

578/1. GALEOPSIS SPECIOSA Mill. Near Crose Mere, Salop, v.-c. 40, J. E. LOUSLEY and R. C. L. BURGES; an allotment weed among potatoes, Gabalfa, near Llandaff, Glamorgan, v.-c. 41, R. L. SMITH; Mill Allotments, Ullapool, W. Ross, v.-c. 105 (although common in many Scotch counties there is only one localised record for v.-c. 105 in Druce's *Fl. W. Ross*, 1929), J. E. LOUSLEY.

581/4c. LAMIUM HYBRIDUM Vill., var. DISSECTUM Mutel. Kenfig, Glamorgan, v.-c. 41, Miss E. VACHELL. Det. C. E. BRITTON.

*581/5. LAMIUM MOLUCCELLIFOLIUM Fries. Between Birtley and Chester-le-Street, Durham, v.-c. 66 (Heslop Harrison: *Vasc.*, *21*, 155, 1935).

587/3. AJUGA GENEVENSIS L. Although normally an early flowerer, and quite burned up in June 1934, this was in good flower in excellent condition on September 19th, 1936, on Phillack Towans, Hayle, W. Cornwall, v.-c. 1, J. E. LOUSLEY.

†588/1. PLANTAGO RAMOSA (Gilib.) Asch. Newton Abbot tip, Wolborough, S. Devon, v.-c. 3, T. STEPHENSON; an extensive clump, Hillingdon gravel-pits, Middlesex, v.-c. 21, P. H. COOKE.

†593/3. HERNIARIA HIRSUTA L. On a gravelly heap, Burton-on-Trent, Staffs, v.-c. 39: recorded from this district by Curtis and Druce in *B.E.C. 1930 Rep.*, 468 (1931), this colony may be a fairly permanent one, as the ground on which the plant grows is probably seldom disturbed, J. E. LOUSLEY, R. C. L. BURGES, W. H. HARDAKER and C. THOMAS.

†596/11b. AMARANTHUS ANGUSTIFOLIUS Lam., var. POLYGONOIDES (Moq.) Thell. Waste ground, Splott, Cardiff, Glamorgan, v.-c. 41, R. L. SMITH, comm. DEPT. BOT., NAT. MUS. WALES. Det. A. E. WADE.

†598/2. **Alternanthera paronychioides** St Hilaire, *Voy. Brés.*, ii, II, 43. Native of Tropical America. Dagenham, S. Essex, v.-c. 18, September 1936, J. P. M. BRENAN. Det. N. Y. SANDWITH at Kew.

*†600/3. CHENOPODIUM BONUS-HENRICUS L. Kilkerran shore, Campbeltown, Kintyre, v.-c. 101, site recently destroyed by building of new breast-wall, LATIMER MCINNES.

600/6. CHENOPODIUM MURALE L. Sand-dunes, Tresco, Isles of Scilly, v.-c. 1, J. E. LOUSLEY; Littlestone-on-Sea, E. Kent, v.-c. 15, J. E. LOUSLEY and E. C. WALLACE.

†600/8×24. CHENOPODIUM ALBUM L. × BERLANDIERI Moq., sub-sp. ZSCHACKEI (Murr) Aell. = × VARIABILE Aell., var. MURRII Aell. High Brooms Tip, Tunbridge Wells, W. Kent, v.-c. 16, J. P. M. BRENAN. Det. P. AELLEN.

*†600/12. CHENOPODIUM FICIFOLIUM Sm. Waste ground, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

†600/13. CHENOPODIUM GLAUCUM L. Manure heaps, Laffans Plain, near Aldershot, N. Hants, v.-c. 12, P. M. HALL, J. E. LOUSLEY and E. C. WALLACE; delete * for v.-c. 25, *B.E.C. 1935 Rep.*, 39 (1936), see *B.E.C. 1924 Rep.*, 593 (1925).

600/14. CHENOPODIUM VULVARIA L. Probably native in disturbed sandy ground near the sea, and also a mile away on a rubbish dump, Littlestone-on-Sea, E. Kent, v.-c. 15, J. E. LOUSLEY and E. C. WALLACE.

†600/36. CHENOPODIUM CAPITATUM (L.) Asch. Newton Abbot tip, Wolborough, S. Devon, v.-c. 3, G. T. FRASER.

†602/1. ROUBIEVA MULTIFIDA Moq. Near the Quay, Christchurch, S. Hants, v.-c. 11, 1921, since disappeared, N. D. SIMPSON.

†606/1. ATRIPLEX HALIMUS L. Dawlish Warren (? planted), S. Devon, v.-c. 3, E. MASSON PHILLIPS.

606/8. ATRIPLEX SABULOSA Rouy. Sandwich Beach, E. Kent, v.-c. 15, J. E. LOUSLEY.

615/2b. POLYGONUM CONVOLVULUS L., var. SUBALATUM Lej. & Court. In potato field, Callestick, W. Cornwall, v.-c. 1, F. RILSTONE; Chalfont St Giles, Bucks, v.-c. 24, F. M. DAY.

*615/3. POLYGONUM BISTORTA L. Not common, Kintyre, v.-c. 101, LATIMER MCINNES.

615/6×7. POLYGONUM LAPATHIFOLIUM L. × PERSICARIA L. Newton Abbot tip, Wolborough, S. Devon, v.-c. 3, G. T. FRASER. Det. C. E. BRITTON.

615/7e. POLYGONUM PERSICARIA L., var. RUDERALE Meisn. Newton Abbot tip, Wolborough, S. Devon, v.-c. 3, G. T. FRASER. Det. C. E. BRITTON.

615/7h. POLYGONUM PERSICARIA L., var. PROSTRATUM Bréb. Slapton Ley, S. Devon, v.-c. 3, G. T. FRASER. Det. C. E. BRITTON.

615/15. POLYGONUM AEQUALE Lindm. Felin Fole, Carmarthen, v.-c. 44, 1844, HERB. MOTLEY, Royal Institution of S. Wales, comm. DEPT. BOT., NAT. MUS. WALES. [Add to *Com. Fl.*, but see *Welsh Flowering Plants* for earlier record.—ED.]

†615/31. POLYGONUM POLYSTACHYUM Wallich. Near Ballymakeery, W. Cork, v.-c. H. 3, CARLETON REA.

*618/12. RUMEX PALUSTRIS Sm. Pond near Warden Abbey, Bedfordshire, v.-c. 30, 1913, J. E. Little in *B.E.C. 1935 Rep.*, 61 (1936).

†618/24. RUMEX CUNEIFOLIUS Campd. Kenfig, Glamorgan, v.-c. 41: what were at first thought to be two forms of *R. rupestris* have now proved to belong to two distinct species, *rupestris* and *cuneifolius* (Gilmour, Thomas and Vachell, 1936), where there is an account of previous British records for this species.

An interesting summary of the British habitats of this species is given in *Journ. Bot.*, 1936, 56, from which it is apparent that this dock is now completely naturalised at several stations. Having seen it at Hayle, W. Cornwall, in 1934 and 1936, at Kenfig, Glamorgan, in 1935, and Braunton Burrows, N. Devon, in 1936, a comparison of the three localities may be useful. At Hayle the plant occurs in limited quantity and associated with many other aliens, and the suggestion that it has been introduced with mule fodder (*B.E.C. 1922 Rep.*, 621 (1923)), is tenable. Here it grows on sandy slopes (not in dune slacks as elsewhere), and probably the lack of moisture explains why it has not spread more rapidly. At Kenfig *R. cuneifolius* occurs in great quantity and is spread over a considerable area (*teste* Miss E. Vachell), and has all the appearance of a native plant. There is, however, a railway line within about half a mile as the crow flies and although introduction by this means does not seem very probable yet it is possible. At Braunton Burrows, however, where I saw the dock through the kindly guidance of Dr Elliston Wright, it occurs in a great crescent perhaps a quarter of a mile long in a dune slack a mile or more from the sea, and it is so far from any form of civilisation that the means of introduction cannot even be guessed at. Even if the fruits are able to endure immersion in salt water, and are washed up on the shore from shipping, it would still remain necessary for them to be blown a considerable distance inland before they reached a suitable spot for germination. It is noteworthy that although Dr Wright has known the colony (which he originally supposed to be *R. rupestris*) for many years it has not increased in size. It may be taken as certain that *R. cuneifolius* has been established both at Kenfig and Braunton for many years, and that at all three stations it is a very well established alien. —J. E. LOUSLEY.

*†625/1. HIPPOPHAE RHAMNOIDES L. Planted in a hedge at Camilla Lacey, Burford Bridge, Surrey, H. J. BURKILL.

626/1. VISCUM ALBUM L. "On a holly tree on a Cumberland fellside": letter to *The Yorkshire Post* quoted by Sutcliffe (1936).

†628/9. EUPHORBIA VIRGATA W. & K. Godalming, Surrey, v.-c. 17, G. M. ASH and J. CHAPPLE; Danbury, S. Essex, v.-c. 18, MRS MACARTNEY-FILGATE, comm. Miss M. S. CAMPBELL.

†628/9b. EUPHORBIA VIRGATA W. & K., var. ESULIFOLIA Thell. Near New Bridge, Berks, v.-c. 22, Mrs BARNES. Det. J. CHAPPLE.

†628/10. EUPHORBIA ESULA L. Roadside, Dagenham, S. Essex, v.-c. 18, looking very distinct from *E. virgata* when growing, A. H. CARTER and H. S. REDGROVE, comm. J. E. LOUSLEY.

†628/11. EUPHORBIA CYPARISSIAS L. Frilford Heath, Berks, v.-c. 22, Mrs E. C. BARNES; a large patch in a sloping meadow east of Bridgnorth road, 2 miles north of Kidderminster, *Worcester, v.-c. 37, P. M. HALL and N. D. SIMPSON.

628/14. EUPHORBIA PEPLUS L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES. [Add to *C.F.*, but not N.C.R., see *Top. Bot., Supp. i*, 74, " all except 78, 97, 102."—ED.]

*†628/16. EUPHORBIA LATHYRIS L. Escape, Ballure, Kintyre, v.-c. 101, LATIMER MCINNES.

632/2. MERCURIALIS ANNUA L. Abbotskerswell, S. Devon, v.-c. 3, A. CRAWSHAW, comm. G. T. FRASER; Barry Docks, Glamorgan, v.-c. 41, two plants over 3 feet in height, R. L. SMITH.

633/2c. ULMUS NITENS Moench, var. HUNNYBUNI Moss. Olchfa Glen, Glamorgan, v.-c. 41, Miss E. VACHELL. Det. J. S. L. GILMOUR and A. B. JACKSON. [Add to *C.F.*, but not N.C.R., see *Welsh Flowering Plants*, 135 (1934).—ED.]

*†634/1. HUMULUS LUPULUS L. Carradale, Kintyre, v.-c. 101, doubtless introduced, LATIMER MCINNES.

637/1b. URTICA DIOICA L., var. ANGUSTIFOLIA Wimm. & Grab. Bank of R. Loddon near Whistley Mill, Berks, v.-c. 22, E. C. WALLACE.

†641/2. **Myrica cerifera** L. Specimens gathered by Lady DAVY near Holmesley, S. Hants, v.-c. 11, were sent on to me by Mr J. E. Lousley. A small patch of this shrub, considerably damaged by fire, was shown to me in 1935 by Mr N. D. Simpson, to whom it had been known for some years. It is a native of N. America, first introduced to gardens in this country in 1699; it is presumed to have been bird-sown at Holmesley. The name is derived from the waxy covering of the fruits.—P. M. HALL.

*646/1. QUERCUS ROBUR L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES.

650/4. SALIX TRIANDRA L. Wolborough Decoy, and Claypools, Kingsteignton, S. Devon, v.-c. 3, G. T. FRASER. Det. E. C. WALLACE.

650/10f. SALIX REPENS L., var. INCUBACEA (L.). Chudleigh Knighton, S. Devon, v.-c. 3, 1934, G. T. FRASER. Det. J. FRASER.

650/10h. SALIX REPENS L., var. PARVIFOLIA (Sm.). Chudleigh Knighton, S. Devon, v.-c. 3, 1934, G. T. FRASER. Det. J. FRASER.

650/10×9. SALIX ATROCINEREA Brot. × AURITA L. Wolborough Decoy, S. Devon, v.-c. 3, 1934, G. T. FRASER. Det. J. FRASER.

653/2. CERATOPHYLLUM DEMERSUM L. Claypools, Kingsteignton, S. Devon, v.-c. 3, G. T. FRASER; Sowley Pond, S. Hants, v.-c. 11, N. D. SIMPSON.

664/2. SPIRANTHES SPIRALIS (L.) C. Koch. Sandy slope, St Martin's, Isles of Scilly, v.-c. 1, J. E. LOUSLEY; two plants in a field at Cold Ash, Berks, v.-c. 22, Miss A. M. NEILD, first certain record for the Pang division of the county.

665/1. GOODYERA REPENS (L.) R. Br. The present status of this species in the Carlisle district, Cumberland, v.-c. 70, is reviewed by Blezard (1936).

*668/3. EPIPACTIS LEPTOCHILA Godfery. Cornwood, S. Devon, v.-c. 3, known for several years but not identified as this species until 1935, E. WARD, comm. G. T. FRASER. Det. M. J. GODFERY.

*668/4. EPIPACTIS PURPURATA Sm. Near Launceston, E. Cornwall, v.-c. 2, Smith-Pearse, ex Thurston (1936; 38). [In Thurston, *loc. cit.*, there are two paragraphs apparently relating to the same locality. "*Helleborine violacea* (Bor.) Druce. 1. A fine plant with six big spikes in bed of the old canal near Launceston, Rev. T. N. H. Smith-Pearse," and "*Helleborine purpurata* Druce. 1. Abundant, and very fine, with *H. latifolia* Druce, on banks of disused canal, N. Tamerton, Rev. T. N. H. Smith-Pearse." I think this record should be accepted with some reserve, in view of possible confusion with *E. latifolia*, f. *purpurea* Čelak. But the mention of six spikes on one plant certainly suggests *purpurata*. Voucher specimens in support of the record are desirable.—ED.]; Ampfield Wood, S. Hants, v.-c. 11, A. WHITE, comm. P. M. HALL.

669/4. ORCHIS USTULATA L. Near Albury, just in Bucks, v.-c. 24, one specimen seen, very rare in the county, J. CHAPPLE, Sir ROGER CURTIS and D. B. FANSHAWE.

669/6. ORCHIS PARDALINA Pugsl. Axmouth, Sidmouth, Bovey Tracey, Kingskerswell and Stoke-in-Teignhead, S. Devon, v.-c. 3, T. STEPHENSON.

669/6×8. ORCHIS PARDALINA Pugsl. × PRAETERMISSA Dr. Kingskerswell, S. Devon, v.-c. 3, T. STEPHENSON.

669/7×8. ORCHIS LATIFOLIA L. × PRAETERMISSA Dr. Heathfield, Bovey Tracey, S. Devon, v.-c. 3, A. CRAWSHAW, comm. and det. T. STEPHENSON.

669/8. ORCHIS PRAETERMISSA Dr. St Ouen's Pond and La Moie Golf-course, Jersey, J. CHAPPLE. Det. P. M. HALL.

669/9. ORCHIS PURPURELLA Steph. Delete * for v.-c. 87, *B.E.C. 1935 Rep.*, 42 (1936), see *B.E.C. 1925 Rep.*, 897 (1926); near Doune, W. Perth, v.-c. 87; Carie Burn, Lawers, Mid Perth, v.-c. 88, J. E. LOUSLEY; Golspie, *E. Sutherland, v.-c. 107, Miss E. S. TODD; Bettyhill, *W. Sutherland, v.-c. 108; Reay, Caithness, v.-c. 109, J. E. LOUSLEY; Thurso, Caithness, v.-c. 109, Miss E. S. TODD. All det. P. M. HALL.

669/10. ORCHIS MACULATA L. Delete * for v.-c. 87, *B.E.C. 1935 Rep.*, 42 (1936), see *B.E.C. 1925 Rep.*, 897 (1926); common, *Kintyre, v.-c. 101, LATIMER MCINNES and Mrs MACALISTER HALL.

669/10×8. ORCHIS MACULATA L. × PRAETERMISSA Dr. St Ouen's Pond, Jersey, J. CHAPPLE; Heathfield, Bovey Tracey, S. Devon, v.-c. 3, T. STEPHENSON; Pengwern Common, Gower, Glamorgan, v.-c. 41, J. D. GROSE. All det. P. M. HALL.

669/10×9. ORCHIS MACULATA L. × PURPURELLA Steph. Near Doune, W. Perth, v.-c. 87, J. E. LOUSLEY. Det. P. M. HALL.

669/11×8. ORCHIS FUCHSII Dr. × PRAETERMISSA Dr. Bovey Tracey; Orley Common, Ipplepen; Kingskerswell, S. Devon, v.-c. 3, T. STEPHENSON.

669/11×9. ORCHIS FUCHSII Dr. × PURPURELLA Steph. Malham Tarn, Mid-West Yorks, v.-c. 64, W. A. SLEDGE.

*669/18. HIMANTOGLOSSUM HIRCINUM (L.) Koch. Bures, N. Essex, v.-c. 19, 1919, ex Good (1936, 151); one plant found and picked by a school-child, BRENDA FENN, at Pitchpole, Letcombe Bassett, Berks, v.-c. 22, the second precise record for the county, comm. Mrs BARNES.

In Bucks, v.-c. 24, a specimen was found near Wendover in 1934 by a child of the Central School and in 1936 a "whole colony" of this plant was scythed down by an ignorant gardener also near Wendover: in 1935 a solitary specimen was found and gathered by a school-boy at Halton who has preserved it.—Sir R. CURTIS.

674/1×669/8. GYMNADENIA CONOPSEA (L.) R. Br. × ORCHIS PRAETERMISSA Dr. Chudleigh Knighton, S. Devon, v.-c. 3, T. STEPHENSON. [I have seen the specimen and it was correctly named, a good example of this very rare bigeneric hybrid, which has previously only been recorded from S. Hants.—ED.]

674/1b. GYMNADENIA CONOPSEA (L.) R. Br., var. DENSIFLORA (Wahl.) Lindl. Axmouth, S. Devon, v.-c. 3, Sir M. ABBOT ANDERSON (det. T. STEPHENSON); Greywell, N. Hants, v.-c. 12, P. M. HALL and E. C. WALLACE.

*†684/1. NARCISSUS PSEUDO-NARCISSUS L. Naturalised in many localities, Kintyre, v.-c. 101, LATIMER MCINNES.

684/3. NARCISSUS BIFLORUS Curt. Woods at Newton, Monmouth, v.-c. 35; near Mainoaks Farm, Goodrich, Hereford, v.-c. 36, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES. [Add v.-c. 35 to *Com. Fl.*, but see *Welsh Flowering Plants* for earlier record.—ED.]

*†685/1. GALANTHUS NIVALIS L. Naturalised in many localities, Kintyre, v.-c. 101, LATIMER MCINNES.

*†689/1. RUSCUS ACULEATUS L. Introduced, Glenbarr Wood, Kintyre, v.-c. 101, LATIMER MCINNES.

†702/7. ALLIUM TRIQUETRUM L. Bickleigh; near Tavistock; Stowford, near Ivybridge, S. Devon, v.-c. 3, E. MASSON PHILLIPS; three localities near Torquay, S. Devon, v.-c. 3, A. CRAWSHAW, comm. G. T. FRASER; long established about Bury St Edmunds Abbey grounds, *W. Suffolk, v.-c. 26, Miss E. RAWLINS.

702/9. ALLIUM OLERACEUM L. Marldon, A. CRAWSHAW, and Ipplepen, S. Devon, v.-c. 3, G. T. FRASER.

†704/1. HYACINTHUS COMOSUS L. Pembrey Burrows, Carmarthen, v.-c. 44, G. W. HOLLIS, comm. DEPT. BOT., NAT. MUS. WALES.

707/1. ORNITHOGALUM PYRENAICUM L. Elbury, Churston Ferrers, S. Devon, v.-c. 3, E. WARD, comm. G. T. FRASER; field, Saundersfoot, *†Pembroke, v.-c. 45, J. E. ARNETT, comm. DEPT. BOT., NAT. MUS. WALES.

†707/2. ORNITHOGALUM UMBELLATUM L. Dawlish Warren, E. WARD, and Exmouth, S. Devon, v.-c. 3, G. T. FRASER; by stream just above Wooler, *Cheviotland, v.-c. 68 (Hull: *Vasc.*, *22*, No. 3, 118).

*†708/1. LILIUM MARTAGON L. Now well established and frequent on the banks of the North Tyne above Chollerford and at Howford, also in woods near the banks of the Wansbeck and elsewhere in S. Northumberland, v.-c. 67 (Temperley: *Vasc.*, *22*, No. 3, 119).

709/1. FRITILLARIA MELEAGRIS L. Little Tew, Oxon, v.-c. 23, Miss OLIVIA BARING. [On the border of districts 3 and 5 of the Flora; not previously reported from this part of the county.—J. CHAPPLE.]

*†710/1. TULIPA SYLVESTRIS L. Old Hall Garden Wood, near C——, Cheshire, v.-c. 58, 1836, Herb. J. E. Bowman (1785-1841), still well

established, Dallman (1936 A, 160-1); near Doncaster, S.W. Yorks, v.-c. 63, Dallman (1936 A, 162); localities in N.E. Yorks, v.-c. 62, and Mid-West Yorks, v.-c. 64, are referred to by Flintoff (1936 D). [*Note.*—Add v.-cc. 62, 63 and 64 to *C.F.*, but not N.C.Rs.—ED.]

718/14. JUNCUS COMPRESSUS Jacq. Austwick, Mid-West Yorks, v.-c. 64, W. A. SLEDGE. [Add to *C.F.* See Lees' *Flora of West Yorkshire*, 452, 1888, for earlier record; although the area there stated is v.-c. 63 only, the Kilnsey record is for v.-c. 64.—ED.]

†718/16. JUNCUS MACER S. F. Gray. Heathfield, Bovey Tracey, S. Devon, v.-c. 3, T. STEPHENSON; plantation, Alderbury Common, *S. Wilts, v.-c. 8, Miss B. GULLICK; grassy track, St Leonard's Forest, near Colgate, *W. Sussex, v.-c. 13, J. E. LOUSLEY; sandy ground between Birtley and Urpeth, *Durham, v.-c. 66 (Heslop Harrison: *Vasc.*, *21*, 156, 1935).

*718/19. JUNCUS CAPITATUS Wiegel. Raasay Island, v.-c. 104, new to Scotland, J. W. HESLOP HARRISON. Det. W. H. PEARSALL. [It is most remarkable that this species should have been discovered in Raasay this year after last year's discovery of *J. pygmaeus*. This is not so great an extension of range on account of the intermediate locality in Anglesey.—ED.]

718/21. JUNCUS TRIGLUMIS L. Above Loch Maolach-coire, Inchnadamph, at 1250 feet, W. Sutherland, v.-c. 108, J. E. LOUSLEY.

*718/22. JUNCUS BIGLUMIS L. Rock-ledges in eastern corrie, Aonach Beag, Lochaber, Westerness, v.-c. 97, doubtfully recorded in *Top. Bot.*, and bracketed as an error in *Com. Fl.*, R. MACKECHNIE and E. C. WALLACE.

719/7. LUZULA ARCUATA Wahl. West side of Aonach Beag, Westerness, v.-c. 97, in some quantity on wet grassy ground unlike its habitat in the Cairngorms, R. MACKECHNIE and E. C. WALLACE.

*†719/9. LUZULA ALBIDA DC. Inverness, Easterness, v.-c. 96, Miss E. S. TODD.

722/2. SPARGANIUM RAMOSUM Huds. Slapton Ley, S. Devon, v.-c. 3: considerable search in S. Devon with F. M. Day has only yielded this locality for the typical form, the usual form being var. *microcarpum* (Neum.).—G. T. FRASER. Confirmed by KEW. [Add to *C.F.*, but not N.C.R. *Top. Bot., Supp.* i, 89, gives "3, Devon S., Beeby," for segregate.—ED.]

*723/1b. ARUM ITALICUM Mill., var. IMMACULATUM DC. Cwrt-yr-ala, Glamorgan, v.-c. 41, Miss E. VACHELL. Det. A. J. WILMOTT. New to Wales.

727/3. LEMNA TRISULCA L. Exminster and Wolborough Decoy, S. Devon, v.-c. 3, G. T. FRASER.

*730/1. ALISMA RANUNCULOIDES L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES.

737/4. POTAMOGETON COLORATUS Hornem. Fenny pool, Foulden Common, W. Norfolk, v.-c. 28, J. E. LOUSLEY and G. WATTS; Cregduff Lough, W. Galway, v.-c. H. 16, N. D. SIMPSON and P. M. HALL.

737/5. POTAMOGETON ALPINUS Balb. Canal, Whixall, Salop, v.-c. 40, J. E. LOUSLEY and R. C. L. BURGES.

737/9. POTAMOGETON GRAMINEUS L. Fruiting freely, Cropstone Reservoir, Leicester, v.-c. 55, J. E. LOUSLEY and R. C. L. BURGES.

737/11. ×POTAMOGETON NITENS Weber. Thurso River, Caithness, v.-c. 109, Miss E. S. TODD. Det. R. W. BUTCHER.

*737/13. POTAMOGETON LUCENS L. River Wye, Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES; frequent, *Kintyre, v.-c. 101, LATIMER MCINNES.

737/15. POTAMOGETON PRAELONGUS Wulfen. Loch at the foot of Dun Caan, Raasay Is., v.-c. 104, J. W. HESLOP HARRISON and W. A. CLARK (det. W. H. PEARSALL); at 900 feet in Loch Mhaolach-coire, near Inchnadamph, W. Sutherland, v.-c. 108, J. E. LOUSLEY.

*737/16. POTAMOGETON PERFOLIATUS L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES.

737/16c. POTAMOGETON PERFOLIATUS L., var. OVATIFOLIUS Wallr. Storr Rock Loch, Skye, v.-c. 104, J. W. HESLOP HARRISON and W. A. CLARK. Det. W. H. PEARSALL.

737/18. POTAMOGETON COMPRESSUS L. Canal, Whixall, Salop, v.-c. 40, J. E. LOUSLEY and R. C. L. BURGES.

*737/20. POTAMOGETON OBTUSIFOLIUS M. & K. Exminster, S. Devon, v.-c. 3, G. T. FRASER. Det. KEW. [This species has been found previously in v.-c. 3 but not published. There is a specimen from Alphington in Herb. Hiern (det. W. H. Pearsall) and it was found in the canal between Alphington and Exminster by Miss Aviolet, c. 1932 (det. Kew). —G. T. FRASER. *Top. Bot.*, ed. ii, gives 3 in brackets as insufficiently vouched.—ED.]

739/1. ZANNICHELLIA PALUSTRIS L. Bradley Leet, Highweek, S. Devon, v.-c. 3, G. T. FRASER.

739/1b. ZANNICHELLIA PALUSTRIS L., var. MAJOR Koch. Baglan, Glamorgan, v.-c. 41, Miss E. VACHELL. Det. W. H. PEARSALL.

746/8. SCIRPUS PAUCIFLORUS Lightf. Bovey Tracey and Broadsands, Churston Ferrers, S. Devon, v.-c. 3, G. T. FRASER.

*746/12. SCIRPUS FILIFORMIS Savi. Wimbledon Common, Surrey, v.-c. 17, 1922, Lousley (1936 A, 200).

746/12b. SCIRPUS FILIFORMIS Savi, var. MONOSTACHYS Clarke & Marshall. La Seigneurie, Sark, Channel Islands, G. C. BROWN; sea-coast, Silecroft, near Millom, *Cumberland, v.-c. 70, Mrs FOGGITT and Hon. MARJORIE CROSS.

747/3. ERIOPHORUM GRACILE Roth. Greywell, near Odiham, N. Hants, v.-c. 12, with *E. paniculatum* and *E. angustifolium*, E. C. WALLACE. [A very welcome rediscovery; as far as I am aware this species has not been seen in this locality since its first discovery by Miss C. E. Palmer.—ED.]

748/1. RHYNCHOSPORA FUSCA (L.) Ait. Moorland between Lochs Eil and Shiel, and by Loch Dubh Torr an Tairbeirt, Westerness, v.-c. 97; recorded from the latter place by the late C. E. Salmon; this is the second locality in the *County of Argyll*, since it is partly in Argyll and partly in W. Inverness, the county boundary running through Loch Dubh Torr, but the portion of Ardgour, Argyll, is included in v.-c. 97.—E. C. WALLACE.

750/1. CLADIUM MARISCUS R. Br. Wolborough Decoy, S. Devon, v.-c. 3 (now gone from Forde Bog and destroyed at Thurlestone), G. T. FRASER; Greywell, near Odiham, *N. Hants, v.-c. 12; Arisaig, Westerness, v.-c. 97, E. C. WALLACE. [It is very remarkable that this species was not recorded from Greywell by the late Miss C. E. Palmer, since it grows within a few yards of *Eriophorum gracile* recorded by her.—ED.]

753/6. CAREX SAXATILIS L. Aonach Beag, Westerness, v.-c. 97, E. C. WALLACE.

753/8. CAREX LASIOCARPA Ehrh. A few plants in flower, Holmesley Bog, S. Hants, v.-c. 11, where it has very seldom flowered recently, J. E. LOUSLEY.

753/9d. CAREX HIRTA L., var. SPINOSA Mort. Roadside near St Ives, Hants, v.-c. 31, J. E. LOUSLEY.

*753/10. CAREX PENDULA Huds. Glenhervie, Southend, Kintyre, v.-c. 101, LATIMER MCINNES.

753/11. CAREX SYLVATICA Huds. Cnochan Rocks, W. Ross, v.-c. 105, at 800 ft., a very unusual habitat, J. E. LOUSLEY.

753/12. CAREX STRIGOSA Huds. Crown Woods, near Monmouth, v.-c. 35, S. G. CHARLES, comm. DEPT. BOT., NAT. MUS. WALES.

753/13. CAREX HELODES Link. Trislaig, Ardgour, Westerness, v.-c. 97, E. C. WALLACE.

753/17. CAREX DISTANS L. The inland form in meadow near Marston Meysey, N. Wilts, v.-c. 7, J. E. LOUSLEY; Greywell, N. Hants, v.-c. 12, J. E. LOUSLEY, P. M. HALL and E. C. WALLACE.

753/19. CAREX FULVA Host. Greywell, near Odiham, N. Hants, v.-c. 12, E. C. WALLACE and P. M. HALL.

753/20b. CAREX OEDERI Retz., var. OEDOCARPA And. May Hill, Longhope, W. Gloster, v.-c. 34, F. M. DAY. Det. E. NELMES.

753/21. CAREX LEPIDOCARPA Tausch. Market Weston Fen, W. Suffolk, v.-c. 26; Foulden Common and Oxborough, W. Norfolk, v.-c. 28, J. E. LOUSLEY; Mathon, Hereford, v.-c. 36; Broadheath Common, Worcs, v.-c. 37; Llanfihangel-nant-Melan, *Radnor, v.-c. 43, F. M. DAY. Det. E. NELMES (last three records).

753/30. CAREX MONTANA L. Still to be found N.E. of Brockenhurst, S. Hants, v.-c. 11, in a clayey ride in a wood, J. E. LOUSLEY and R. W. BUTCHER; seen at the station between Tunbridge Wells and Eridge, E. Sussex, v.-c. 14, whence it was first described as British by W. Mitten (*Phyt.*, 1845, 289-290), J. E. LOUSLEY and J. P. M. BRENAN.

753/31. CAREX TOMENTOSA L. In quantity in the water meadows near Marston Meysey, N. Wilts, v.-c. 7, in a station which agrees with the directions given by Teasdale when he discovered it there new to Britain in 1798, J. E. LOUSLEY.

753/32b. CAREX PILULIFERA L., var. LONGIBRACTEATA Lange. Fingle Bridge, Moretonhampstead; Hennock Reservoirs, Christow; Metherall Down, Lydford, S. Devon, v.-c. 3, G. T. FRASER. Det. F. M. DAY.

753/35. CAREX VAGINATA Tausch. Coire an t-Sneachda, Cairngorm, Easterness, v.-c. 96, at 3000 ft., J. E. LOUSLEY.

753/36d. CAREX PANICEA L., var. TUMIDULA Laest. Leighon, Manaton, and Chudleigh Knighton, S. Devon, v.-c. 3; Defford Common, Worcester, v.-c. 37, F. M. DAY.

753/38. CAREX LIMOSA L. Moel-y-Benmaen, Caernarvon, v.-c. 49, J. REES, comm. DEPT. BOT., NAT. MUS. WALES; a form closely resembling *C. magellanica* in leaves and bracts, but not that species, bog near Rannoch Station, Mid-Perth, v.-c. 88, J. E. LOUSLEY.

753/47×49. CAREX AQUATILIS Wahl. × GOODENOWII Gay. By Loch Watten, and also by the Thurso River, near the Cemetery, Caithness, v.-c. 109, J. E. LOUSLEY.

753/49. CAREX GOODENOWII Gay, forma PUMILA Kük. Radnor Forest, Radnor, v.-c. 43, F. M. DAY. Det. E. NELMES.

753/52. CAREX ELONGATA L. in Yorkshire. The Yorkshire records for this species are as follows:—

i. Aldwark, S.W. Yorks, v.-c. 63, 1803, J. Salt, see Lees, *Flora of W. Yorks*, 463, 1888, where it is said to have still existed in 1845 but to have been sought in vain in 1874-6.

ii. Boggy woods at Langwith, near York, S.E. Yorks, v.-c. 61, recorded in Baker's Supplement to Baines' *Flora of Yorkshire*, published in 1856. Stated to be extinct in Robinson, *Flora of E. Riding*, 46, 1902.

iii. Askham Bog, Mid-West Yorks, v.-c. 64, 1892, B. B. le Tall, confirmed by Arthur Bennett and rediscovered in 1936 (Sledge, 1936 B).

iv. Old Canal bed, near Cawthorne, S.W. Yorks, v.-c. 63, F. A. Lees' unpublished MS. notes. On being taken to the locality by the original discoverer, I found that the record was based on a misidentification.

Druce, *Comital Flora*, 339, 1932, gives the Yorkshire distribution of this species as 61, (62), 63, 64, but I have no idea on what the record " (62) " is based, unless the Cawthorne in v.-c. 63 has been confused with another place of the same name in v.-c. 62.

As far as is known, the species now only occurs in Yorkshire in v.-c. 64, the reference to v.-c. 62 should be deleted and the records for v.cc. 61 and 63 bracketed as extinct.—W. A. SLEDGE.

753/53c. CAREX LEPORINA L., var. CAPITATA Sond. Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER. Det. F. M. DAY.

753/53d. CAREX LEPORINA L., var. LONGIBRACTEATA Peterm. Leighon, Manaton, S. Devon, v.-c. 3, G. T. FRASER. Det. F. M. DAY.

*753/54. CAREX LACHENALII Schkuhr. Aonach Beag, Westerness, v.-c. 97, hitherto known in Britain only from Lochnagar and the Cairngorms in Eastern Scotland, R. MACKECHNIE and E. C. WALLACE.

753/59c. CAREX VULPINA L., var. NEMOROSA (Rebent.) Lej. Exminster, Chudleigh Knighton, Abbotskerswell, Thurlestone, S. Devon, v.-c. 3, G. T. FRASER. Det. F. M. DAY.

753/63b. CAREX PANICULATA L., var. RIGIDA Ar. Benn. Wolborough Decoy and Canal, Teigngrace, S. Devon, v.-c. 3, G. T. FRASER. Det. F. M. DAY.

753/63d. CAREX PANICULATA L., var. SIMPLEX Peterm. Wolborough Decoy and Canal, Teigngrace, S. Devon, v.-c. 3, G. T. FRASER. Det. F. M. DAY.

753/65. CAREX DIANDRA Schrank. Greywell, near Odiham, N. Hants, v.-c. 12, E. C. WALLACE.

753/67. CAREX ARENARIA L. Guernsey and Herm, Channel Islands, G. C. BROWN. [Given by Marquand for both islands but add " S " to *C.F.*—ED.]

753/74b. CAREX PULICARIS L., forma MONTANA Pugsl. Well marked on Cnochan Rocks, W. Ross, v.-c. 105, J. E. LOUSLEY.

753/75. CAREX DIOICA L. Heathfield, Bovey Tracey, S. Devon, v.-c. 3, A. CRAWSHAW, comm. G. T. FRASER.

†754/10. DIGITARIA SANGUINALIS (L.) Scop. Garden weed, Ampfield, S. Hants, v.-c. 11, A. WHITE, comm. P. M. HALL.

†754/11. DIGITARIA ISCHAEMUM (Schreb.) Muhl.; *D. humifusa* Pers.; *Panicum lineare* Krocker *non* L.; *P. glabrum* Gaudin *non* L.; *Syntherisma glabrum* Schrad. In September 1936 Dr F. R. Elliston Wright showed me this grass under very " native " conditions in a sandy field behind the Burrows at Braunton, N. Devon, and stated that he had known it there for a number of years over a considerable area. This station is of considerable interest, as although the plant has been recorded from sandy fields in several counties in the south and east of England, this would appear to be the first record of it as a colonist in the west. *D. ischaemum* is on record from the following vice-counties, those where it has occurred in quantity on sandy soils being marked with an " s ":—v.-c.'s 1, 4s, 10, 11s, 13s, 16, 17s, 22, 23, 25s, 26s, 27s, 28s, 41, 60, 62, 83, 92. At Christchurch, S. Hants, and Heyshott Green, West Sussex, it appeared in quantity in 1850 and 1884, and 1921 respectively, but the subsequent history is not known. In Norfolk and Suffolk it has appeared at intervals over a long period of years in many stations and may be taken as a fairly constant, though extremely rare, feature of the flora of the Eastern Counties. In Surrey it was found " new to Britain " by Borrer prior to 1829 at Weybridge, and since that date it has been noticed many times within the Weybridge-Byfleet-Pyrford-Wisley area with a frequency which cannot be attributed to repeated introductions. Dr Wright states that at Braunton flowering is so late that it has no time to set seed before hard weather cuts it back. Many Surrey specimens have been collected in good flower in August and it is evident that seed does sometimes mature in good quantity otherwise the plant would not persist. *P. ischaemum* is a native of the warmer parts of Eurasia, whence it was introduced into America, where it has become a troublesome weed in lawns. In this country, however, it grows only in open associations, and apparently is unable to contend with the competition of other grasses.—J. E. LOUSLEY.

*†756/2. SETARIA VIRIDIS (L.) Beauv. Once only, waste ground, Campbeltown, Kintyre, v.-c. 101, LATIMER MCINNES.

758/2. SPARTINA STRICTA (Ait.) Roth. Landemere, Thorpe-le-Soken, N. Essex, v.-c. 19, J. E. LOUSLEY and R. MELVILLE.

*758/3. SPARTINA TOWNSENDII H. & J. GROVES. At least 100 plants on the mud flats of the R. Exe, Dawlish Warren, S. Devon, v.-c. 3, F. M. DAY and G. T. FRASER (det. P. M. HALL); a patch introduced some years ago at Welwick on the Humber shore, *†S.E. Yorks, v.-c. 61, is spreading successfully, T. STAINFORTH, comm. W. A. SLEDGE.

†763/3. SORGHUM CERNUUM Host. Sevenoaks, W. Kent, v.-c. 16, J. P. M. BRENAN.

†765/5. PHALARIS CANARIENSIS L. Plymouth Hoe, S. Devon, v.-c. 3, E. MASSON PHILLIPS; casual, Kintyre, v.-c. 101, LATIMER MCINNES.

777/2. PHLEUM ALPINUM L. Coire an t-Sneachda, Cairngorm, Easterness, v.-c. 96, at 3250 ft., J. E. LOUSLEY.

†778/1. MIBORA MINIMA (L.) Desv. Near Wimborne, Dorset, v.-c. 9, Haines and Goddard, ex Hubbard (1936; 110). [Add to *C.F.*, but see *B.E.C. 1930 Rep.*, 377 (1931) for previous record.—ED.]

†782/1. POLYPOGON MONSPELIENSIS (L.) Desf. Waste ground N.E. of gas works, Woking, Surrey, v.-c. 17, J. G. LAWN. [*C.F.* makes no distinction between native and adventive records of this species, and includes v.-c. 17. It appears from the *Flora of Surrey* that this species has been long extinct as a native of the county.—ED.]

783/1. CALAMAGROSTIS EPIGEJOS (L.) Roth. Marshy meadow near Waltham St Lawrence, Berks, v.-c. 22, E. C. WALLACE.

785/2. APERA INTERRUPTA (L.) Beauv. West Newton, W. Norfolk, v.-c. 28, about 30 miles north of nearest previously known locality, Thetford, Hubbard (1936, 111).

†788/1. LAGURUS OVATUS L. Now well established between the sand-dunes and golf course, Dawlish Warren, S. Devon, v.-c. 3, Miss ROSEMARY HUGHES. First recorded from there in 1931, see *B.E.C. 1931 Rep.*, 677 (1932) [but there is a specimen in Herb. Torquay N.H.S., G. H. Douglas, 20th May 1930.—G. T. FRASER].

791/2. DESCHAMPSIA ALPINA (L.) R. & S. Ben Nevis and Aonach Beag, at high elevations, Westerness, v.-c. 97, R. MACKECHNIE and E. C. WALLACE.

*794/3. AVENA PRATENSIS L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES.

795/1b. ARRHENATHERUM ELATIUS (L.) M. & K., var. BIARISTATUM (Peterm.) Dr. Mudstone, Brixham, S. Devon, v.-c. 3, G. T. FRASER. Det. T. STEPHENSON.

†797/1. CYNODON DACTYLON Pers. In the enclosure near the race track, Brooklands, Surrey, v.-c. 17, Miss F. L. STEPHENS; by railway, south of Birtley, *†Durham, v.-c. 66 (Miss H. Heslop Harrison: *Vasc.*, *22*, No. 4, 150).

802/1f. PHRAGMITES COMMUNIS Trin., var. REPENS Meyer. Orecombe Point, Exmouth; Watcombe, Torquay; Goodrington, Paignton, S. Devon, v.-c. 3, G. T. FRASER (but see Abstracts p. 382).

*†808/1. CYNOSURUS ECHINATUS L. Sandy Lodge, Northwood, Middlesex, v.-c. 21, casual, F. M. DAY.

813/1g. MOLINIA CAERULEA (L.) Moench, var. VIRIDIFLORA Lej. Broadheath, Worcester, v.-c. 37, W. H. HARDAKER.

814/1. CATABROSA AQUATICA (L.) Beauv. Near Bures St Mary, W. Suffolk, v.-c. 26, Miss E. RAWLINS. Det. W. H. PEARSALL.

822/2. BRIZA MINOR L. St Martin's, Isles of Scilly; Tressaderne Farm, Ruan Major, W. Cornwall, v.-c. 1, J. E. LOUSLEY.

*†824/1. POA CHAIXII Vill. Shrubbery, Ro Wen, near Conway, Carnarvonshire, v.-c. 49 (A. Wilson: *N.W. Nat.*, *11*, No. 4, 363).

824/3. POA SUBCAERULEA Sm. Sand dunes, Tenby, Pembroke, v.-c. 45, E. BRAZIER, comm. DEPT. BOT., NAT. MUS. WALES.

*824/10. POA COMPRESSA L. Once only, Kintyre, v.-c. 101, LAMIMER MCINNES. Det. R.B.G., EDINBURGH.

825/2b. GLYCERIA FLUITANS (L.) Br., var. TRITICEA (Fr.) M. T. Lange. Kingskerswell, S. Devon, v.-c. 3, T. STEPHENSON.

PUCCINELLIA Parl. All determined by P. JANSEN.

*†825/4. PUCCINELLIA DISTANS (L.) Parl. About manure heaps, Laffan's Plain, near Aldershot, N. Hants, v.-c. 12, J. E. LOUSLEY, P. M. HALL and E. C. WALLACE.

825/4. PUCCINELLIA DISTANS (L.) Parl., forma VIRESCENS Jansen & Wachter. Corporation Dump, Hythe Quay, Colchester, N. Essex, v.-c. 19, J. E. LOUSLEY and R. MELVILLE.

825/4. PUCCINELLIA DISTANS (L.) Parl., forma ANGUSTIFOLIA (Holmberg). N. Mersea Island, N. Essex, v.-c. 19, J. E. LOUSLEY and A. L. STILL; limestone quarry, Breedon Cloud Wood, Leicester, v.-c. 55 (as *G. distans* Wahl., var. *obtusa* Parn., see *Journ. Bot.*, 1903, 59), A. B. JACKSON and T. E. ROUTH.

825/4. PUCCINELLIA DISTANS (L.) Parl., ad var. LITORALIS Hack. vergens. Chidham, W. Sussex, v.-c. 13, J. E. LOUSLEY and E. C. WALLACE.

825/4b. PUCCINELLIA DISTANS (L.) Parl., var. PROSTRATA Beeby. Isle of Grain, W. Kent, v.-c. 16, J. E. LOUSLEY.

825/4×8. PUCCINELLIA DISTANS (L.) Parl. × RUPESTRIS (With.) Fernald & Weatherby. Canal side near Higham, W. Kent, v.-c. 16, 1899, A. H. WOLLEY-DOD (see p. 234); comm. J. E. LOUSLEY.

825/5. PUCCINELLIA MARITIMA (L.) Parl. Banks of Thurso River, near Thurso Bridge, Caithness, v.-c. 109, J. E. LOUSLEY.

825/5. PUCCINELLIA MARITIMA (L.) Parl., ad forma MAJOR Holmb. vergens. Isle of Grain, W. Kent, v.-c. 16, J. E. LOUSLEY.

825/5. PUCCINELLIA MARITIMA (L.) Parl., ad forma NANA Lange vergens. Isle of Grain, W. Kent, v.-c. 16; Ullapool, W. Ross, v.-c. 105, J. E. LOUSLEY.

825/8. PUCCINELLIA RUPESTRIS (With.) Fernald & Weatherby. Manhood End, near Birdham, W. Sussex, v.-c. 13, J. E. LOUSLEY and E. C. WALLACE.

826/1c. SCLEROPOA RIGIDA Griseb., var. PATENS Coss. & Dur. Cultivated field, St Mary's, Scilly Isles, v.-c. 1, 1934, Miss E. S. TODD. Det. C. E. HUBBARD.

826/7e. FESTUCA RUBRA L., var. GLAUCESCENS H. & H. West Mount, Jersey, J. CHAPPLE; with hairy spikelets, Brora Sands, E. Sutherland, v.-c. 107, Miss E. S. TODD. Det. W. O. HOWARTH.

826/9f. FESTUCA OVINA L., var. GLAUCA (Lam.) How. [=826/14. F. GLAUCA Lam. of *British Plant List*, ed. 2.]. Guernsey, Lady DAVY; Budleigh Salterton and Churston Ferrers, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON. Det. W. O. HOWARTH.

826/11a. F. LONGIFOLIA (Thuill.) How., var. **genuina** (Hack.) How., sub-var. VILLOSA (Hack.) How. Dornoch, E. Sutherland, v.-c. 107, Miss E. S. TODD. Det. W. O. HOWARTH.

826/15. FESTUCA MEMBRANACEA (L.) Dr. Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER (det. T. STEPHENSON); sea shore, Seascale, *Cumberland, v.-c. 70, W. A. P. SPROTT (det. W. O. HOWARTH).

*826/18. FESTUCA MYUROS L. Occasional on walls, Kintyre, v.-c. 101, LATIMER MCINNES.

†826(2)/1. NARDURUS MARITIMUS (L.) Janchen. Wall-top, Torbryan, near Newton Abbot, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON. With native species, Littlestone-on-Sea, E. Kent, v.-c. 15, 1909 (Lady Davy); in great plenty, with *Festuca sciuroides*, Carlby, S. Lincs, v.-c. 53, 1903 (A. Woodruffe-Peacock); this grass

has a wide distribution in the Mediterranean Region, extending to N. France and Belgium; it may be an introduction but its general distribution suggests that it is a native species.—Hubbard (1936, 109-110).

*827/3. BROMUS STERILIS L. Local, Kintyre, v.-c. 101, LATIMER McINNES.

*827/7. BROMUS ERECTUS Huds. Near Saints Bay, Guernsey, new to the Channel Islands, G. C. BROWN.

*827/19(2). BROMUS LEPIDUS O. R. Holmberg. Denbury, S. Devon, v.-c. 3, I. A. WILLIAMS; Kingskerswell, S. Devon, v.-c. 3, T. STEPHENSON; delete * for v.-c. 9, *B.E.C. 1935 Rep.*, 47 (1936), see *B.E.C. 1929 Rep.*, 146 (1930); Topcliffe, N.E. Yorks, v.-c. 62, Miss C. M. ROB and W. A. SLEDGE.

827/21. BROMUS INTERRUPTUS Dr. Sainfoin field, Upper Halling, W. Kent, v.-c. 16, J. E. LOUSLEY and J. P. M. BRENAN.

828/2. BRACHYPODIUM PINNATUM (L.) Beauv. Churston Ferrers, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON.

828/2b. BRACHYPODIUM PINNATUM (L.) Beauv., var. PUBESCENS S. F. Gray. Churston Ferrers and Kingskerswell, S. Devon, v.-c. 3, G. T. FRASER and T. STEPHENSON.

830/4e. AGROPYRON REPENS L., var. LASIORACHIS Hack. Aberthaw, Glamorgan, v.-c. 41, Miss E. VACHELL.

†832/11. AEGILOPS CYLINDRICA Host. Tanfield, N.W. Yorks, v.-c. 65, W. A. SLEDGE.

832(2)/2. PHOLIURUS INCURVUS (L.) Schinz & Thell. The following occurrences are listed by Hubbard (1936, 111-3), where it is suggested that there is strong evidence for supposing this species to be native in all except the Warwick, Glamorgan, Cheshire, and probably also the N. Essex, localities:—

Isle of Wight, v.-c. 10: Freshwater Gate, c. 1830 (Tyacke); Freshwater, 1919 (Britten and Groves); near St Catherine's Point, 1932 (Sprague and Hubbard).

West Sussex, v.-c. 13: Near Southwick, 1923, with *P. filiformis* (Lady Davy).

East Sussex, v.-c. 14: Seaford, 1908, with *P. filiformis* (Sherrin); between Seaford and Newhaven, 1924 (Sheldon, ex *Rep. Wats. B.E.C. for 1924-5*, 320); undercliff west of Newhaven, 1931 (Lousley).

South Essex, v.-c. 18: Canvey Island, 1848 (Ball).

North Essex, v.-c. 19: Langenhoe, in immense quantity, confined to spots covered by old heaps of chalk unloaded from barges, *P. filiformis* also occurring but on undisturbed soil, 1926 (Brown).

East Suffolk, v.-c. 25: Dunwich (Holmes, ex Hind, *Fl. Suff.*, 414, 1889).
West Norfolk, v.-c. 28: Snettisham, with *Festuca rottboellioides*, 1922 (Little, ex *Rep. Wats. B.E.C. for 1922-3*, 231); between Snettisham and Heacham, with *P. filiformis*, 1935 (Hubbard).
Warwick, v.-c. 38: Kenilworth, waste ground near the skin yards, 1902 (Jackson).
Glamorgan, v.-c. 41: Cardiff Docks, 1904 (Druce).
Cheshire, v.-c. 58: Birkenhead, on ballast, 1876 (Burton).

841/1. PINUS SYLVESTRIS L. Frequent, Kintyre, v.-c. 101, LATIMER MCINNES. [Add to *C.F.*, but not N.C.R., see *Top. Bot., Supp.* i, 77.—ED.]

844/1b. EQUISETUM TELMATEIA Ehrh., var. SEROTINA (A. Braun) Milde. Aylesbeare, Watcombe, Torquay, S. Devon, v.-c. 3, G. T. FRASER.

844/3b. EQUISETUM SYLVATICUM L., var. CAPILLARE Hoffm. Between Minstead and Minstead Newton, S. Hants, v.-c. 11, Lady DAVY.

844/5b. EQUISETUM LIMOSUM L., var. FLUVIATILE (L.) Hornem. Near Lyndhurst, S. Hants, v.-c. 11, Lady DAVY.

844/6b. EQUISETUM PALUSTRE L., var. POLYSTACHYUM Weig. Bantham, S. Devon, v.-c. 3, G. T. FRASER.

844/9. EQUISETUM VARIEGATUM (Schleich.) Weber. In boggy ground between the head of Gordale and Malham Tarn, and also in smaller quantity in bog east of the Tarn, Mid-West Yorks, v.-c. 64, 8th July 1936. The only station given for this species in Lees' *Flora of West Yorkshire* is Rev. W. Howson's record in 1850 from Swarth Moor, between Austwick and Horton-in-Ribblesdale. But Lees had overlooked a previous record by Jas. Backhouse in *Phyt.*, I, 1126 (November 1844), where in an account of a walk from Settle to Arncliffe on 11th July 1844 *E. variegatum* is included amongst the plants seen above the head of Gordale and towards Malham Tarn.—Sledge (1936 C).

844/9d. EQUISETUM VARIEGATUM Schleich., var. ARENARIUM Newm. Ross Links, Cheviotland, v.-c. 68, R. B. COOKE and J. W. HESLOP HARRISON. [The only other previous record for v.-c. 68 is from Holy Island, 1883, *Hist. Berw. Nat. Club, 9*, 258, on which was based the record in *Top. Bot., Supp.* i, and in *Com. Fl.*—G. W. TEMPERLEY.]

851/1. ASPLENIUM MARINUM L. Fronds (including stipes) 90 cm. in length on rocks about 50 yards from the coast, St Agnes, Isles of Scilly, v.-c. 1, J. E. LOUSLEY.

851/5c. ASPLENIUM ADIANTUM-NIGRUM L., var. SERPENTINI Tausch. Lizard, W. Cornwall, v.-c. 1, J. D. GROSE. "I think this is right but I have not seen it so large before."—F. W. STANSFIELD.

853/2. ATHYRIUM ALPESTRE Rylands. Abundant among boulders at 3500 ft., Coire an t-Sneachda, Cairngorm, Easterness, v.-c. 96, J. E. LOUSLEY.

856/11. PHEGOPTERIS ROBERTIANA Braun. Add * for v.-c. H. 17, *B.E.C. 1935 Rep.*, 48 (1936).

*857/1. CYSTOPTERIS MONTANA (Lam.) Desv. Aonach Beag, Westerness, v.-c. 97, E. C. WALLACE.

864/1b. OSMUNDA REGALIS L., var. CRISTATA Moore. Bog near Charbeston Road, Pembroke, v.-c. 45, J. E. ARNETT, comm. DEPT. BOT., NAT. MUS. WALES. Det. A. E. WADE. See p. 235.

865/1b. BOTRYCHIUM LUNARIA Sw., var. INCISUM Milde. Growing with the typical form near Washford, Swaledale, N.W. Yorks, v.-c. 65, A. TURNER. Det. KEW.

870/5. LYCOPODIUM CLAVATUM L. Houghton Woods, S.E. Yorks, v.-c. 61, very scarce in this vice-county, T. STAINFORTH, comm. W. A. SLEDGE.

870/6. LYCOPODIUM INUNDATUM L. Dawlish Warren, S. Devon, v.-c. 3, G. T. FRASER.

CHARACEAE. All determined by G. O. ALLEN, except where indicated.

872/2. NITELLA OPACA Ag. Leighon, Manaton, S. Devon, v.-c. 3, G. T. FRASER; Loch Brora, E. Sutherland, v.-c. 107, Miss E. S. TODD; L. Tully, near Renvyle, W. Galway, v.-c. H. 16; left bank of R. Shannon, Lanesborough, *Longford, v.-c. H. 24; L. Levally, W. Mayo, v.-c. H. 27, N. D. SIMPSON and P. M. HALL.

872/3. NITELLA FLEXILIS Ag. Stream near Mullaghveale, Cloghane, S. Kerry, v.-c. H. 1, N. D. SIMPSON and P. M. HALL. Det. N.D.S.

872/5. NITELLA TRANSLUCENS Ag. Chudleigh Knighton, S. Devon, v.-c. 3, G. T. FRASER; Keston, *W. Kent, v.-c. 16 (Allen, 1936).

876/2. CHARA CANESCENS Lois. Birchington marshes, E. Kent, v.-c. 15 (Allen, 1936).

876/3. CHARA VULGARIS L. Near Thurso, Caithness, v.-c. 109, Miss E. S. TODD.

*876/3e. CHARA VULGARIS L., var. CRASSICAULIS Kütz. Quarry-pool, Campbeltown, v.-c. 101, LATIMER MCINNES. [N.C.R. for species and first record of the variety for Scotland.—ED.]

876/7. CHARA CONTRARIA Kuetz. Bog ditches near Kildare, v.-c. H. 19, N. D. SIMPSON. Det. N.D.S.

*876/12. CHARA ASPERA Willd. Loch Watton, Caithness, v.-c. 109, sterile plants, Miss E. S. TODD.

876/12b. CHARA ASPERA Willd., var. SUBINERMIS Kuetz. L. Keel, Achill I., W. Mayo, v.-c. H. 27, N. D. SIMPSON and P. M. HALL. Det. N.D.S.

876/13. CHARA DESMACANTHA Gr. & B.-W. Brittas Lough, Westmeath, v.-c. H. 23, N. D. SIMPSON and P. M. HALL. Det. N.D.S.

*876/17. CHARA DELICATULA Ag. Exminster marshes, Preston and Claypools, Kingsteignton, Leighon, Manaton, Chudleigh Knighton, S. Devon, v.-c. 3, G. T. FRASER; Ardnoe Point, near Crinan, Argyll, v.-c. 98, N. D. SIMPSON (det. N.D.S.); Loch Doula, near Lairg, *E. Sutherland, v.-c. 107, Miss E. S. TODD; Brittas Lough, Westmeath, v.-c. H. 23 (det. N.D.S.); L. Levally, *W. Mayo, v.-c. H. 27, N. D. SIMPSON and P. M. HALL.

As the more purely descriptive part of plant-geography became more fully understood and more familiar, interest began to shift towards the ecological side, that is to say increasing attention came to be paid to the study of the *conditions* under which different plants occur, and the environments which they occupy. In short, botanists began to consider, not only where certain plants are to be found, but why they are to be found there. This initiated what may be called the second or modern phase of plant-geography. Its aim is to paint, not a picture of vegetation, but one, as complete as possible, of the conditions and factors which determine whether or not a plant shall be found growing naturally in a particular spot—a picture of the causes which underlie the geographical presence and absence of plant species.

As in so many other aspects of human knowledge and activities, the change has been from the extensive to the intensive. A single person may be able to describe the world vegetation fairly adequately, but it is certainly beyond the powers of one individual, and indeed beyond his span of life, to study it all in any appreciable detail. More intensive attacks must be made on a more limited front, and hence it is that much of the most recent work takes the form of detailed investigations into the distribution of plants over comparatively small areas.

But within this intensive work there are still the two aspects, geographical and ecological, and they are very closely connected in the sense that without the former the latter can hardly be considered. To put the point rather differently, it is essential to know what the habitat and environment of a plant *is* before it can be studied, and this can only be determined when it is known exactly where the plant is to be found. A detailed knowledge of actual distribution is therefore an essential preliminary to any consideration of the reasons for it. The effects must be studied before suggestions can be made as to their causes. Studies in plant-geography therefore involve two quite distinct processes, the first being the collection of adequately detailed information about the actual distribution of the species or other group which is the subject of investigation, and second, the elucidation of the conditions associated with this distribution. It is especially with regard to this double nature of the work that this article has been written.

The love of flowers is a well-known and often-quoted trait of the Englishman, and this trait commonly finds expression either in gardening or in a particular interest in wild plants, and it is perhaps true to say that the number of those who take a real and intelligent interest in their native flora is greater in England than in any other country. Nowhere does the amateur botanist flourish more.

Unfortunately many aspects of botany require so much equipment and such a knowledge of scientific matters in general as to make their study possible only to professional botanists. On the other hand, some aspects of the subject are particularly suitable for amateur study, but for reasons not altogether clear this has been interpreted in the past in rather a narrow sense, and amateur work has been in fact prac-

# THE STUDY OF PLANT-GEOGRAPHY.

RONALD GOOD.

Plant-geography, that is to say the study of the manner in which plants are distributed over the world's surface, has strong claims to be regarded as the oldest of all botanical interests. The character of vegetation has always been one of the chief environmental determinants and the differences observable in plant life from place to place must have been one of the very first features of his surroundings to make an impression upon the wakening intelligence of early man. At first no doubt the impression was but slight, but as the human race multiplied and became more precise in its requirements so the limitations imposed by the distribution of plants became rapidly intensified. Above all it became the directional control when the pressure of human numbers set in motion that endless series of migrations that form the main fabric of human history.

How this control may be effective is seen well in the early history of our own country. A great band of chalk uplands runs like a rampart almost the whole length of England and is flanked on either side by wide areas of marshy lowlands. These latter were covered, in the ancient days, by dense forest, and formed an almost insurmountable obstacle to human penetration. The chalk on the other hand bore a predominantly grass vegetation, which offered no such difficulties. It is therefore not surprising that the first cultures of England are largely confined to this chalk belt and that hundreds of years elapsed before the descendants of these earlier peoples were sufficiently sure of themselves and of their powers to enter and colonise the lowlands.

Actually the importance of the chalk grasslands was two-fold. Not only did they afford an oasis of country suitable for human settlement, but, by their outline and direction, provided a path for human movement far into the north of the country. Thus to the vegetation of the chalk is largely due the great development of some of the ancient British races, and but for it the history, and perhaps the destinies, of the land we now call England might have been very different.

From a more scientific point of view also plant-geography was one of the first subjects to receive attention because of the great differences of the flora and vegetation of various parts of the world recorded by the earlier world-navigators and explorers. Thus began the first phase of scientific plant-geography, the description of floristic and vegetational types and the plotting of the distributions of these and of the chief kinds of plants over the surface of the world as a whole. The painting of this picture of world vegetation, as it may be described, was naturally a long process, and moreover one whose completion had necessarily to await the fulfilment of geographical exploration, and it is in fact still being painted, although more recent work may be justly regarded as giving the finishing touches.

tically confined to systematic botany, and the British flora has been studied almost exclusively on this basis.

The study of systematics is as essential to the science of botany as a whole as is any other of its constituent parts, but from the point of view of the British field botanist it has one rather serious handicap. This is that the flora of Britain, and even more so of individual counties, is small, and anyone with sufficient leisure and interest can in a fairly short time reach a stage of familiarity with it and a point at which fresh fields of interest are needed, and it usually happens in these circumstances that the person concerned either begins to specialise on one particular group or genus or else leaves botany for some other pursuit.

The study of plant-geography, especially in its narrower sense, affords an alternative to either of these courses. Our intensive knowledge of the distribution of plants, however complete our extensive knowledge may be, is still very incomplete, and until we know more about this problem of "where" the subsequent problem of "why" cannot be properly attacked.

It is just with regard to the collection of this detailed distributional knowledge that the amateur field botanist is in a particularly favourable position. On the one hand, such work does not require expensive equipment nor specialised knowledge; on the other hand, it does need a working knowledge of the British flora, time and opportunity. This difference is more often than not the difference in situation between the professional and the amateur botanist, and the three requisites mentioned are precisely those most often possessed by the latter. To familiarity with the British flora there should perhaps be added familiarity with maps and map-reading, which is easily acquired: time needs no explanation: opportunity is chiefly that provided by residence in suitable country districts.

It cannot be too much stressed that those possessing these advantages can do a great deal of work on geographical lines which is of real scientific value, and likely to be of the greatest assistance to research workers less favourably situated. The question is how can this work best be done and what are the most pressing problems awaiting investigation? The answer is that there are so many lines open that a decision as to which shall be followed may be made almost entirely a matter of personal inclination. Almost the only general principle to be borne in mind is that the available area should be utilized to the best possible advantage, and that the work chosen should be such as can be most appropriately undertaken in the local conditions. If transport is no problem it may well consist of tracing out the distribution of a number of species over one and the same region so that they can be compared accurately on a geographical basis. A large scale study on these lines is at present being carried out by the writer in the County of Dorset. The distributions of as many species as possible are being traced out over the whole county, which is very varied, and maps are gradually being prepared of these distributions in such a way that they may

be easily and accurately compared. This is being done in the anticipation that this comparison will, when complete, present the geographical differences between the species in such a way as to throw considerable light on the actual factors which are responsible for them. More work of this kind, and it can be done both conveniently and satisfactorily on a much smaller scale, is badly needed. It would, for instance, later on be illuminating to compare the distributions of certain species in Dorset with distributions of the same species in some other English county where the external conditions are very different. Work of this kind can also be done on a parish scale and in different parts of one county.

Alternatively the distribution of a single species over a given area can be worked out in detail. For example, in almost every county there occur specific limits, that is to say lines beyond which a species does not extend, and some counties like those of the North Midlands are especially rich in this way. Where *exactly* do these specific lines run? What really are the limits of the species and how do they compare with conditions within the area?

More intensive methods are equally promising. Very little is known about the constitution of plant populations. In a patch of wood, for instance, how exactly are the different constituent species distributed? Why are some dominant, others local, and still others merely occasional? What are likely to be the factors of importance in determining the ultimate competition between species? The queries are almost endless, and so imperfect is our knowledge that almost any collection of ordered facts will add to it.

Another and rather different direction in which the resident country botanist has special opportunities is in making perennial observations. For many reasons this work is seldom touched and offers a wide field. To take but one point. To what extent do the ranges of species vary from year to year, and what may be the causes of this?

To continue further in this strain is unnecessary, and quite enough has been said to show how much there is to do and how easily something of worth can be done. In short, plant-geography is, in many ways, an ideal subject of study for the amateur botanist who loves wild plants not only for their own sake, but also as a means of scientific expression. In it he will find scope for all those inclinations and interests which attract him to the more purely scientific side of botany, but, in addition, he will find in it an enormous and almost virgin field of investigation and a pursuit in which the acquisition of useful knowledge is almost unlimited.

If the hopes of the writer are realized and this short account of plant-geography and its possibilities as a study induces some of those who read this article to take up its pursuit, he will be only too glad of the opportunity of giving any other information on the subject that may be desired.

# THE FLORA OF THE INNER HEBRIDEAN ISLANDS, RAASAY, SOUTH RONA, SCALPAY, FLADDAY, AND LONGAY.

J. W. Heslop Harrison, D.Sc., F.R.S.

During the past three summers certain members of the staff of the Department of Botany, Armstrong College (University of Durham), have spent considerable periods in investigating the Flora and Fauna of the Isle of Raasay and its neighbours, South Rona, Scalpay, Fladday, Longay, and Eilean Garbh, all situated in the Inner Hebrides, and lying between Skye and Ross-shire. As the floristic, although not the ecological, survey has been brought to a close, the present seems a fitting opportunity for surveying the results of our labours.

Of the islands named, Raasay is by far the largest, for it possesses a length of thirteen miles and a maximum breadth, at Oskaig, of three. Geologically speaking, it may be regarded as falling into three sections.

The first, toward the north of Brochel, is built of a mass of Lewisian Gneiss, although Fladday, lying immediately to the west, consists of Torridonian Sandstones. South of this division, and extending to Screapadal in the east, and Holoman in the west, Torridonian Sandstones recalling those of Fladday are encountered. Succeeding this, again to the south, are huge areas of rocks of Mesozoic and Tertiary age which provide, even in the heavily glaciated granophyre still occupying the Holoman-Oskaig-Dun Caan triangle, some of the grandest scenery in the Island. Here are available for study enormous outcrops of the most striking and best preserved Mesozoic rocks in Scotland; they are worthy of visit by all interested in Geology. Fringing this area, on the eastern coast, are magnificent, rugged precipices, rising abruptly from the sea to heights of over 1000 feet, and even higher as they approach the highest point in the island, Dun Caan (1456 feet).

On these cliffs seem to be assembled nearly all the rarest and most important species, for here are to be found not only Alpine and calciphile plants like *Salix herbacea*, *Silene acaulis*, *Dryas octopetala*, *Draba incana*, *Arabis petraea*, *Saxifraga hypnoides*, *S. aizoides*, *Epipactis atropurpurea*, *Gymnadenia conopsea*, etc., but also common English plants like *Lychnis dioica*, *Geum urbanum*, *Geranium lucidum*, *Petasites ovatus*, *Listera ovata*, *Phalaris arundinacea*, *Carex vulpina*, etc., all of which are rare in, or absent from, v.-c. 104 and v.-c. 105.

To the north of Raasay, orientated more or less roughly in a north-east to south-west direction, and looking from the sea like an undulating mass of rock, stretches South Rona, with a length of four miles and a breadth of one and a quarter. In its geology it repeats that of Northern Raasay, for it is composed of Lewisian Gneiss intersected by Tertiary dykes of varying types.

South of Raasay and separated from it by Caol Mohr, Scalpay, the "Ship" Island, rises darkly. This island at first sight seems much less rugged than Raasay and, from its geological standpoint, not so varied.

Moreover, closer examination to a certain extent confirms this view, as the bulk of it consists of Torridonian Sandstones. Nevertheless, Scalpay and Pabbay Shales, interspersed with basalts and granophyre sills, and even outcrops of limestone, appear and exercise an influence on plant distribution.

The other island, Longay (also the " Ship " Island!), with a length of one mile, is composed almost solely of red Torridonian Sandstones, with a few igneous intrusions at intervals.

As was to be anticipated, the climate of all the islands is moist and exceedingly equable, but emphatically less damp than would be expected from their position and from a consideration of the rainfall of Skye and West Ross-shire. Recent records on Rona, taken at the Lighthouse, show an average annual precipitation of 32 inches, whilst that of Raasay is even less. Similarly, the sunshine records are quite favourable, since the bulk of the rain falls during the winter months. The general mildness of the climate is best appreciated by reference to the well-grown Eucalyptus plants on Raasay, and to the peaches ripening out of doors on Scalpay.

Attaching due weight to the varied geology of the islands, and to their mild climate, one cannot therefore be surprised at the richness of their flora, or at the occurrence within their limits of many plants of southern and south-western proclivities. This is, of course, in harmony with the indications of Arachnida as exemplified by *Drassodes pubescens*, *Zelotes latreillii*, *Z. apricorum*, and *Xysticus pini*, of Coleoptera as shown by *Aulonogyrus striatus*, and of Lepidoptera such as *Taeniocampa gracilis* and *Omphaloscelis lunosa*.

The most remarkable members of this southern group of plants collected by us were *Cicendia pusilla*, new to Great Britain, and *Juncus pygmaeus* and *J. capitatus*, both new to Scotland. All three were discovered in Southern Raasay, and at least two of them, *Cicendia pusilla* and *Juncus capitatus* seemed perfectly at home in their special habitat. Unfortunately, it appears likely that *Juncus pygmaeus* was brought with a collection of Junci made indiscriminately by a student, so that its exact station is unknown; still it can be stated, with certainty, that it lies between Oskaig and Holoman.

Including species, segregates in critical groups, and hybrids, but excluding varieties, 603 forms were collected, which is obviously a noteworthy figure for a small area situated so far north. Of these, 49 forms appertained to the genus *Rosa*, 12 to *Rubus*, 14 to *Hieracium*, and corresponding numbers to other similar genera. If obvious intruders and segregates in the major critical groups are ignored, the list includes 58 species new to v.-c 104, and 54 which fail to find a place in Druce's *Flora of West Ross*. The following list displays the new vice-county records:—

*Ranunculus reptans.*
*R. auricomus.*
*Nuphar pumila.*
*Nymphaea occidentalis.*
*Erophila verna.*
*Viola sylvestris.*
*Arenaria trinervia.*
*Hypericum dubium.*

†*Vicia angustifolia.*
*Prunus avium.*
*Rubus caesius.*
*Geum urbanum.*
*Alchemilla minor.*
*Agrimonia odorata.*
*Sorbus rupicola.*
*Myriophyllum spicatum.*
*Callitriche vernalis.*
*Lythrum Salicaria.*
*Epilobium tetragonum.*
†*Circaea alpina.*
*Adoxa Moschatellina.*
*Galium pumilum.*
†*Valeriana officinalis.*
*Inula Helenium.*
*Matricaria suaveolens.*
*Arctium nemorosum.*
*Vinca minor.*
*Cicendia pusilla.*
*Symphytum tuberosum.*
*Myosotis palustris.*
*M. brevifolia.*
*Orchis purpurella.*
*O. Fuchsii.*
*Polygonatum multiflorum.*
*Paris quadrifolia.*
*Juncus pygmaeus.*
*J. capitatus.*
*J. macer.*
*Luzula pilosa.*
*Typha latifolia.*
*Sparganium simplex.*
*Potamogeton pectinatus.*
*P. filiformis.*
*Ruppia maritima.*
*Cladium Mariscus.*
*Carex distans.*
*C. vesicaria.*
*Calamagrostis epigeios.*
*Glyceria declinata.*
*Bromus sterilis.*
*B. commutatus.*
*Asplenium septentrionale.*
*Hymenophyllum tunbridgense.*
*Lycopodium inundatum.*
*L. annotinum.*
*Chara aspera.*
*C. vulgaris.*
*Nitella translucens.*

†The species marked thus are additions to *Comital Flora* for v.-c. 104 but not strictly N.C.R.s, since they are recorded for v.-c. 104 in *Top. Bot.* or one of its Supplements.—ED.

If the preceding list be considered in connection with that of West Ross-shire, as set out by Druce, it will be found to include the principal plants now recorded for the first time for v.-c. 104 and not yet detected in v.-c. 105. Further, *Eupatorium cannabinum*, *Scutellaria minor*, *Epipactis atropurpurea* and *Carex vulpina*, discovered on the islands by us, and previously on record for v.-c. 104, are still important absentees from West Ross. On the other hand, *Vicia angustifolia*, *Geum urbanum*, *Adoxa Moschatellina*, *Myriophyllum spicatum*, *Myosotis palustris*, *Cladium Mariscus*, *Luzula pilosa*, *Sparganium simplex* and *Carex distans*, recorded for v.-c. 105 by Druce, are now signalled for the first time from v.-c. 104.

Turning now to peculiarities in distribution observed within the islands, several features seem to need emphasis. Eight species (with two new county records), *Ranunculus hederaceus*, *Lythrum Salicaria*, *Erythraea Centaurium*, *Carduus nutans*, *Salicornia europaea*, *Atriplex glabriuscula*, *Potamogeton natans* and *Cladium Mariscus* are confined to South Rona; fourteen (with nine new county records), *Ranunculus scoticus*, *Nuphar pumila*, *Subularia aquatica*, *Viola segetalis*, *Prunus Padus*, *P. avium*, *Rosa spinosissima*, *Adoxa Moschatellina*, *Viburnum Opulus*, *Myriophyllum spicatum*, *Paris quadrifolia*, *Glyceria declinata*, *Hymenophyllum tunbridgense* and *Lycopodium annotinum* to Scalpay, whilst on Raasay 113 species were obtained which escaped notice on the adjoining islands. The latter are given in the appended list:—

*Ranunculus reptans.*
*R. bulbosus.*
*Nymphaea occidentalis.*
*Nasturtium officinalis.*
*Arabis petraea.*
*Draba incana.*
*Erophila verna.*
*Cochlearia groenlandica.*
*Sisymbrium Thalianum.*
*Brassica arvensis.*
*Lepidium Smithii.*
*Viola sylvestris.*
*V. canina.*
*Silene Cucubalus.*
*S. maritima.*
*S. acaulis.*
*Arenaria trinervia.*
*Hypericum dubium.*
*H. tetrapterum.*
*H. humifusum.*
*Geranium dissectum.*
*G. lucidum.*
*Cytisus scoparius.*
*Medicago lupulina.*
*Trifolium hybridum.*
*T. dubium.*
*Anthyllis Vulneraria.*
*Vicia hirsuta.*
*V. sativa.*
*V. angustifolia.*
*Rubus caesius.*
*Dryas octopetala.*
*Geum urbanum.*
*Potentilla sterilis.*
*Alchemilla alpestris.*
*Agrimonia odorata.*
*Sorbus rupicola.*
*Saxifraga aizoides.*
*S. hypnoides.*
*Parnassia palustris.*
*Callitriche vernalis.*
*C. stagnalis.*
*Conopodium majus.*
*Anthriscus silvestris.*
*Caucalis Anthriscus.*
*Tanacetum vulgare.*
*Petasites ovatus.*
*Vaccinium Vitis-idaea.*
*Pyrola minor.*
*P. secunda.*
*Anagallis arvensis.*
*Cicendia pusilla.*
*Gentiana campestris.*
*Symphytum tuberosum.*
*Myosotis sylvatica.*
*M. palustris.*
*Calystegia sepium.*
*Linaria Cymbalaria.*
*Veronica montana.*
*V. Beccabunga.*
*Orobanche rubra.*
*Galeopsis speciosa.*
*Lamium purpureum.*
*L. moluccellifolium.*
*Polygonum viviparum.*
*Rumex longifolius.*
*Salix fragilis.*
*S. phylicifolia.*
*Listera ovata.*
*Epipactis atropurpurea.*
*Orchis mascula.*
*O. incarnata.*
*O. praetermissa.*
*Leucorchis albida.*
*Gymnadenia conopsea.*
*Platanthera bifolia.*
*Polygonatum multiflorum.*
*Tofieldia palustris.*
*Juncus macer.*
*J. pygmaeus.*
*J. capitatus.*
*Potamogeton lucens.*
*P. crispus.*
*P. perfoliatus.*
*P. filiformis.*
*Ruppia maritima.*
*Carex pauciflora.*
*C. vulpina.*
*C. rigida.*
*C. remota.*
*C. sylvatica.*
*C. hēlodes.*
*C. distans.*
*C. vesicaria.*
*Phalaris arundinacea.*
*Calamagrostis epigeios.*
*Deschampsia setacea.*
*Avena pubescens.*
*A. pratensis.*
*Bromus sterilis.*
*B. commutatus.*
*Agropyron caninum.*
*A. repens.*
*Cryptogramma crispa.*
*Asplenium septentrionale.*
*Cystopteris fragilis.*
*Polystichum Lonchitis.*
*Lastrea aemula.*
*Botrychium Lunaria.*
*Equisetum maximum.*
*Lycopodium inundatum.*
*L. clavatum.*
*L. alpinum.*

It is no doubt tempting to assume that the preponderance of specie restricted to Raasay depends upon its greater area, but this is quite a

unsafe procedure; the matter is much more complicated than that. It is true that mere area, as well as the more varied geological conditions available, does play its part. In addition, the presence of Raasay House and its woods and the greater extent of cultivation are not without their influence. Still, these facts do not explain why many of the noteworthy of the Raasay specialities are those occupying habitats along the cliffs of the eastern coasts. Clearly, much more study will be required to elucidate the situation.

However, one suggestion likely to throw light on the problem depends upon the height and precipitous nature of the eastern coast line. It seems quite possible that the ledges on these cliffs have behaved as "nunataks," so that the plants now found upon them have never been subjected to the working of the wholesale destructive agencies, pictured as destroying the vegetation of the British Islands, both here and elsewhere, during the Glacial Period. This view is far from fantastic when considered in connection with Fernald's recent illuminating studies in glacial survivals on the cliffs of Lake Superior, of Gaspé Peninsula, and of Newfoundland, and with the facts presented by Thomson in dealing with the vegetation of the cliffs of Otago Peninsula in New Zealand.

If further details are needed concerning the Flora of these interesting islands, they may be obtained from the *Flora of Raasay*, published from this Department, but I should like to emphasise the fact that our work is far from completed. A further expedition to the island group has been planned for the summer of 1937, when it is hoped to devote much more time and energy to the problem of the eastern cliffs, to the general ecology, and to the Cryptogams.

# THREE WEEKS BOTANISING IN THE OUTER HEBRIDES.

M. S. CAMPBELL, F.L.S.

During the previous century a number of botanists made collections in most of the principal islands of the Outer Hebrides. Of the resulting publications those of Macgillivray, Balfour and Babington, Barrington, Somerville and Shoolbred are outstanding. Arthur Bennett, in his "Contributions to a Flora of the Outer Hebrides," gathered together most of the published records and also added a large number based on the collections made for him by W. S. Duncan, a resident in one of the islands. Of recent years the attention of botanists has apparently been chiefly directed to the St Kilda group and the island of Barra.

In 1936 I spent the first three weeks of June in the Outer Hebrides, visiting South Uist, Benbecula—including Wiay, a small island off the east coast—N. Uist and S. Harris. In addition to a general collection of vascular plants special attention was paid to the "Marsh" Orchids —a feature of many places on the western sides of North and South Uist and Benbecula—selected series of which were sent fresh to Mr A. J. Wilmott, who has contributed the notes on this group.

In view of the apparent scarcity of recent information on the flora of these islands, I give a detailed list of my general collection. As far as it has been possible to ascertain, it includes a few new records. A separate list is added of those species not included in the *Comital Flora* for v.-c. 110, but which in reality are not new records.

All specimens have been deposited in Herb. Mus. Brit.

I am very grateful to Mr Wilmott for all the help he has given me in going through the collection and identifying a large number of specimens. In addition, I wish to thank Messrs A. H. G. Alston, G. O. Allen, J. E. Dandy, H. W. Pugsley, A. L. Still and Dr G. Taylor, and also my brother, Dr James W. Campbell, who arranged the visit, and later collected some supplementary material. Initials in parentheses indicate those responsible for determinations and notes preceding them.

Abbreviations:—A.H.G.A.=A. H. G. Alston. *A.S.N.H.=The Annals of Scottish Natural History.* BEN.=Benbecula. H.W.P.=H. W. Pugsley. J.W.C.=James W. Campbell. M.S.C.=M. S. Campbell. N.U.=North Uist. P.M.H.=P. M. Hall. S.H.=South Harris. S.U.= South Uist. W.=A. J. Wilmott. *=New record for v.-c. 110. †= Not native in this locality.

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2/3. THALICTRUM MINUS L., sensu stricto. (T. ARENARIUM Butcher). S.U.: Near Daliburgh, sand-dunes. BEN.: Borve. N.U.: Ard an Rùnair. In each of these localities there is also a less glandular *Thalictrum*, but in the absence of fruits I cannot identify it. (W.)

2/5. T. ALPINUM L. S.H.: Roneval.

6/2. RANUNCULUS REPENS L. S.U.: Lochboisdale, roadside ditch.

6/3. R. ACRIS L. S.U.: Near Daliburgh, on the machair and dunes; Lochboisdale; Pollachar; Kilpheder. BEN.: Borve; Wiay. N.U.: Between Goular and Ard an Rùnair, dunes; Newton. Very variable and interesting, requiring further study. (W.)

6/5. R. BULBOSUS L. S.U.: Near Daliburgh, dunes.

6/7. R. FLAMMULA L. S.U.: Near Askernish. BEN.: Rueval. N.U.: Loch Scolpaig.

6/23. R. PAUCISTAMINEUS Tausch. S.U.: Daliburgh, a land form, probably of this species. (W.)

6/32. R. HEDERACEUS L. S.U.: Pollachar.

6/33. R. FICARIA L. N.U.: Marsh near Goulaby burn.

7/1. CALTHA PALUSTRIS L. S.U.: Near Daliburgh. Also in another place at Daliburgh occurred a form with remarkably crenate-dentate differently shaped leaves. Both have narrowish sepals (as var. *Guerangerii*). (W.)

20/1c. NYMPHAEA OCCIDENTALIS (Ostenf.) Moss. S.U.: Near Loch à Chafain, small pool at roadside. (W.)

21/3. PAPAVER DUBIUM L., em. Lamotte. N.U.: Newton Ferry, field near. (W.)

35/1. NASTURTIUM OFFICINALE R. Br. S.U.: Daliburgh. BEN.: Nunton.

37/1. ARABIS HIRSUTA (L.) Scop. N.U.: Newton Ferry, on the coast; Newton, sand-dunes. This is what has been called *A. ciliata*, var. *hispida*, and *A. Retziana*, var. *hispida*, which I cannot distinguish. I call this merely forma in arenosis maritimis. (W.)

39/1. CARDAMINE PRATENSIS L. BEN.: Wiay.

39/4. C. FLEXUOSA With. Ben.: Rueval. (W.)

39/5. C. HIRSUTA L. BEN.: Wiay. (W.)

45/6. COCHLEARIA GROENLANDICA auct. angl. (vix L.). S.U.: Pollachar. BEN.: Creagorry, creek in front of hotel; Wiay. N.U.: Ahmore Strand. Specimens from the following differ somewhat and show signs of sterility: they may be of hybrid origin (? with *C. officinalis*). (W.) N.U.: Lochmaddy, near the Sponish suspension bridge. S.H.: Borosdale (leaves with deep purplish veins).

54/4d. BRASSICA RAPA L., var. BRIGGSII Wats. S.U.: Near Daliburgh. N.U.: Newton, cultivated field.

54/14. SINAPIS ARVENSIS L. BEN.: Borve.

59/1. CAPSELLA BURSA-PASTORIS (L.) Medik. S.U.: Pollachar. BEN.: Borve. N.U.: Newton, cultivated field.

77/1. CAKILE MARITIMA Scop. S.U.: Near Daliburgh, seashore.

80/1. RAPHANUS RAPHANISTRUM L. N.U.: Newton, cultivated field. Flowers uniformly pure bright golden yellow, without purple veins.

88/4. VIOLA RIVINIANA Rchb. S.U.: Loch Stulaval (coll. J.W.C.). BEN.: Wiay. S.H.: Roneval.

88/11. V. PALUSTRIS L. BEN.: Wiay.

88/34. V. CURTISII Forster. S.U.: Near Daliburgh. BEN.: Borve. N.U.: Newton, fields. (W.)

89/1. POLYGALA SERPYLLIFOLIA Hose. BEN.: Rueval. (W.)

89/2. P. VULGARIS L. S.U.: Near Daliburgh, sand-dunes. N.U.: Sollas, a patch of c. 20 plants of a deep purplish-magenta—the colour of *Erica cinerea*. S.H.: Druim Skeilibreck.

89/4. P. OXYPTERA Rchb. S.U.: Daliburgh ?, too young. N.U.: Newton Ferry. S.H.: Rodel. (W.)

96/1. SILENE MARITIMA With. S.H.: Rodel, rocks by the harbour.

98/1. LYCHNIS FLOS-CUCULI L. S.U.: Pollachar. BEN.: Wiay.

98/3. MELANDRYUM ALBUM (Mill.) Garcke. N.U.: Newton.

100/5. CERASTIUM VULGATUM L. (C. TRIVIALE Link). S.U.: Daliburgh. BEN.: Wiay.

100/6. C. VISCOSUM L. S.H.: Rodel.

100/9. C. TETRANDRUM Curt. S.U.: Lochboisdale; near Daliburgh, on the machair. (W.)

101/3. STELLARIA MEDIA (L.) Vill. S.U.: Near Daliburgh.

101/8. S. ULIGINOSA Murr. BEN.: Wiay.

102/5. ARENARIA SERPYLLIFOLIA L., em. Guss. N.U.: Newton Ferry.

102/7. HALIANTHUS PEPLOIDES (L.) Fr. (ARENARIA PEPLOIDES L.). S.U.: Shore near Daliburgh. This plant is also abundant on parts of the machair which have been left to go fallow.

103/2. SAGINA SUBULATA (Sw.) Presl. N.U.: Crogary More, summit. (W.)

103/11. S. PROCUMBENS L. BEN.: Rueval.

104/1. SPERGULA ARVENSIS L., sensu lato. N.U.: Newton, cultivated field. Too immature to determine: *S. sativa* Boenn. is recorded in *Comital Flora*. (W.)

105/. SPERGULARIA. N.U.: Near Newton Ferry, salt marsh. Very small but looks like *S. marginata*. (W.)—Too immature to determine the species. S.U.: Lochboisdale, one plant near the pier. N.U.: Ahmore Strand.

109/1. MONTIA FONTANA L., var. LAMPROSPERMA (Cham.) Fenzl. BEN.: Wiay. N.U.: Marsh near Goulaby burn. (W.)

112/9. HYPERICUM PULCHRUM L. S.H.: Druim Skeilibreck.

125/3. LINUM CATHARTICUM L. N.U.: Newton Ferry. S.H.: Druim Skeilibreck.

127/10. GERANIUM MOLLE L. S.U.: Near Daliburgh.

128/3. ERODIUM CICUTARIUM (L.) L'Hérit. S.U.: Near Daliburgh, on the machair. BEN.: Borve.

132/1. OXALIS ACETOSELLA L. BEN.: Wiay.

*153/7. MEDICAGO LUPULINA L. N.U.: Newton. (W.)

155/2. TRIFOLIUM PRATENSE L. S.U.: Lochboisdale. S.H.: Rodel. " Var. *maritimum* Marss.": very hairy and fine-headed, but not agreeing completely with Marsson's description: nor, however, does Shoolbred's specimen in Herb. Mus. Brit. (W.) N.U.: Field near Goulaby burn; near Goular, dunes.

155/16. T. REPENS L. S.U.: Lochboisdale. N.U.: Newton.

156/1. ANTHYLLIS VULNERARIA L. N.U.: Newton Ferry.

160/5. LOTUS CORNICULATUS L., em. Rchb. BEN.: Peter's Port. N.U.: Newton.

176/3. VICIA CRACCA L. BEN.: Borve.

176/8. V. SEPIUM L. N.U.: Newton. S.H.: Borosdale.

*176/13. V. ANGUSTIFOLIA (L.) Reichard. N.U.: Newton. (W.)

178/6. LATHYRUS PRATENSIS L. N.U.: Newton.

178/25. L. MONTANUS Bernh. S.H.: Druim Skeilibreck.

184/11. SPIRAEA ULMARIA L. N.U.: Near Newton Ferry.

185/1. RUBUS IDAEUS L. S.U.: Loch Stulaval (coll. J.W.C.).

185/. R. FRUTICOSUS L. Specimens yet undetermined critically were collected in: BEN.: Rueval, Loch Bà Una, growing with *Salix aurita*; N.U.: In the Alder swamp near Goulaby burn.

185/154. R. SAXATILIS L. BEN.: Wiay.

189/3. POTENTILLA ANSERINA L. S.U.: Pollachar.

189/9. P. ERECTA (L.) Hampe. S.H.: Druim Skeilibreck.

189/25. COMARUM PALUSTRE L. BEN.: Nunton. N.U.: Loch Scolpaig.

190/20 ["19" bis!]. ALCHEMILLA ARVENSIS (L.) Scop. N.U.: Newton Ferry.

*194/20. ROSA SHERARDI (Davies), var. OMISSA (Déségl.) W.-Dod. BEN.: Rueval; Wiay. Leaves only, but quite characteristic. (W.)

195/5. SORBUS AUCUPARIA L. BEN.: Wiay, Loch na Béiste. Small trees on the islands and at the side of the loch.

*199/20. SAXIFRAGA TRIDACTYLITES L. S.U.: Near Daliburgh, sand-dunes.

199/23. S. STELLARIS L. S.H.: Roneval, near the top of the Coire

*†199/24. S. UMBROSA L. N.U.: Near Goulaby burn, in a ditch.

211/6. SEDUM ACRE L. S.U.: Daliburgh, sand-dunes.

211/11. S. ANGLICUM Huds. S.U.: Lochboisdale. BEN.: Rueval. N.U.: Near Lochmaddy.

211/22. S. RHODIOLA DC. S.H.: Roneval, in the Coire.

213/1. DROSERA ANGLICA Huds. S.U.: Near Askernish.

213/3. D. ROTUNDIFOLIA L. S.U.: Near Askernish.

214/1. HIPPURIS VULGARIS L. S.U.: Near Daliburgh, abundant in wet meadows.

216/2. MYRIOPHYLLUM ALTERNIFLORUM DC. S.U.: Near Askernish. (W.)

217/1. CALLITRICHE STAGNALIS Scop., sec. Kütz. S.U.: Near Daliburgh; Pollachar. BEN.: Nunton. N.U.: Marsh near Goulaby burn. (W.)

217/5. C. INTERMEDIA Hoffm. (C. HAMULATA Kütz.). BEN.: Wiay. (W.)

220/4. EPILOBIUM PARVIFLORUM Schreb. N.U.: Newton Ferry.

220/10. E. MONTANUM L. BEN.: Wiay. S.H.: Borosdale. (W.)

220/14. E. PALUSTRE L. S.U.: Near Askernish. BEN.: Wiay. N.U.: Near Goulaby burn. (W.)

237/1. HYDROCOTYLE VULGARIS L. BEN.: Wiay.

247/5. APIUM INUNDATUM (L.) Rchb. fil. S.U.: Near Askernish.

*256/1. CONOPODIUM MAJUS (Gouan) Loret & Barr. N.U.: Lochmaddy, field by Sponish suspension bridge.

257/1. MYRRHIS ODORATA (L.) Scop. N.U.: Newton, outside the garden wall. Also specimen in flower, November 27th (coll. J.W.C.).

265/3. OENANTHE CROCATA L. S.U.: Pollachar. BEN.: Wiay, side of Loch na Béiste.

271/1. HALOSCIAS SCOTICUM (L.) Fr. S.U.: Pollachar, one plant seen.

274/1. ANGELICA SYLVESTRIS L. BEN.: Rueval; Wiay.

277/2. HERACLEUM SPHONDYLIUM L. BEN.: Borve. N.U.: Alder swamp near Goulaby burn; a dwarf form abundant on cliff top near Goular.

282/1. DAUCUS CAROTA L. N.U.: Near Loch Scolpaig, cultivated field.

291/2. LONICERA PERICLYMENUM L. BEN.: Wiay. N.U.: Crogary More.

296/4. GALIUM SAXATILE L. BEN.: Rueval; Wiay. S.H.: Druim Skeilibreck.

296/7. G. PALUSTRE L. BEN.: Wiay. N.U.: Marsh near Goulaby burn; Goular. (W.)

296/9. G. VERUM L. BEN.: Borve. N.U.: Newton. S.H.: Borosdale.

296/11. G. APARINE L. S.U.: Pollachar.

300/1. SHERARDIA ARVENSIS L. N.U.: Newton; near Loch Scolpaig, cultivated field.

304/1. VALERIANELLA LOCUSTA (L., em.) Betcke. (V. OLITORIA Poll.). N.U.: Newton, fields; Newton Ferry. (W.)

312/1. SOLIDAGO VIRGAUREA L. BEN.: Rueval; Wiay. N.U.: Crogary More, rocks near summit. S.H.: Roneval, in the Coire.

314/1. BELLIS PERENNIS L. S.H.: Borosdale.

318/19. ASTER TRIPOLIUM L. S.U.: Lochboisdale.

326/1. ANTENNARIA DIOICA (L.) Gaert. BEN.: Wiay. N.U.: Sollas. S.H.: Roneval, on ledges near top of Coire.

326/b. A. HYPERBOREA D. Don. S.H.: Roneval, low down, among rocks. This has leaves densely hairy on both sides. The plants are small, and the leaves are not exactly like those of the Skye plant, but nor are those of the Ross plant recorded by Prof. M. L. Fernald. The group requires further critical study. (W.)

370/1. CHRYSANTHEMUM SEGETUM L. S.U.: Near Daliburgh. BEN.: Borve.

370/4. C. LEUCANTHEMUM L. S.U.: Lochboisdale.

371/1. MATRICARIA INODORA L. S.U.: Near Daliburgh, seashore. (W.)

378/3. ARTEMISIA VULGARIS L. ? BEN.: Borve. A peculiar form with leaves grey-silky on upper surface, somewhat recalling *A. Absinthium*. No flowers. (W.)

380/1. PETASITES HYBRIDUS (L.) G.M.S., em. Fritsch. N.U.: Balelone, roadside.

383/3. SENECIO AQUATICUS Hill. BEN.: Borve. (W.)

383/5. S. JACOBAEA L. BEN.: Borve.

383/10. S. VULGARIS L. S.U.: Daliburgh.

396/8. CIRSIUM ARVENSE (L.) Scop. S.U.: Lochboisdale.

396/9. C. PALUSTRE (L.) Scop. BEN.: Rueval, bank of Loch Bà Una. S.H.: Borosdale.

401/1. SAUSSUREA ALPINA (L.) DC. S.H.: Roneval, among rocks near the summit.

405/8. CENTAUREA NIGRA L., sensu stricto. (C. OBSCURA Jord.). N.U.: Marsh near Goulaby burn. (W.)

419/1. HIERACIUM PILOSELLA L. N.U.: Sollas.

419/17. H. CALEDONICUM F. J. Hanb. BEN.: Rueval, rock ledges near the summit. S.H.: Borosdale; Druim Skeilibreck. (H.W.P.)

419/22. H. "SCOTICUM F. J. Hanb." N.U.: Crogary More, rocks near summit. The only *Hieracium* I saw in this locality (cf. Bennett, 1910, 167).

421/2. HYPOCHAERIS RADICATA L. S.H.: Druim Skeilibreck; Rodel, on rocks at roadside.

423/. TARAXACUM OFFICINALE Vill. (Several species! W.). S.U.: Daliburgh; Pollachar. N.U.: Beinn Mhòr; Crogary More. S.H.: Roneval.

431/1. LOBELIA DORTMANNA L. S.U.: Loch à Chafain.

438/2. VACCINIUM MYRTILLUS L. BEN.: Wiay.

446/1. ERICA CINEREA L. BEN.: Rueval.

458/2. ARMERIA MARITIMA (Mill.) Willd. BEN.: Peter's Port. Var. *Linkii* Gren. & Godr., *Statice pubescens* (Sm.) Druce of *Comital Flora*. Calyx with hairs confined to ribs. (W.)

460/2. PRIMULA VULGARIS Huds. BEN.: Rueval. S.H.: Rodel.

466/1. GLAUX MARITIMA L. BEN.: Peter's Port.

467/1. ANAGALLIS TENELLA Murr. S.U.: Near Askernish. BEN.: Rueval.

469/1. SAMOLUS VALERANDI L. N.U.: Loch near Loch Scolpaig.

478/1. ERYTHRAEA CENTAURIUM (L.) Pers. N.U.: Newton. (W.)

481/1. MENYANTHES TRIFOLIATA L. N.U.: Loch Scolpaig.

501/1. LYCOPSIS ARVENSIS L. BEN.: Borve.

506/3. MYOSOTIS REPENS [Don ined.] Rchb. N.U.: Newton, marsh below garden. S.H.: Rodel. (W.)

506/8. M. ARVENSIS Hill, em., Hoffm. BEN.: Borve. (W.)

506/10. M. VERSICOLOR Sm. S.U.: Near Daliburgh. BEN.: Creagorry.

535/4. SCROPHULARIA NODOSA L. N.U.: Newton, below the garden.

541/1. DIGITALIS PURPUREA L. BEN.: Rueval, bank of Loch Bà Una.

543/3. VERONICA OFFICINALIS L. N.U.: Crogary More, rocks near summit.

543/4. V. CHAMAEDRYS L. N.U.: Lochmaddy.

543/6. V. SCUTELLATA L. S.U.: Near Askernish.

543/9. V. AQUATICA Bernh. S.U.; Near Daliburgh. BEN.: Nunton. (W.)

543/11. V. SERPYLLIFOLIA L. S.U.: Pollachar. N.U.: Newton, field outside the garden.

543/15. V. ARVENSIS L. S.U.: Daliburgh. BEN.: Borve.

545/3. EUPHRASIA BREVIPILA B. & G. S.H.: Glen Rodel. (H.W.P.) Specimens too young for Mr Pugsley to determine may also be forms of *E. brevipila*: BEN.: Borve. N.U.: Newton Ferry; field near Goulaby burn. S.H.: Rodel. (W.)

545/16. E. SCOTICA Wetts. S.H.: Druim Skeilibreck (det. H.W.P. as "cf.").

546/5. ODONTITES VULGARIS Moench, em. S.H.: Rodel (? var. *litoralis* Fr., but very young. W.).

547/1. PEDICULARIS PALUSTRIS L. S.U.: Near Daliburgh.

547/2. P. SYLVATICA L. BEN.: Wiay; Peter's Port. S.H.: Rodel.

548/3. RHINANTHUS MINOR Ehrh. BEN.: Creagorry, meadows by roadside near post office. N.U.: Field near Goulaby burn; Newton Ferry (? a different form from the others). S.H.: Rodel.—"Var. *pubescens* Wallr." ?, Bennett (1895, 244). BEN.: Wiay, with peculiar woolly hairs on lower stem and leaves.

553/2. PINGUICULA VULGARIS L. S.U.: Near Askernish. BEN.: Wiay. N.U.: Newton Ferry; marsh by Goulaby burn.

558/7. MENTHA AQUATICA L. N.U.: Marsh near Goulaby burn. (A. L. Still.)

561/4. THYMUS SERPYLLUM L. Too young for critical determination. (W.) BEN.: Rueval. N.U.: Crogary More, rocks near summit. S.H.: Rodel.

572/2. SCUTELLARIA MINOR Huds. BEN.: Rueval, under bushes by Loch Bà Una. (W.)

573/1. PRUNELLA VULGARIS L., em. Moench. S.U.: Near Askernish.

578/2. GALEOPSIS TETRAHIT L., em. Mill. S.U.: Lochboisdale (coll. J.W.C.). BEN.: Creagorry.

581/3. LAMIUM PURPUREUM L. BEN.: Borve.

587/1. AJUGA REPTANS L. S.U.: Loch Stulaval (coll. J.W.C.).

588/3. PLANTAGO CORONOPUS L. BEN.: Borve.

588/5. P. MARITIMA L. S.U.: Pollachar. N.U.: Ahmore Strand.

588/8. P. LANCEOLATA L. S.U.: Near Daliburgh, sand-dunes; Pollachar. N.U.: Dunes between Goular and Ard an Rùnair. S.H.: Borosdale.

588/10. P. MAJOR L. S.U.: Lochboisdale.

589/1. LITTORELLA UNIFLORA (L.) Asch. S.U.: Near Askernish. BEN.: Rueval; Wiay.

600/8. CHENOPODIUM ALBUM L., em. Koch. S.U.: Pollachar. BEN.: Borve. (W.)

606/7. ATRIPLEX GLABRIUSCULA Edmondst. S.U.: Coast near Daliburgh. (W.)

606/8. A. SABULOSA Rouy. S.U.: Coast near Daliburgh. (W.)

611/. SALICORNIA. Too young to determine. S.U.: Lochboisdale, creek opposite the post office. BEN.: Creagorry, opposite the hotel. N.U.: Ahmore Strand; Newton Ferry, salt marsh near.

615/2. POLYGONUM CONVOLVULUS L. BEN.: Nunton.

615/5. P. AMPHIBIUM L. S.H.: Rodel.

615/5b. P. AMPHIBIUM, var. TERRESTRE Leers. BEN.: Borve.

615/15. P. RAII Bab. S.U.: Seashore near Daliburgh; ? Pollachar, by the inn; a curious form with large broad leaves, too young for fruit. (W.)

618/3. RUMEX CRISPUS L. S.U.: Pollachar. BEN.: Peter's Port. (W.)

618/14. R. ACETOSA L. BEN.: Wiay.

618/16. R. ACETOSELLA L. BEN.: Rueval. S.H.: Rodel.

628/7. EUPHORBIA HELIOSCOPIA L. BEN.: Borve.

633/1. ULMUS SCABRA Mill. N.U.: Newton, west of the Lodge. (W.)

637/2. URTICA URENS L. S.U.: Carnan, by the inn.

641/1. MYRICA GALE L. BEN.: Rueval.

642/2. BETULA GLUTINOSA Fr. (W.) BEN.: Wiay, one "bush" (without fruit).

643/1. ALNUS GLUTINOSA Gaert. N.U.: Marsh near Goulaby burn. A number of small trees, probably planted.

645/1. CORYLUS AVELLANA L. BEN.: Rueval.

650/1. SALIX PENTANDRA L. N.U.: Newton, marsh below garden.

650/9. S. AURITA L. BEN.: Rueval. N.U.: Ahmore Strand, roadside bank near.

650/11. S. " ARENARIA-REPENS " Flod. S.U.: Near Askernish. N.U.: Crogary More. A specimen from N.U.: Newton may be *S. repens* L. (W.)

651/2. POPULUS TREMULA L. BEN.: Wiay.

652/1. EMPETRUM NIGRUM L. BEN.: Wiay.

663/2. LISTERA CORDATA (L.) R. Br. BEN.: Wiay.

669/. ORCHIS L. "The dried specimens have been seen by Mr P. M. Hall, who, like myself, cannot be completely certain of distinguishing *O. latifolia* (*O.* " *incarnata* ") from *O. purpurella* except in living specimens, for some of these plants thought by him to be *O. purpurella* were obviously (from the bright ruby colour of their flowers, the lip markings, and the foliage) *O. latifolia* when examined alive by Miss Campbell and myself. I have, therefore, merely indicated (by "P.M.H.") those cases where Mr Hall's determinations of the dried specimens confirm my own of the living ones, and add that it is evident that all old records will require confirmation from living specimens seen by some modern expert.

669/7. O. LATIFOLIA L., sec. Pugsley. (O. INCARNATA auct. non L.). With the exception of a few paler flowered (salmonish-ruby) specimens, all these are of the bright deep ruby-flowered form, small specimens of which growing in dune-marshes have been named var. *dunensis* by Druce and var. *coccinea* by Pugsley. S.U.: Near Daliburgh, dune marsh (P.M.H.); Pollachar; Kilpheder. BEN.: Nunton. N.U.: Between Lingay Strand and Newton, dune marsh; Loch Scolpaig. Two specimens were also seen at Clachan (near Newton) among a vast number of mixed (? hybrid) forms of all sorts, but this gathering was, unfortunately, lost in the post.

669/8b and 9. O. PURPURELLA Steph. The Scottish forms and/or allies of this species are not yet fully understood. Between the taller more foliaceous " var. *pulchella* " (*O. praetermissa*, var. *pulchella* Druce) with unspotted leaves and broad flat lip resembling that of *O. praetermissa* in shape and *O. purpurella* in marking, and *O. purpurella* Stephenson, usually smaller with narrower leaves normally spotted (the spots are typically few and usually towards the apex and leaf tips but sometimes more numerous and heavy) and diamond-shaped lip sometimes with long protruding middle lobe, there are to be found many plants with intermediate characters which may be hybrids or which may indicate that no line can be drawn between the two forms, and that *O. purpurella* is merely more variable than Stephenson supposed. But on the northern coast of Scotland remarkably fine plants with brilliantly purple, richly marked flowers and broad, often heavily marked, leaves may be found which I have never yet seen in central and southern Scotland, where the *purpurella-pulchella* series is often abundant. One specimen approaches this " north coast " form. At the other extreme are some small forms with narrow leaves, lax spikes, and elongated midlobe to the labellum which show some superficial resemblance to *O. Francis-Drucei* but lack the peculiar form, colouring, and marking of the labellum. All these forms are here recorded under *O. purpurella*,

with some indication of their characters. (1) Leaves unspotted, some of which may be var. *pulchella*. N.U.: Lochmaddy; bog by the Alder swamp near Goulaby burn (P.M.H.) (both with broad leaves, and may be var. *pulchella*)—near Loch Scolpaig (leaves narrower; some like north coast form (P.M.H.)); between Lingay Strand and Newton (coll. J.W.C.; those collected by M.S.C. with broader larger leaves may be var. *pulchella*). (2) Leaves more or less spotted or blotched. S.U.: Pollachar. BEN.: Nunton (P.M.H.) (often with very few spots as typical, and one quite without spots). N.U.: Near the Goulaby burn, damp hollow near the dunes (P.M.H.); near Loch Scolpaig (P.M.H.) ("typical *purpurella*") (leaves narrow in two small specimens and "marked as in Godfery's *eborensis*" (P.M.H.), but broad in the third specimen).

669/9(2). O. MAJALIS Reichb., sub-sp. OCCIDENTALIS (Pugsley) Pugsley. N.U.: A moderately uniform series collected between Lingay Strand and Newton, in damp hollows among the dunes, shows the same habit, extremely variable leaf-marking, and flower characters (except that Mr Pugsley thinks the lip is perhaps slightly narrower) of *occidentalis*. I received them fresh within a few days of receiving fresh *occidentalis* from Ireland, and considered them identical, except that the Hebridean plants (from dunes dry in summer) are smaller; Mr P. M. Hall agrees with this determination, and Mr Pugsley sees nothing against it. One specimen collected at Newton Ferry had unspotted leaves, but similar plants were also sent me from Ireland.

669/10. O. ELODES Grisebach; O. MACULATA L., sec. auct. nonnull. S.U.: Loch Stulaval (coll. J.W.C.). BEN.: Rueval; Wiay. N.U.: Sollas.

669/. O. ELODES × PURPURELLA; × O. FORMOSA Stephenson. N.U.: Bog by the Alder swamp near the Goulaby burn (P.M.H.); near Loch Scolpaig (P.M.H.)." (W.)

674/4. COELOGLOSSUM VIRIDE (L.) Hartm. N.U.: Near Newton Ferry, sea cliffs.

676/1. IRIS PSEUDACORUS L. N.U.: Marsh near Goulaby burn. (Also abundant in S.U.)

702/6. ALLIUM URSINUM L. N.U.: Newton, under the wall outside the garden.

706/3. SCILLA NON-SCRIPTA L. (ENDYMION NON-SCRIPTUS (L.) Garcke. BEN.: Rueval; Wiay.

714/1. NARTHECIUM OSSIFRAGUM (L.) Huds. BEN.: Wiay.

718/3. JUNCUS CONGLOMERATUS L., em. Koch. N.U.: Marsh near Goulaby burn.

718/6. J. BALTICUS Willd. S.U.: Near Daliburgh. N.U.: Newton; near mouth of Goulaby burn.

718/12. J. BULBOSUS L. S.U.: Pollachar. N.U.: Loch an Duin. S.H.: Borosdale.

718/13. J. SQUARROSUS L. BEN.: Rueval.

718/15. J. GERARDI Lois. S.U.: Pollachar. (W.)

*718/16. J. TENUIS Willd. (J. MACER S. F. Gray). ? Too young for certainty and in habitat of *J. Gerardi*, but with long bracts and acute

ORCHIS MAJALIS Reichb., sub-sp. OCCIDENTALIS Pugsl.
N. Uist: between Lingay Strand and Newton: M.S.C., 10.vi.1936. ×3/2.

tepals. (W.) BEN.: Creagorry, creek in front of hotel.? S.H.: Borosdale.

718/17. J. BUFONIUS L. N.U.: Newton.

719/1. LUZULA SYLVATICA (Huds.) Gaud. S.U.: Loch Stulaval (coll. J.W.C.). S.H.: Borosdale.

719/2. L. PILOSA (L.) Willd. BEN.: Wiay.

719/4. L. MULTIFLORA (Retz.) Lej. BEN.: Wiay. (W.)

719/6. L. CAMPESTRIS (L.) DC., em. Lej. BEN.: Creagorry; Rueval. (W.)

*723/1. ARUM MACULATUM L. N.U.: Newton, under wall, outside garden.

735/1. TRIGLOCHIN MARITIMUM L. S.U.: Near Daliburgh. N.U.: Near Clachan sands, two or three plants with spikes greenish-ochre.

735/2. T. PALUSTRE L. S.U.: Near Daliburgh. BEN.: Nunton.

737/1. POTAMOGETON NATANS L. S.U.: Near Askernish. (W.)

737/2. P. POLYGONIFOLIUS Pourr. S.U.: Near Askernish. (J. E. Dandy and G. Taylor.)

738/. RUPPIA. N.U.: Loch Eport, without fruits.

740/1. ZOSTERA MARINA L. S.U.: Pollachar. N.U.: Lingay Strand. (W.)

745/1. ELEOCHARIS PALUSTRIS (L.) R. & S. S.U.: Near Daliburgh, sand-dunes; near Askernish. N.U.: Marsh near Goulaby burn. (W.)

745/2. E. UNIGLUMIS (Link) Schultes. N.U.: Ahmore Strand. (W.)

745/3. E. MULTICAULIS Sm. BEN.: Rueval. (W.)

746/2. SCIRPUS MARITIMUS L. BEN.: Borve, very immature.

746/4. S. TABERNAEMONTANI Gm. S.U.: Daliburgh. N.U.: Goular (near Balranald).

746/7. S. CAESPITOSUS L. BEN.: Wiay.

746/8. S. PAUCIFLORUS Lightf. S.U.: Near Askernish. BEN.: Rueval, Loch Bà Una. N.U.: Near Newton Ferry; Ahmore Strand; near Balelone; Loch Scolpaig.

746/11. S. SETACEUS L. S.H.: Druim Skeilibreck.

746/13. S. FLUITANS L. S.U.: Near Askernish.

746/15. BLYSMUS RUFUS (Huds.) Link. S.U.: Pollachar. N.U.: Ahmore Strand; near mouth of Goulaby burn.

747/2. ERIOPHORUM ANGUSTIFOLIUM Roth. BEN.: Rueval; Peter's Port.

747/4. E. VAGINATUM L. BEN.: Rueval; Wiay.

749/1. SCHOENUS NIGRICANS L. BEN.: Rueval.

753/7. CAREX ROSTRATA Huds. S.U.: Loch à Chafain. N.U.: Loch Scolpaig. (W.)

753/15. C. BINERVIS Sm. BEN.: Rueval. N.U.: Beinn Mhor.

753/17. C. DISTANS L. S.U.: Pollachar.

753/19. C. HORNSCHUCHIANA Hoppe. S.U.: Near Askernish. N.U.: Loch Scolpaig. (W.)

753/20. C. FLAVA L. BEN.: Rueval (cf. var. *minor* Towns.). (W.)

753/22. C. OEDERI Retz. BEN.: Rueval, by Loch Bà Una. (W.)

753/23. C. EXTENSA Good. N.U.; Ahmore Strand.

753/32. C. PILULIFERA L. BEN.: Rueval.

753/33. C. FLACCA Schreb. S.U.: Daliburgh. N.U.: Near Newton Ferry. (W.)

753/36. C. PANICEA L. BEN.: Rueval. (W.)

753/49. C. GOODENOWII Gay. S.U.: Daliburgh; Pollachar; near Askernish. BEN.: Rueval; Wiay. N.U.: Marsh near Goulaby burn; near mouth of Goulaby burn. S.H.: Rodel. (W.)

753/56. C. STELLULATA Good. (C. ECHINATA Murr.). BEN.: Rueval.

753/63. C. PANICULATA L., em. Schk. BEN.: Nunton.

753/74. C. PULICARIS L. BEN.: Rueval.

753/75. C. DIOICA L. BEN.: Rueval. N.U.: Near Newton Ferry.

765/11b. PHALARIS ARUNDINACEA L., var. PICTA L. N.U.: Marsh near Goulaby burn.

766/1. ANTHOXANTHUM ODORATUM L. BEN.: Rueval.

*767/1. HIEROCHLOE ODORATA (L.) Wahl. BEN.: Nunton. (W.)

770/5. ALOPECURUS GENICULATUS L., em. Sm. S.U.: Pollachar.

787/1. AMMOPHILA ARENARIA (L.) Link. N.U.: Newton.

789/2. AIRA PRAECOX L. BEN.: Rueval.

791/4. DESCHAMPSIA FLEXUOSA (L.) Trin. S.H.: Rodel.

792/2. HOLCUS LANATUS L. S.U.: Lochboisdale.

794/2. AVENA PUBESCENS Huds. N.U.: Newton Ferry. S.H.: Druim Skeilibreck. (W.)

802/1. PHRAGMITES COMMUNIS Trin. BEN.: Nunton.

808/2. CYNOSURUS CRISTATUS L. S.U.: Lochboisdale.

809/3. KOELERIA GRACILIS Pers., sub-sp. BRITANNICA (Domin). N.U.: Near Newton Ferry on sea cliffs. S.H.: Rodel. (W.)

819/1. DACTYLIS GLOMERATA L. S.U.: Lochboisdale.

824/2. POA PRATENSIS L. S.U.: Daliburgh; Pollachar; near Askernish; Lochboisdale. N.U.: Newton. S.H.: Rodel. Most specimens seem to be (/3) var. SUBCAERULEA Sm. A peculiar specimen from BEN.: Nunton, appears to be a form of *P. pratensis* in spite of the absence of arachnoid hairs at the base of the florets. (W.)

824/6. P. TRIVIALIS L. N.U.: Alder swamp near Goulaby burn. (W.)

825/2. GLYCERIA FLUITANS (L.) R. Br. N.U.: Lochmaddy, roadside ditch near Police Station. S.H.: Rodel. (W.)

826/4. FESTUCA ELATIOR L. N.U.: Loch Scolpaig. (W.)

826/7. F. RUBRA L. BEN.: Rueval. N.U.: Newton; Crogary More. (W.)

826/7f. F. RUBRA L., ssp. ARENARIA (Ost.). N.U.: Near Goular, dunes. (W.)

826/10b. F. VIVIPARA (L.) Sm. S.H.: Rodel; Roneval, in a spout in the coire.

829/1. LOLIUM PERENNE L. S.U.: Lochboisdale.

834/1. NARDUS STRICTA L. BEN.: Rueval.

839/1. JUNIPERUS COMMUNIS L. S.U.: Loch Stulaval (coll. J.W.C.). BEN.; Wiay. (W.)

839/2. J. SIBIRICA Burgsd. S.H.: Roneval, among rocks E. of Rodel.

844/5. EQUISETUM LIMOSUM L., em. Koch. N.U.: Marsh near Goulaby burn. (A.H.G.A.)

844/6. E. PALUSTRE L. S.U.: Daliburgh. BEN.: Nunton. N.U.: Marsh near Goulaby burn. (A.H.G.A.)

851/1. ASPLENIUM MARINUM L. BEN.: Wiay. S.H.: Borosdale.

851/5. A. ADIANTUM-NIGRUM L., em. Huds. BEN.: Rueval.

851/7. A. RUTA-MURARIA L. S.H.: Rodel.

853/1. ATHYRIUM FILIX-FOEMINA (L.) Roth. BEN.: Wiay.

856/1. DRYOPTERIS FILIX-MAS (L.) Schott. N.U.: Marsh near Goulaby burn. (A.H.G.A.)

856/4. D. DILATATA (Hoffm.) A. Gray. BEN.: Wiay. J.W.C. found large quantities of this in Heron nests. (A.H.G.A.)

856/5. D. AEMULA (Ait.) O. Ktze. BEN.: Rueval; Wiay. (A.H.G.A.)

856/7. D. OREOPTERIS (Ehrh.) Maxon. BEN.: Rueval.

858/1. POLYPODIUM VULGARE L. BEN.: Wiay.

864/1. OSMUNDA REGALIS L. BEN.: Wiay.

865/1. BOTRYCHIUM LUNARIA L. N.U.: Near Newton Ferry, sea cliffs; field near Goulaby burn. S.H.: Rodel.

866/1. OPHIOGLOSSUM VULGATUM L. N.U.: Newton, cliffs near the sea and in a damp hollow among dunes.

870/7. LYCOPODIUM SELAGO L. BEN.: Rueval. N.U.: Beinn Mhor.

871/1. SELAGINELLA SELAGINOIDES (L.) Link. N.U.: Newton.

872/2. NITELLA OPACA Ag. S.U.: Near Askernish. (G. O. Allen.)

Records, previous to 1932, not included in G. C. Druce's *Comital Flora*. (Only the earliest records so far traced are given.)

20/1c. NYMPHAEA OCCIDENTALIS (Ostenf.) Moss. LEWIS: Loch Valtos, G. C. Druce in *B.E.C. 1928 Rep.*, 602, 723 (1929).

37/1. ARABIS HIRSUTA (L.) Scop. Bernera (W. S. Duncan), Bennett, *Scot. Nat.*, 1891, 188.

89/4. POLYGALA OXYPTERA Rchb. S.U.: West side, " growing near to or with *P. eu-vulgaris* " (A. Somerville), Bennett, *A.S.N.H.*, 1910, 168.

194/19 & 20. ROSA TOMENTOSA Sm. Outer Hebrides, Macgillivray, 1830, ii, 91. (The *Comital Flora* does not distinguish *R. tomentosa* from *R. omissa*, and all records of *R. tomentosa* may prove to refer to *R. omissa*.)

265/3. OENANTHE CROCATA L. Outer Hebrides, " is also abundant along the rivulets as is *Hippuris vulgaris* in the marshes." W. Macgillivray, 1830, ii, 94. Specimen from S.U., dated " 7.88," Somerville, in Herb. Mus. Brit.

543/9. VERONICA AQUATICA Bernh. BEN.: Ditches near coast, west side, Shoolbred, 1895, 244, as *V. anagallis-aquatica*, var. *aquatica* Bosch.

606/8. ATRIPLEX SABULOSA Rouy. Outer Hebrides, W. Macgillivray, 1830, ii, 93, as *A. laciniata*. Shoolbred and Somerville specimens in Herb. Mus. Brit.

745/2. ELEOCHARIS UNIGLUMIS (Link) Schultes. "Barvas, Isle of Lewis," Babington, *Manual*, 1847, ed. 2, 349. Babington undated specimen in Herb. Mus. Brit. from this locality. Balfour and Babington were in Outer Hebrides in 1841.

794/2. AVENA PUBESCENS Huds. "*A. pubescens* 110!" (Somerville), Bennett, 1888, 247, 260. (Also Somerville, 1889 A.)

826/4. FESTUCA ELATIOR L. "Roddal in Harris," Balfour and Babington, 1844, i, 152.

## PANSY RECORDS.

Compiled by HILDA DRABBLE.

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The following list of pansies has been compiled from identifications made by the late Dr Eric Drabble and recorded by him in his record book, as was his custom, with a view to publication from time to time. All records published by him and those which have appeared in the British and Watson Exchange Club Reports have been excluded.

As far as was possible, collectors' names have been given and place-names have been verified from the Gazetteer of the British Isles.

CORNWALL (1, 2).

V. SEGETALIS Jord., f. OBTUSIFOLIA (Jord.)—Hayle (E. Vachell).

DEVONSHIRE (3, 4).

V. DESEGLISEI Jord.—Meldon, Marland (H. H. Harvey).

SOMERSET (5, 6).

V. RURALIS Jord.—Woolard Hill (H. S. Thompson).

WILTSHIRE (7, 8).

V. AGRESTIS Jord.—Road (P. Leake).

V. DESEGLISEI Jord.—Conkwell (August 1833, Herb. Bab.).

DORSET (9).

*V. LEPIDA Jord., f. CARPATICA (Borbás)—Swanage (J. D. Gray, 1895).

V. MARITIMA Schweig.—Littlesea (J. D. Gray, July 1895, in Herb. Univ. Camb.). Of this plant, Dr Drabble wrote: "This narrow-leaved plant seems to be identical with Druce's Norway plant, q.v., which I believe to be the Baltic *maritima*." (See also *infra* under *V. sabulosa* from Ireland.)

HAMPSHIRE (11, 12).

V. RURALIS Jord.—Fleet (G. Watts).

V. VARIATA Jord., var. SULPHUREA Drabble—Micheldever (P. M. Hall).

SUSSEX (13, 14).

V. SEGETALIS Jord.—Parkhurst (R. J. Burdon and J. E. Little).

V. RURALIS Jord.—Greatham (J. E. Lousley).

*V. ARVATICA Jord.—Mayfield (K. Pickard); Hastings (1836, C. E. Broome); Cross-in-Hand (1835, Herb. Bab.).

KENT (15, 16).

V. DESEGLISEI Jord.—Cuxton, Meopham (A. R. Horwood).

*V. LATIFOLIA Drabble—Sundridge (J. E. Lousley).

V. LLOYDII Jord., var. INSIGNIS Drabble—Sevenoaks (J. E. Lousley).

V. VARIATA Jord.—Westerham (G. Watts).

SURREY (17).

V. RURALIS Jord.—Witley (G. M. Ash); Leatherhead (Mrs Wedgwood).
V. ANGLICA Drabble—Molesey (Mrs Wedgwood).
V. CONTEMPTA Jord.—New Haw, Weybridge (J. E. Lousley).
V. LEJEUNII Jord.—Compton (J. E. Lousley).
V. VARIATA Jord., var. SULPHUREA Drabble—Byfleet (J. E. Lousley); Witley (G. M. Ash).

ESSEX (18, 19).

*V. CONTEMPTA Jord.—Saffron Waldon (H. Phillips).
V. VARIATA Jord.—Saffron Waldon (A. R. Horwood).

HERTFORDSHIRE (20).

V. DESEGLISEI Jord.—Pirton (H. Phillips).
V. CONTEMPTA Jord.—Wilbury Hill, Wymondley (H. Phillips).
*V. LEJEUNEI Jord.—Hitchin (J. E. Little).
V. VARIATA Jord.—St Ippolyts, Hitchin (J. E. Little).
*V. MONTICOLA Jord.—Hitchin, Wilbury Hill, Cole Green, Royston, Stevenage (H. Phillips).

MIDDLESEX (21).

*V. VARIATA Jord., var. SULPHUREA Drabble—Harefield.

BERKSHIRE (22).

V. AGRESTIS Jord.—Frilford (E. S. Todd); Sandford Mill (J. E. Lousley).
*V. SEGETALIS Jord.—Frilford (E. S. Todd).
*V. ARVATICA Jord.—Sandford Mill, near Twyford (J. E. Lousley).

OXFORDSHIRE (23).

V. DESEGLISEI Jord., f. SUBTILIS (Jord.)—Tadmarton (E. Vachell).
V. RURALIS Jord.—Henley-on-Thames (E. Vachell).

BUCKINGHAMSHIRE (24).

V. SEGETALIS Jord., f. OBTUSIFOLIA (Jord.)—Stowe (E. Vachell).
V. CONTEMPTA Jord.—Hambledon (E. Vachell).
V. MONTICOLA Jord.—Ivinghoe (H. Phillips).

SUFFOLK (25, 26).

V. DESEGLISEI Jord.—Neyland (J. D. Gray, 1884).
*V. SEGETALIS Jord.—Stowlangtoft (L. M. Rickards, 1840).
V. VARIATA Jord.—Holywell Row (J. E. Lousley).
var. SULPHUREA Drabble—Holywell Row (J. E. Lousley).

NORFOLK (27, 28).

*V. AGRESTIS Jord.—Diss (E. Vachell).
V. DESEGLISEI Jord.—Thompson (E. S. Todd).
*V. CONTEMPTA Jord.—Caistor-on-Sea (H. Phillips).

V. VARIATA Jord.—Kelling, near Holt (Herb. Bab.).
var. SULPHUREA Drabble—Heath near Cromer.
V. LUTEA Huds., f. PESNEAUI Lloyd and Foucaud—Burnham Heath (Dr Hind, 1883).

CAMBRIDGESHIRE (29).

V. AGRESTIS Jord.—Ickleton (A. R. Horwood).
V. DESEGLISEI Jord.—Hildersham (J. E. Lousley); Gog-Magog Hills (J. S. Henslow, 1826).
*f. SUBTILIS (Jord.)—Hardwick (E. Vachell).
V. CONTEMPTA Jord.—Fleam Dyke (A. R. Horwood).
V. VARIATA Jord.—Cambridge (1839, Herb. Bab.).
*V. LUTEA Huds., f. PESNEAUI Lloyd and Foucaud—Newmarket Heath (1831).

BEDFORDSHIRE (30).

*V. CONTEMPTA Jord.—Barton, Clifton, Leagrave (H. Phillips).
*V. MONTICOLA Jord.—Arsley (H. Phillips); East Tingley Wood (J. E. Little).

HUNTINGDONSHIRE (31).

V. AGRESTIS Jord.—Woodwalton Fen (H. Phillips, 1932).

MONMOUTHSHIRE (35).

*V. ARVATICA Jord.—Penhow (E. Vachell).
*V. CONTEMPTA Jord.—Monmouth (E. Vachell).

HEREFORDSHIRE (36).

V. AGRESTIS Jord.—Storridge (F. M. Day).

WORCESTERSHIRE (37).

V. AGRESTIS Jord.—Broadway (E. Vachell).

STAFFORDSHIRE (39).

V. DESEGLISEI Jord.—Needwood Forest (1832, Herb. Bab.).
*V. ARVATICA Jord.—Needwood Forest (1832, Herb. Bab.).
*V. DERELICTA Jord.—Needwood Forest (1832, Herb. Bab.).

SHROPSHIRE (40).

V. RURALIS Jord.—Monkmoor (1839, W. A. Leighton).
*V. VARIATA Jord., var. SULPHUREA Drabble—Monkmoor (1839, W. A. Leighton).
V. LEPIDA Jord.—Gunshill (1839, W. A. Leighton).
V. LUTEA Huds.—Clee Hills (1835, J. S. Baby); West Felton (W. A. Leighton).

GLAMORGANSHIRE (41).

V. AGRESTIS Jord.—The Leys (E. Vachell); Porthcawl (Miss Thomas).
V. SEGETALIS Jord., f. OBTUSIFOLIA (Jord.)—Llandaff (E. Vachell).
V. LEJEUNEI Jord.—Llandaff (E. Vachell).

BRECKNOCKSHIRE (42).

V. SEGETALIS Jord.—Llyswen (E. Vachell).

RADNORSHIRE (43).

V. LUTEA Huds.—Rhayader (E. Vachell).

PEMBROKESHIRE (45).

V. LATIFOLIA Drabble—Haverfordwest (A. E. Ellis).

V. LUTEA Huds., f. CURTISII (Forster) and f. PESNEAUI Lloyd and Foucaud.—St. Davids (A. E. Ellis).

CARDIGANSHIRE (46).

V. LUTEA Huds.—Devil's Bridge (1848, Herb. Bab.).

MERIONETHSHIRE (48).

V. LUTEA Huds.—Llandrillo (A. E. Cook); Towyn (1839); Trawsfynydd (1832, Herb. Greville).

CARNARVONSHIRE (49).

*V. VARIATA Jord.—Little Orme (1836, Herb. Bab.).

V. LUTEA Huds.—Penmaenmawr (R. Tennant); Rhaidr, Dolgarrog (1828, W. Williams).

LINCOLNSHIRE (53, 54).

V. DESEGLISEI Jord.—Great Ponton (S. C. Stow).

RUTLAND (55 in part).

V. RURALIS Jord.—Great Casterton, Ketton (M. E. Edmonds).

V. ANGLICA Drabble—Pickworth, Woolfox, Ketton, Barrowden Heath (M. E. Edmonds).

DERBYSHIRE (57).

V. LEPIDA Jord.—Hippersick (E. and H. D.).

V. LUTEA Huds., f. AMOENA Henslow—Chee Dale (1881, J. S. Rouse).

CHESHIRE (58).

*V. LUTEA Huds., f. PESNEAUI Lloyd and Foucaud—New Brighton (1846, F. Sansome).

LANCASHIRE (59, 60, 69 in part).

*V. AGRESTIS Jord.—Heysham (M. Page).

V. SEGETALIS Jord., f. OBTUSIFOLIA (Jord.)—Southport (1882, J. C. King).

V. LLOYDII Jord.—Near Roudsea Wood (W. A. Sledge).

V. VARIATA Jord.—Heysham (M. Page); Roudsea Wood (W. A. Sledge).

YORKSHIRE (61, 62, 63, 64, 65).

*V. SEGETALIS Jord.—Micklefield (W. A. Sledge).

f. OBTUSIFOLIA (Jord.)—Allerthorpe Common (W. A. Sledge).

V. RURALIS Jord.—Near Scarborough (E. S. Todd).

V. LLOYDII Jord.—Wooden (J. G. Baker, 1858). "These large, yellow-flowered plants include a few cultivated specimens which after

one year's cultivation retain their characters exactly and are definitely large yellow *Lloydii* " (E.D.).

*V. MONTICOLA Jord.—Rillington (1886, G. Webster).

V. LEPIDA Jord.—Wharncliffe (1838, A. Bloxam).

V. LUTEA Huds.—Marrick Moor, Swaledale (1863, J. G. Baker).

WESTMORLAND (69 in part).

V. LUTEA Huds., f. SUDETICA Willd.—Kendal (1838, K. N. Lingwood).

ISLE OF MAN (71).

*V. SEGETALIS Jord., f. OBTUSIFOLIA (Jord.)—Ballaugh (C. J. Paton).

WIGTOWNSHIRE (74).

V. CURTISII Forster, f. FORSTERI—Near Wigtown (M. Wilson).

PEEBLES (78).

V. LUTEA Huds., f. AMOENA Henslow—Carlops (F. M. Day).

PERTHSHIRE (87, 88, 89).

V. SEGETALIS Jord., f. OBTUSIFOLIA (Jord.)—Killin (K. D. Little).

*V. VARIATA Jord.—Aberfeldy (E. Vachell).

ABERDEENSHIRE (92, 93).

V. LUTEA Huds., f. POLYCHROMA (Kerner)—Castleton (1854, A. Croall).
f. SUDETICA Willd.—Ballater (1847, H.H.).
f. PESNEAUI Lloyd and Fouc.—Cruden Bay (J. R. Tennant).

INVERNESS-SHIRE (96, 97).

*V. LUTEA Huds., f. PESNEAUI Lloyd and Fouc.—Sands near Mormar (W. A. Sledge).

SUTHERLAND (107, 108).

V. DERELICTA Jord.—Altnaharra (E. Vachell).

*V. LLOYDII Jord., var. INSIGNIS Drabble—Altnaharra (E. Vachell).

V. LEJEUNII Jord.—Altnaharra (E. Vachell).

V. LUTEA Huds., f. AMOENA Henslow—Tongue (M. Wilson).

ORKNEY AND SHETLAND (111, 112).

*V. VARIATA Jord.—Linkness, Hoy Orkney (H. H. Johnston).

*V. DERELICTA Jord.—Ness-in-Yell, Shetland (1865, R. Tate).

IRELAND.

Of specimens of V. CURTISII Forster from Mullaghanoe, Sligo (T. H. Corry, 1882) and from Tramore, Waterford (1858, Herb. Bab.) Dr Drabble wrote that these are f. *Forsteri* not f. *Symei*. This is of interest as former records from these localities were f. *Symei*. (" Notes on Irish Pansies," *Journ. Bot.*, May 1930, p. 143.) f. *Forsteri* has smaller yellow flowers than has the sand-dune form f. *Symei*.

Of a specimen from Portmanock Sands, Co. Dublin, June 1837, John Ball or Bell) labelled V. TRICOLOR, var. CURTISII Mack.! Dr Drabble wrote: "A narrow-leaved, only slightly hairy plant with yellow flowers. This is the only British or Irish plant I have seen meriting the name *sabulosa* Bor." and he records the plant as *V. Curtisii*, var. *sabulosa*. Referring to *sabulosa* ("Notes on British Pansies," *Journ. Bot.*, August 1927, p. 218) Dr Drabble says: "Whether or not true *sabulosa* is identical with *V. tricolor*, var. *maritima* Schweigger (Marss. *Fl. Neu-pommern*, 58) I have not yet determined."

# THE BRAMBLE PLATES OF SYME'S ENGLISH BOTANY.

WM. WATSON.

Thirteen plates illustrate the fruticose brambles in Syme's *English Botany*, vol. iii (1864). Eleven of these are reproduced from the plates of the original *English Botany*, with different names in some instances; two are new. Nowadays one does not go to *English Botany* for a knowledge of British brambles, but the plates are good, and with the right names appended would be useful still. To supply these, to justify them when they are not the names of the *London Catalogue*, and to correct a few misleading features of the plates, is the object of the present notes.

PLATE 444.—*Rubus suberectus*. The plate is correct for *R. suberectus*, but the older name, *Rubus nessensis* Hall, *Trans. Roy. Soc. Edin.*, iii (1794), 20, must be restored. In Hb. Smith there is a garden specimen sent by John Mackay in 1800 as "*R. Nessensis*," and also an unnamed specimen sent by Sir Joseph Banks from his garden in 1798. Both specimens are *R. suberectus*. It seems permissible to believe that Banks had obtained the plant from an authentic source soon after the publication of it as a new species by Hall, and he may have sent the specimen to Smith with a view to the inclusion of *R. nessensis* in the *Flora Britannica* (1800-1804). On another specimen in Hb. Smith Withering says the plant was pointed out to him in 1796.

This points to a general recognition of *R. suberectus* as *R. nessensis* among British botanists soon after Hall published his species. There is apparently no contemporary instance of any other bramble being identified as *R. nessensis*. When later Anderson published *R. suberectus* he stated that it was the same as *R. nessensis*, but "the impropriety of Mr Hall's specific name will I hope be a sufficient excuse for my changing it." That, however, is not a ground on which the name can be altered.

Hall's description, according to Babington, runs "Rubus (Nessensis) foliis quinato-digitatis, ternatis, septenisque nudis, caule subinermi, petiolis canaliculatis; stolonibus erectis biennalibus." Hall also says that the fruit is of the colour of the red mulberry, and has a peculiar taste.

Rogers says (*Journ. Bot.* 1895, 46) that this description is inadequate to prove that the bramble intended is *R. suberectus*, that the value of Anderson's testimony was destroyed by his knowing nothing of *"*R. fissus*," as it was not described until twenty years later, and that the character "petiolis canaliculatis" belongs to "*R. fissus*" and not to *R. suberectus*.

I have always found the petioles of *R. suberectus* furrowed throughout though not so deeply as in "*R. fissus*," and Leighton found the same,

*The bramble intended by Rogers under the name of *R. fissus* is not the *R. fissus* of Lindley. Hence the use of inverted commas.—W.W.

and he cannot have been copying from Hall as he thinks he is describing *R. plicatus*. It is *R. sulcatus* not *R. suberectus* that has flat petioles.

Only two British brambles have red fruit, viz. *R. suberectus* and "*R. fissus*." Of these it is *R. suberectus* that has the fruit with a peculiar taste. I have experienced it myself, Leighton records it, and Lefèvre and Boulay and Focke. Furthermore, all the characters given by Hall apply to *R. suberectus*, but some do not apply to "*R. fissus*," viz. "Foliis nudis, caule subinermi, stolonibus erectis." One wonders how Rogers missed these indications when two of the characters are just those that he singled out as distinctive of *R. suberectus* in his own Conspectus, thus: "*R. suberectus*: Prickles few (sometimes wanting). Leaves subglabrous." "*R. fissus*: Prickles many. Leaves conspicuously hairy beneath."

Rogers's suggestion that Anderson could not have known "*R. fissus*" because it was not described until twenty years later, and the implication that he could not have told Hall's plant for the same as his own without first knowing "*R. fissus*," cannot either of them be supported. Actually "*R. fissus*" was known to Borrer and Bicheno by a manuscript name—which it is not advisable to give here—many years before any description was published, and was being discriminated by them from *R. suberectus*. And even if Anderson did not know "*R. fissus*" it was sufficient that he should know *R. suberectus* to be able to recognise from Hall's description or a specimen of Hall's that it was that species.

The opposition to replacing *R. suberectus* by *R. nessensis* Hall, therefore, seems to rest entirely on mistaken grounds. Druce in *Fl. Berks.*, Halacsy in his monograph of the Austrian brambles, and Robert Keller in *Fl. Schweiz* and in Hegi's *Flora*, have adopted *R. nessensis*.

PLATE 445.—*Rubus plicatus*. The name holds good. The basal leaflets are drawn with stalks 5 mm. long: they should be only 1-2 mm. The leaflets are too coarsely toothed (mostly with only one intercostal tooth) to be representative.

PLATE 446.—*Rubus rhamnifolius*. The expanded flowers should be white or only very faintly pinkish, and the underside of the leaves of the flowering branch should be white. The characteristic tendency of these leaves to curl up is shown. The stem-piece and attached leaf belong to *R. polyanthemus*. The carpel should be glabrous or nearly so The middle branches of the panicle are slightly wilted and have assumed unnatural directions; they should be spreading.

No one any longer contends that the plant is *R. rhamnifolius*, as it was named by Smith in 1824 at the instigation of Bicheno, Borrer and E. Forster, though some will not give up the name. It is acknowledged by Rogers in the Handbook that the English bramble agrees exactly with specimens of *R. cardiophyllus* L. & M. collected in Normandy by Letendre. The correctness of Letendre's specimens is attested by Lefèvre, one of the joint authors of the species and the collector of the actual specimen—in the north of France—on which the species was founded.

The objection is made (*Rep. B.E.C.*, 1934, 964) that Mueller describes the toothing as "very coarse nettle-like." Mueller's words are, "Bezahnung fast nesselartig eingeschnitten gesägt." (Toothing *almost* nettle-like incise serrate.) The Handbook has "teeth rather coarse on luxuriant bushes," and might have gone further than this, as in both Hb. Kew and Hb. Mus. Brit. there is a sheet of *R. cardiophyllus* of British origin in which the leaves are quite as deeply incised as in any nettle. One does not, of course, contend that such leaves are characteristic, either in the case of the French or the British plant; but there is no reason to suspect that Mueller was describing another plant, which is the implication that is made. Surely the same name must be used to designate normal-leaved examples of the same species.

Another objection made by Rogers is that Genevier gives the stalk of the terminal leaflet as nearly one-third of the length of the leaflet, instead of one-half of the length. Rogers does not seem to have consulted the second edition of Genevier's book, which gives "foliole terminale à pétiole égalant la 1/2 de sa hauteur;" but the point ceases to be of any importance if it is remembered that Mueller was describing a specimen sent by Lefèvre, and that in the bramble in question the terminal petiolule varies from one-third to the whole length of the terminal leaflet. Also Genevier is not the author of the species, and his herbarium shows that his bramble is not the same as that of Lefèvre.

Our plant agrees exactly with Letendre's specimen, vouched for by Lefèvre, and also with the excellent plate of *R. cardiophyllus* given by Sudre. We must accordingly adopt that name.

PLATE 447.—*Rubus discolor*. The styles are shown green in Syme. In the original plate they are red, as is constantly the case in the British plant, except in the white-flowered form. The sepals should be pallid white, inside and out, not green. The earliest name must be adopted, viz. *R. ulmifolius* Schott fil. in *Isis* (1818), 821.

PLATE 448.—*Rubus leucostachys* Smith. Name correct, and the original plate correct. The filaments are always pink, but in some issues they are not so shown. The sharp-angled stem, the rather short stem prickles, the light red prickles of the inflorescence, the incised and ovate or obovate terminal leaflets, all prove that this bramble is different from *R. vestitus* Wh. (figured in *B.E.C. 1928 Rep.*, but better in Sudre's book).

The specimen drawn on Plate 448 was gathered by Borrer at Henfield, and was evidently the same as others which he sent from that place to Smith with a description which the latter used in *Engl. Flora*. Smith treated Borrer's specimens as his type, comparing with them specimens that he had also received from E. Forster and Bicheno. Their specimens are still in Hb. Smith and are likewise *R. leucostachys*, not *R. vestitus*. On one sheet of Borrer's specimens Smith has added "Engl. Flora v. 2, 403," as if indicating that as his type.

Smith's *R. rhamnifolius* b. *cordifolius* received from E. Forster, who obtained it in a wood adjoining his fields at Hale End, Walthamstow, is a shade form of *R. vestitus*. Bicheno knew the plant well as *R.*

*cordifolius*, and informed Smith that it was frequent in the woods of the south. *R. vestitus* was thus distinguished by Smith and his contemporaries from *R. leucostachys*. It was not until 1829 when Borrer cut a specimen from a coarsely grown bush of *R. vestitus* in the garden of the Horticultural Society, and labelled it in his herbarium "possibly *R. vestitus* W. & N.'s specimen, but I rather think it *R. leucostachys*," that the confusion began which was to end finally in the complete eclipse of *R. leucostachys* in *R. vestitus*.

*R. leucostachys* is a frequent bramble in W. Kent, Surrey, W. Sussex, E. Sussex, Berks., N. Hants., Bucks. and S. Essex. It occurs in the north of France also.

PLATE 449.—This is not correctly determined as *Rubus Grabowskii*. The drawing of the fruit shows that the plant was semi-infertile. The specimen came from Henfield, and in Hb. Babington and Hb. Borrer are several specimens collected there by Borrer. They are, in my opinion, *R. leucostachys* Smith × *R. mutabilis* Genev., var. *Naldretti* White.

The petiolules and filaments are an intense red in the original plate, but are shown respectively green and yellow in later issues.

PLATE 450.—This is *Rubus macrophyllus* of Lees but not of Weihe, as is shown by the small and stout prickles and the white flowers. The sepals are again too green, and hairs should have been shown on the green carpels. Rogers distinguished this from *R. macrophyllus*, making it a variety of *R. pubescens* and placing it in the group *Discolores*. It is, however, a forest bramble, and goes better in the *Silvatici* as an independent species. As such the correct name for it is *Rubus subinermoides* W. Wats., *B.E.C. 1928 Rep.*, 859, 1929.

PLATE 451.—This and the next were new plates drawn for Syme's book. Both plants grew at Twycross, and the specimens were apparently provided by Bloxam, whose help is acknowledged by Syme.

There is an earlier *Rubus mucronulatus* as well as a *Rubus mucronatus*, under which name Bloxam first described the plant. It has accordingly been renamed *R. mucronifer* by Sudre, and it must now be called by that name.

PLATE 452.—Not *Rubus Radula*, but *R. radulicaulis* Sudre. There is a description of it in the Handbook under the name of *R. radula* Wh. subsp. *sertiflorus* (P.J.M.)? The petals in the plate are of too pale a pink and the sepals are too green. The stamens are shown white instead of rose pink. For all this the habit of the plant is accurately conveyed.

PLATE 453.—Not *Rubus Koehleri*, but *R. mutabilis* Genev., var. *Naldretti* J. W. White.

Borrer sent two specimens of this bramble to Smith in December 1823 from Henfield, W. Sussex, with a description as *Rubus glandulosus* Schleich. for inclusion in *English Flora*. The specimens are in Hb. Smith. On the original plate of *English Botany Supplement* the name is *Rubus glandulosus*, but Borrer changed the identification to *R. Koehleri* when he found *R. Bellardi* in Yorkshire: see the next number.

In some issues of Syme the petals are white, but they should be pink, and are so in the original plate. The sepals are again too green.

PLATE 454.—The name *Rubus glandulosus* Bell. was at one time generally supposed to have been intended for this bramble, but this has since proved to be a mistake, and the name has had to give way to *R. Bellardi* Whe. The axes are coloured too bright a red; they should be a dull brown. The lowest branch bearing a ripe fruit when the primary flower of the panicle has only just unclosed seems impossible.

PLATE 455.—*Rubus corylifolius* Smith. Correct.

PLATE 456.—*Rubus caesius* Linn. Correct, except that the flowers should be quite white and the fruit glaucous. I think this is the variety *hispidus* Bab.

# THE IRISH MARSH ORCHIDS.

PATRICK M. HALL, F.L.S.

[NOTE ON NOMENCLATURE.—In this paper the name *O. latifolia* L. is used following Pugsley, *Journ. Linn. Soc., Bot., 49*, No. 332, p. 553-592 (1935), i.e. = *O. incarnata* auct. *non* L., see *B.E.C. 1935 Rep.*, 114-8 and 145-6 (1936). For the two sub-species of *O. maculata* L. agg., the names *O. maculata* L. and *O. elodes* Griseb. are used in order to avoid confusion, since reference is made to papers by Messrs Pugsley and Wilmott, in which these two names are used. It is perhaps also necessary to point out that "Britain" connotes the British Isles excluding Ireland.]

## INTRODUCTION.

The importance attaching to Mr Pugsley's explanation of the true significance of the name *O. latifolia* L. (*loc. cit. supra*) had the effect of overshadowing another matter of exceptional interest in the same paper. I refer to his discovery of *O. majalis* Reichb., var. *occidentalis* "var. nov." in Counties Clare and Galway. Interest was still further stimulated when, on April 2nd, 1936, Mr Pugsley and Mr Wilmott in turn addressed the Linnean Society on the subject of "New British Marsh Orchids," see *Proc. Linn. Soc.*, Session 148, 121-130 (1936). In the course of their respective papers, Mr Pugsley proposed to change the rank of his *occidentalis* from variety to sub-species, and described a second new sub-species *Traunsteinerioides* of *O. majalis* from Co. Wicklow, while Mr Wilmott described *O. kerryensis* "sp. nov." from Dingle, Co. Kerry, a putative hybrid of the latter with one of the sub-species of *O. maculata* agg., probably *elodes*, under the name ×*O. dinglensis*, and also described *O. Francis-Drucei* "sp. nov." from West Ross, Scotland.

It was difficult to believe that there existed in Ireland three Marsh Orchids, of whatever rank, at once distinct from one another and from all known British forms, all related to a Continental species not previously recognised as British, and all overlooked in the past by native Irish and visiting British botanists. But a study of the available documentary evidence in the form of dried material, drawings and photographs seemed to indicate that such was indeed the case.

As this opened up such a wide field for research, Mr N. Douglas Simpson and I decided to spend a fortnight in Ireland in May 1936 with the primary objectives of investigating the Marsh Orchids of the West Coast and of County Wicklow, and of making an adequate collection of material for the Herbarium of the British Museum.

## THE DATA.

The following information was available at the commencement of the inquiry, but it must be remembered that Pugsley's and Wilmott's papers read on April 2nd were not published in print until August 26th, 1936.

Pugsley had recently described *O. majalis* Reichb., var. *occidentalis* [*loc. cit.* (1935) 586], the grade of which was subsequently raised to sub-species. This was described as follows:—" Tubers deeply palmate, with two or more elongate segments. *Stem* 10-20 (rarely -30) cm. high. *Leaves spreading and mostly arcuate-recurved, rather broadly lanceolate*, the upper distinctly dilated above the base, usually heavily spotted with brown. *Spike short and dense-flowered.* Flowers dark purple; lip 7-8 mm. long, 9-10 mm. broad, with broad, rounded or bluntly angled side lobes, and a much narrower but obtuse central lobe generally not exceeding them in length, variegated with irregular darker lines and spots; spur cylindrical, nearly as long as the ovary," and was said to differ from the typical species " in its dwarfer habit, shorter, broader, and recurved leaves, and short dense spike of dark flowers, with a short central lobe to the lip." It was described from specimens collected between May 16th and 20th, 1933, from five localities in Clare and S.E. Galway, viz.:—Lisdoonvarna (type-locality), Ardrahan, Gort, L. Bunny, and Poulsallagh.

*Orchis kerryensis* was described by Wilmott [*loc. cit.* (1936) 126] as having all leaves quite unspotted and a spike of large pinkish mauve flowers recalling the colour of *Geranium pyrenaicum* and " Labellum nearly flat with concave sides; the lamina (c. 8 mm. broad) broader than long (or including the somewhat exserted middle lobe about as long as broad), transversely sub-oblong obcordate, slightly crenate or subentire, the median lobe sub-rhombic-orbicular or sometimes more acutely pointed; except at the whitish base pinkish mauve, with numerous brilliant deeper spots which generally almost unite into a definite line about the middle of each side. Spur comparatively slender (c. 7 mm. long and except for the expanded mouth c. 1 mm. broad), much shorter than the long ovary." This plant was described as a new species from a small colony found on June 23rd, 1934, near Dingle, Kerry, all of which were uniform except for two plants, one of which had spotted leaves and was put down as a hybrid with some form of *O. maculata* or *O. elodes*. In emphasising the differences between his new species and other British species, it is to be noted that Wilmott says:—" Mr Pugsley would probably place the plant as a sub-species of *O. majalis* Reichb. . . . " while Pugsley [*loc. cit.* (1936) 122] mentions having seen this plant with Dr Praeger at Kenmare and Cloghane on June 19th and 21st, 1934, respectively, referring to it in the following terms: " . . . somewhat resembles var. *occidentalis* Pugsl. in habit and the form of the labellum, but its foliage is normally unspotted and the flowers are of a lighter purple, with the lip conspicuously spotted rather than variegated."

It was clear, therefore, that the authors of these two forms realised that they were related, and it appeared that while *occidentalis* had its leaves usually heavily spotted and a variegated lip-pattern, *kerryensis* was to be distinguished by its unspotted foliage and broad labellum with a pattern of dots. The plate accompanying the description of *kerryensis* portrays a stout plant with broad unspotted leaves and a dense spike of

flowers having broad labella with a pattern of dots upon a light background.

*O. Francis-Drucei* Wilmott is shown upon the same plate and although it is described from Scottish specimens, reference must be made to it here. This species is described (*loc. cit.*, 128) as having a slender stem 11-13 cm. high, 4 narrow unspotted leaves and a lax spike of 5-8 flowers only, which have subdeltoid-obtriangular labella, with a long, projecting, narrowly triangular middle lobe about two-thirds the length of the lamina. The labellum has intense reddish purple markings on a white ground and the characters of the plant are well displayed by the plate. Resemblances with, as well as differences from, *O. Traunsteineri* Saut. are indicated.

*O. Traunsteinerioides* was described by Pugsley as a sub-species of *O. majalis* Reichb. [*loc. cit.* (1936) 124] and was illustrated in the accompanying Plate 2. Distinguishing characters are that the stem is flexuous, the leaves are linear-oblong and (except the uppermost) obtuse, sometimes marked with small, ± transverse, brown spots, sometimes unspotted, the flowers are bright purple and the labellum subdeltoid, cuneate at the base, more or less flat but ultimately reflexed at the sides, slightly 3-lobed with ± triangular, obtuse or angled, lateral lobes and a much narrower midlobe which is obtuse and often not longer than the side lobes. This species was described from two localities in Co. Wicklow and though having features in common with *O. Traunsteineri* Saut. is considered to be distinct from that species and placed under *O. majalis* Reichb.

The publication of *O. majalis* Reichb., var. *occidentalis* Pugsl. was anticipated in Dr R. Ll. Praeger's indispensable book " The Botanist in Ireland " (1934), and in his Census List (p. 527) *O. majalis* Reichb. is credited to four vice-counties, Limerick, Clare, S.E. Galway and Wicklow, while *O. purpurella* Steph. also appears in the list from seven vice-counties, Wexford, Wicklow, Dublin, W. Mayo, Sligo, Down and Antrim, with the note " ? Frequent." The general index shows no references in the text to *O. purpurella*, but reference is made to the occurrence of *O. majalis* in Wicklow (§ 275) and in West Limerick, " on the hills " (§332), while in writing of the Central Clare limestones (§344) Praeger says, " *Orchis majalis* is frequent in the form *occidentalis*, extending into Burren and the shale country at Lisdoonvarna."

In §410 Praeger says " Botanists visiting Mallaranny should watch for *Orchis Traunsteineri*, which E. S. Marshall believed he saw there." Marshall's exsiccata No. 2305 from Mallaranny, now in Herb. Mus. Brit., were named by him *O. latifolia*, var. *brevifolia*.

Druce's " Comital Flora " (1932) mentioned no Irish record of *O. purpurella*, but recorded *O. praetermissa* Dr. as an Irish plant from five vice-counties, West Cork, Clare, West Galway, Dublin and East Donegal. It is also to be noted that under " *O. latifolia* L.," which represents the plant now known as *O. pardalina* Pugsl., this entry appears:—" [H-1-3, 6, 8, 12, 16, 17, 23, 26-28, 32, 39]. All errors; these are mostly *praetermissa*."

"Scully's "Flora of County Kerry" (1916) gives practically no detailed information about the Marsh Orchids, but "*O. latifolia* Linn." is said to be common, often abundant in wet meadows and pastures, damp places in sandhills, etc., and to flower from May to July. The following paragraph on p. 279 may be significant:—"When this and the preceding plant ("*O. incarnata* Linn.") grow together, as they sometimes do abundantly, intermediate forms have been gathered which could not be referred definitely to either species. Mr Marshall, who noticed similar forms about Castlegregory, etc., has suggested a hybrid origin for these plants."

The information, therefore, which was available to us at the outset, was only sufficient to show that the Irish Marsh Orchids presented a considerable number of problems to be solved. Apart altogether from *O. latifolia* L., which was known to be generally distributed in Ireland, five other species or subspecies had been named as growing in Ireland. How many of these were distinct (a) from one another (b) from other British species? Were *O. purpurella* and *O. praetermissa* correctly recorded as Irish species or not?

It appeared likely that the Marsh Orchids in question were of sporadic occurrence and might be difficult to find: therefore detailed directions, which we gratefully acknowledge, were obtained from Messrs. Pugsley and Wilmott, and for the Wicklow orchid from Mr J. P. Brunker of Dublin. Directions for the latter proved to be indispensable, but in the West of Ireland the result exceeded our most sanguine expectations, since we saw and collected Marsh Orchids in varying numbers, from Three Castles Head, West Cork to Achill Island, West Mayo, on each of the ten days, May 17th-26th inclusive.

Although the observations made and the material collected were both considerable, I do not think that it is possible to base categorical decisions of the questions involved on the data obtained from a single short expedition, but I propose to set out the data in some detail and record the impressions formed, as a starting point for further investigation.

### ITINERARY.

It may be worth while to set out the actual route followed, for the benefit of others who may pursue this study, since it will enable them either to follow the same route in other years and at other times of the year, or to break fresh ground.

1936.

May 15-17—Dublin to Cork.

,, 17—Cork — Skibbereen — Baltimore — Skibbereen — Three Castles Head — Bantry — Glengariff.

,, 18—Glengariff — Adrigole — Cloonee L. — Kenmare — Parknasilla — Castle Cove — Derrynane—Waterville.

,, 19—Waterville — Ballaghisheen Pass — Bealalaw Bridge — Beaufort — Killarney.

,, 20—Killarney — Castlemaine — Inch — Dingle.

May 21—Dingle — Ballybrack — Brandon Mountain — Dingle — Connor Hill Pass — Cloghane.
,, 22—Cloghane — Mullaghveale — L. Gill — Tralee — Abbeyfeale — Newcastle — Limerick — Ennis.
,, 23—Ennis — Ennistymon — Lisdoonvarna — Poulsallagh — Black Head — Ballyvaghan — Kilfenora — Ennis.
,, 24—Ennis — L. Skaghard — Garryland — Gort — Kinvarra — Galway.
,, 25—Galway — Recess — Roundstone — Bunowen — Clifden — Renvyle — Leenane — Westport.
,, 26—Westport — Newport — Mallaranny — Achill I. — Newport — Pontoon — Swineford — Roscommon.
,, 27—Roscommon — Lanesborough — Termondbury — Longford — Mullingar — Dublin — Enniskerry — Glendalough.
,, 28—Glendalough — Lugnaquilla — Glendalough — Dublin.

It is to be remembered that in Ireland, as in England, the spring of 1936 was exceptionally cold. Heavy snow fell on the Wicklow Mountains in April, and Mr Brunker advised us to leave the Wicklow orchid as late as possible. The lateness of the season may have had a two-fold result—i, in retarding the orchids; ii, in retarding other vegetation. In my experience the Orchidaceae are little influenced in the date of flowering by phenological factors and it is therefore probable that grasses, etc., were more backward than the Orchids, which were consequently more than usually conspicuous. We found that the Irish Marsh Orchids were remarkably conspicuous and could easily be seen in meadows adjoining the road by a passenger in a motor car travelling at considerable speed. The colonies observed and set out in the Table represent a very high proportion of those visible from the roads followed at that time of this particular year.

## NARRATIVE.

### WEST OF IRELAND.

A Table of Observations is appended, setting forth the details of the localities in which Marsh Orchids were observed and some of the principal characteristics of the plants examined in each locality. It will be seen that Marsh Orchids were observed in 32 distinct localities, but in some of those cases, where Marsh Orchids were observed but not collected, the word " locality " is used loosely and in such " localities " several distinct colonies were seen in one neighbourhood, see, for instance, under " Cloghane district." Twenty-two separate gatherings were made by myself and fifteen by Mr Simpson, in 21 localities. Covering such a great distance in such a short time, it was not possible for us to make such detailed examinations in the field as is desirable, but several gatherings were sent in a fresh state to the British Museum, where Mr Wilmott photographed them and made detailed notes upon the individual specimens. By tabulating the information obtained in

this manner, it has been possible to supplement the notes made and impressions formed in the field.

The first Orchids were encountered quite unexpectedly on May 17th. As we were leaving the nearest point to Three Castles Head, in the extreme S.W. of Cork, to which we had been able to get the car, a splash of purple was seen at the foot of the turf wall bounding the road. This proved to be a Marsh Orchid and subsequently 4 other specimens were found on damp heathy ground nearby. This was an exposed spot and the plants were in bud with the lowest flowers only open. Four of the plants had unspotted leaves and dotted labella, while one had a few spots on the leaves. At first glance these Orchids reminded me very much of *O. praetermissa*, but although we did not expect to see any *kerryensis* until we reached Kenmare or Dingle, we realised that this must be *kerryensis*, and attributed the spotted-leaved plant to hybridization with *O. elodes*, which was growing plentifully on the other side of the valley a few hundred yards away. On May 18th our starting point was Glengariff, and between that place and our destination, Waterville, we saw and collected from four separate colonies of Orchids, in addition to several colonies seen in the neighbourhood of Derrynane. In contrast to those seen the previous day, the plants seen on this day exhibited a great range of variation. Although plants were seen in each of the localities which agreed with the description of *kerryensis*, they formed a very small minority, and many plants were seen which only differed from one another in some having unspotted leaves and others leaves spotted in various manners and degrees, so that it did not appear that the leaf-spotting could be accounted for by hybridization. Moreover, only in one of these localities, Glenhazel, West of Kenmare, were any other Dactylorchids seen. Here *O. elodes* was present in good flower, and plants were also seen of another Orchid, impossible to determine, with heavily spotted leaves, which may have been *maculata*, *pardalina*, or a hybrid. At Cloonee Lough, where the range of variation was very great, and elsewhere, no other species was seen, although the terrain was favourable to *elodes* and that species would have been in flower, if present. The morning of May 19th was spent very largely in travelling from Waterville to Killarney, and the afternoon on the shores of the Lower Lake and at the gap of Dunloe. Only one colony was seen in the morning, near Bealalaw Bridge over the Caragh River, not far from Glencar; this showed the same range of variation as had been seen the day before; no Marsh Orchids were seen in the afternoon. On the next day a very large and luxuriant colony was found near Muckross, the only colony seen by us in the neighbourhood of Killarney. In this colony we found for the first time no specimens agreeing exactly with *kerryensis*. It had naturally been our expectation to see in Kerry plants agreeing with *kerryensis*, and we did not expect to see *occidentalis* until we reached Limerick, Clare and Galway. I think it was about now that we first began to suspect that *kerryensis* and *occidentalis*, if not absolutely identical, were probably only extreme forms of one very variable

species. In the Muckross colony were two specimens with flowers of the palest rose-pink.

The next colony seen on May 20th was near Castlemaine, and as will be seen from the Table this was very large and variable. In this locality, which was a marshy meadow, there were a considerable number of plants with pale labella with the side lobes very much reflexed. It was thought at the time that this might be due to hybridization with *O. latifolia*, but that species was not seen in the locality. One of the most remarkable and unexpected results of our excursion was that in all the localities visited we did not see a single specimen of *latifolia*, although that species is known to be generally distributed in Ireland. Mr Pugsley, for instance, tells me that *latifolia* was abundant in June 1934 about Cloghane, where we saw no sign of it. It may be that it was not yet in flower; if that is so, it is remarkable that this species should not be sufficiently forward in S.W. Ireland to be visible at a date, when one can find it in good flower in Hampshire and Dorset. To return to the reflexing of the side-lobes we subsequently found that the labellum of *occidentalis* commonly had very wide sinuses between the mid-lobe and the side-lobes, which tend to produce reflexing of the latter.

A colony near Inch showed the same range of variation, which we had now come to expect. On reaching Dingle that evening, we paid a visit to the type locality for *kerryensis*, thereby arousing considerable interest among the local population, especially the postmaster. This locality was somewhat different to any in which we had yet seen Marsh Orchids growing, being a very low-lying wet marshy meadow, much overgrown with *Iris Pseudacorus* and rushes. Very few Orchids were to be seen here and of them nearly all agreed with the description of *kerryensis*. One specimen had spotted leaves and a labellum untypical for *kerryensis* but of a type common in *occidentalis*. Another had spotted leaves and was in other respects *occidentalis*. *O. elodes* was growing in the same field, and there were also one or two plants, not yet in flower, of a Dactylorchid with blotched leaves similar to that previously seen at Glenhazel. It was, therefore, easy to see that, examining Marsh Orchids in this one locality only, Wilmott might well suppose that the type of the species was a plant with unspotted leaves and a pale dotted labellum, and that one spotted-leaved plant a hybrid with *elodes*. Between the type-locality for *kerryensis* and the town of Dingle, a few scattered Orchids were seen; these all appeared to be *occidentalis*.

On May 21st and 22nd Marsh Orchids were found to be very plentiful about Cloghane, on the north side of the Dingle peninsula. No specimens were found which agreed exactly with *kerryensis*. There were, however, especially in one locality on the road to Mullaghveale, a large number of very small few- and lax-flowered plants with markedly deltoid labella with projecting mid-lobes, similar to those noted at Castlemaine. Except for the fact that these were purple-flowered and *O. Francis-Drucei* has flowers with vivid crimson markings on a white

background, it would have been possible to pick out many specimens approximating to the description of *Francis-Drucei* and agreeing with that species in general configuration, habit and shape of labellum. In this locality also *elodes* was flowering abundantly and several specimens were confidently determined when fresh as hybrids.

During the afternoon of May 22nd we travelled from Cloghane to Ennis, passing en route through Newcastle West and Limerick. Marsh Orchids were seen in several localities about Castlegregory (one of the localities mentioned by Scully) and these were undoubtedly similar to those seen about Cloghane, and therefore *occidentalis*. Another colony was also examined between Castleisland and Abbeyfeale in a habitat different to any so far seen, a wet *Molinia*-moor. We were very anxious to find Marsh Orchids in the neighbourhood of Newcastle West, as this was one of the localities mentioned by Praeger for *majalis*. It was hereabouts that we originally expected to begin to get *occidentalis* and so we were anxious to see whether the Newcastle plants differed from those we had been seeing during the last few days. With great difficulty we succeeded in finding three plants; two had unspotted, and one spotted, leaves; all had labella characteristic of *occidentalis*. So the same kind of variation in leaf-marking existed here as we had found further south. A little beyond Limerick we found the most uniform colony yet seen. These Orchids had rather narrow leaves, unspotted or in a few cases only faintly spotted. The flowers were of a rather pale shade of purple reminding me very much of *praetermissa*. But several had labella characteristic of *occidentalis* and doubtless they are a form of that species.

May 23rd was spent in the Burren. Between Ennis and Ennistymon, about Inagh, Marsh Orchids were seen in abundance in every suitable meadow. The degree of variation in leaf-marking was very great and similar to that seen further south, as for example at Cloghane, Muckross or Glenhazel. There were no specimens agreeing entirely with *kerryensis*, in fact, only one such was seen north of Dingle. There were a few plants of a somewhat intermediate nature like those seen near Limerick, but all these Inagh plants clearly belonged to *occidentalis*, since exactly the same range was seen shortly afterwards when we reached Lisdoonvarna. Here, if we did not actually visit the type-locality for *occidentalis*, we must at least have been very close to it and there can be no doubt that the plants we examined were *occidentalis*. They were very luxuriant and exhibited every variation in leaf-marking as well as many plants with unspotted leaves. Three plants were seen with pale pink flowers as at Muckross. At Poulsallagh, another of Pugsley's localities for *occidentalis*, plants were again found with unspotted and with spotted leaves, and one specimen agreeing with *kerryensis*.

On May 24th, in contrast to the preceding days, only a single Marsh Orchid was seen, on the limestone shores of L. Skaghard, Co. Clare, and no Marsh Orchids were seen in the small portion of S.E. Galway, which we traversed. On May 25th, however, in Connemara, *occidentalis* was

seen in considerable numbers at Ballinafad, near Recess; a single specimen was seen at Roundstone and 2 or 3 more numerous colonies in the vicinity of Clifden. The greater part of the next day, May 26th, was spent in West Mayo. Marsh Orchids were seen plentifully about Newport, again a little west of Mallaranny (Marshall's locality for *Traunsteineri*), abundantly all along the eastern side of the Curraun peninsula between Mallaranny and Achill, and one small colony only actually on Achill Island. All these were without doubt *occidentalis*, but they were more uniform than the plants of Clare, many of them having narrow leaves, and showing a higher proportion of plants with spotted leaves, plants with unspotted leaves being almost entirely absent. The last colony of what the postmaster of Dingle called "Arrchid" seen by us in the west of Ireland was 1½ miles north-east of Beltra on the way from Newport to L. Conn.

### WICKLOW.

*O. majalis* Reichb., sub-sp. *Traunsteinerioides* Pugsl. is known from only two localities in Co. Wicklow, Newcastle (the type-locality) and Ballyman Glen. Mr Brunker was unfortunately unable to accompany us and advised us not to visit the former locality alone on account of the dangerous nature of the marsh. This advice we took, but subsequently regretted very much that we had omitted to visit the type-locality. We visited the other locality in the afternoon of May 27th, and found a very uniform colony, not counted but estimated to contain 60-70 plants, clearly related to the Orchids which we had seen in the west, but also certainly distinct from them. Although this sub-species is described as having the labellum slightly 3-lobed with the mid-lobe often no longer than the side lobes, Pugsley points out (*loc. cit.*, 123-3) that some of the specimens from Ballyman Glen had the central lobe exceeding the side-lobes. We found this to be the case; many of the plants had labella of the deltoid (*Francis-Drucei*-like) form seen so often in *occidentalis* with the protruding mid-lobe sometimes even more pronounced. As compared with the western Orchids this form was found to be distinguishable by its slender habit with narrow linear-lanceolate leaves, contrasting with the squat habit and broad leaves of typical *occidentalis*. The leaves were uniformly marked with rather small spots (very few plants had transverse spots as shown in the plant illustrated in Pugsley's plate), in a few plants the spots were very few and faint, and in the case of one plant only there appeared to be no spots. The leaves of the Ballyman Glen plants were also less obtuse than is shown in Pugsley's plate. The plants were rather lax-flowered and the flowers of a distinctly brighter purple than *occidentalis* (the colour suggesting *Orchis mascula*), with the upper part of the stem and the bracts more or less suffused with purple also.

### TABLE OF OBSERVATIONS.

*Note.*—n.c. = not collected. P.M.H.'s reference numbers above. N.D.S.'s reference numbers below (all commencing with 36).

| Date. | Locality. | Vice-County. | Reference Numbers. | Frequency. | Notes. |
|---|---|---|---|---|---|
| 17/5/36. | Near Three Castles Head. | W. Cork. | 1630. 36.625-6. | Very scarce. | Only 5 specimens seen: 4 had unspotted leaves, wide labellum with dot pattern of *kerryensis*: 1 (36.625) had a few small spots at the base of the leaves, and narrower labellum with prominent mid-lobe. |
| 18/5/36. | Rushy meadow 1½ miles east of Adrigole. | W. Cork. | 1642. 36.637. | Plentiful. | Plants collected had unspotted and spotted leaves in equal proportions. Leaf markings included rings breaking into groups of dots, heavy blotches, few spots, bars and rings. Shape and marking of labellum variable. One plant 1642/3 had wide labellum and dot pattern of *kerryensis* with unspotted leaves. Two plants with unspotted leaves had *occidentalis* labellum, 1642/7 and 8. 1642/1 and 2 are *occidentalis*. |
| 18/5/36. | Cloonee L. Meadows between road and N. shore of Lough. | S. Kerry. | 1641. 36.636. | Very plentiful. | The majority of plants collected had unspotted leaves. One specimen 1641/4 agrees with *kerryensis*, 36.636a is similar but the dot pattern of the labellum is enclosed by a continuous line. Leaf markings included few dots, large ringed blotches, hollow blotches. *Occidentalis* labellum occurred with unspotted leaves. |
| 18/5/36. | Meadow near Glenhazel, 5 miles west of Kenmare. | S. Kerry. | 1639. 36.628. | Plentiful. | All kinds of variation in leaf markings. All spotted-leaved plants had *occidentalis* labella. Two plants with unspotted leaves, 1639/1a and b, had pale labella with dot pattern of *kerryensis* but approaching *occidentalis* in shape. Two others, 1639/2a and b, were similar but the labella were darker and the pattern consisted of dots and lines. |

| Date. | Locality. | Vice-County | Reference Numbers. | Frequency. | Notes. |
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| 18/5/36. | Meadow, Castle Cove. | S. Kerry. | 1638. | Very sparing. | Two plants only collected, both with unspotted leaves. One (1638b) near *kerryensis*, cf. 1639/1a and b. The other (1638a) similar to 1639/2a and b. |
| 18/5/36. | Derrynane. | S. Kerry. | n.c. | Frequent. | Observed in several meadows about Derrynane and in damp hollows on Abbey Island in considerable quantity. |
| 19/5/36. | Meadow near left bank of Caragh R. near Bealalaw Bridge. | S. Kerry. | 1643. 36.645. | Plentiful. | Considerable variation in marking of leaves: unspotted, dots, blotches and rings. Some pale flowers, but all with one possible exception had labellum shaped like *occidentalis*. |
| 20/5/36. | Meadow near Muckross, S. of Killarney. | N. Kerry. | 1670. 36.655. | Very plentiful. | A large and variable colony. Leaves unspotted, dots and blotches. Majority of plants had labella of *occidentalis*. A few with unspotted leaves had some dots among lip-pattern, but none agreed exactly with *kerryensis*. Two with unspotted leaves and labella of *occidentalis* shape had pale rose-pink flowers, cf. Ref. No. 1750, Lisdoonvarna. |
| 20/5/36. | Marshy meadow ¼ mile west of Castlemaine. | N. Kerry. | 1674. 36.656. | Abundant. | A very large and variable colony, with every kind of leaf-marking and labellum-shape. Tall plants up to 28 cm., small lax-flowered plants only 10 cm. One plant with unspotted leaves had broad labellum with strong line pattern. 1674/5 had leaves marked with dots and bars, labellum with loop and dot pattern. 1674B $\beta\beta$ had leaves peppered with very small dots, labellum pale and with dot pattern but *occidentalis* shape. 1674C was a |

| Date. | Locality. | Vice-County. | Reference Numbers. | Frequency. | Notes. |
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| | | | | | very stout plant with broad leaves with numerous large dark spots, labellum broad and very serrated at the margins. Large blotches and ringed spots also occurred. |
| 20/5/36. | 3 miles E. of Inch. | S. Kerry (Dingle Penin.). | 1675. | Plentiful. | This gathering was sent to Dr W. A. Sledge who dried it by the sulphurous acid method. This took out all the leaf-markings and left the flowers too vivid a colour, but Dr Sledge made notes and drawings. Leaves unspotted, thickly dotted, ring spotted or very heavily blotched. All labella of *occidentalis* shape, several with loop pattern. |
| 20/5/36. | Marshy meadow at Milltown, near Dingle. | S. Kerry (Dingle Penin.). | 1676. 36.653. | Scarce. | This gathering was from the type-locality for *O. kerryensis*. Few plants were seen: the majority had unspotted leaves and labella like *kerryensis*; one had unspotted leaves and labellum approaching *occidentalis*; one had spotted leaves and otherwise agreed with *occidentalis*. |
| 20/5/36. | Meadows between Milltown and Dingle. | S. Kerry (Dingle Penin.). | n.c. | Scarce. | No plants were seen definitely agreeing with *kerryensis*; usual variation in leaf-markings. |
| 21/5/36. | Meadows near Ballybrack, S.W. of Brandon Mountain. | S. Kerry (Dingle Penin.). | n.c. | Scarce. | Not examined. |
| 21/5/36. | Meadow near Kilmore Lodge, Cloghane. | S. Kerry (Dingle Penin.). | 1698. 36.660. | Abundant. | Nearly all *occidentalis*, a few of the plants with unspotted leaves had labella of intermediate shape, no *kerryensis*. Complete range of variation in leaf-markings. |

| Date. | Locality. | Vice-County. | Reference Numbers. | Frequency. | Notes. |
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| 22/5/36. | Marshy meadow by road between Cloghane and Mullaghveale. | S. Kerry (Dingle Penin.). | 1699. 36.678. | Abundant. | Similar range of variation to last but there were a considerable number of small, few-flowered plants, cf. *O. Francis-Drucei* for habit and shape of labellum (36.678). |
| 22/5/36. | Marshy meadow by road between Cloghane and Mullaghveale. | S. Kerry (Dingle Penin.). | 1701. 36.669. | — | *O. elodes* was growing abundantly with the last gathering. There were also several plants with flowers more highly-coloured and with faintly-spotted leaves, resembling those of a Marsh Orchid in breadth and number, which were presumed to be hybrids between *elodes* and *occidentalis*. |
| 22/5/36. | Cloghane district. | S. Kerry (Dingle Penin.). | n.c. | Very generally distributed in meadows. | Noted, but not collected, at the following places:—Mullaghveale (450 feet); 1 m. N. of Cloghane; several places about Cappagh and thence to the end of the road at Brandon; Boherboy, 1 m. S. of Cloghane and thence east to the Scorid River. |
| 22/5/36. | Castlegregory district. | S. Kerry (Dingle Penin.). | n.c. | Probably frequent. | Seen, but not collected, at the following places:—Marshes west of lane at W. end of L. Gill; S. side of road to Tralee W. of Owennamallaght R.; N. of road in 2 or 3 places W. of Deelis Station. |
| 22/5/36. | About 7 miles from Castle Island towards Abbeyfeale. | N. Kerry. | 1681. | Plentiful. | One plant approaching *kerryensis*; leaves spotted and unspotted; majority approaching *occidentalis*. |
| 22/5/36. | 1 mile from Newcastle West towards Limerick. | Limerick. | 1683. | Very scarce. | Only three plants seen; all resembled *occidentalis*; two had unspotted leaves. |

| Date. | Locality. | Vice-County. | Reference Numbers. | Frequency. | Notes. |
|---|---|---|---|---|---|
| 22/5/36. | 2½ miles N. of Limerick on road to Ennis. | Limerick (? Clare). | 1702. 36.670. | Rather scarce. | A very uniform colony, with rather narrow unspotted or faintly spotted leaves. Of eleven plants collected, 8 had unspotted leaves. The flowers were of rather a pale colour reminiscent of *O. praetermissa*. Some of the labella were wide as in *kerryensis*, but the photo of 1702/3 and 5 in Herb. Mus. Brit. shows that this gathering should be placed under *occidentalis*. |
| 23/5/36. | In meadows, near Inagh, between Ennis and Ennistymon. | Clare. | 1749. 36.682. | Very abundant. | A large gathering was made which showed a very wide range of variation in leaf-marking. Nearly all the labella were of definite *occidentalis* character but a few resembled 1702. In some cases (e.g., 1749/10 and 4) the labella were marked with blotches and streaks rather than lines and dots. |
| 23/5/36. | Meadow ½ mile S.W. of Lisdoonvarna. | Clare. | 1750. 36.683. | Very luxuriant and plentiful. | Very wide range of variation in leaf-marking. Labella nearly all *occidentalis*, but two plants with unspotted leaves had labella resembling 1702. Another plant (1750/3) with unspotted leaves had a labellum with strong loop pattern. Three plants with very pale rose-pink flowers occurred here, cf. Muckross (1670), and see photo of 1750/5 in Herb. Mus. Brit. |
| 23/5/36. | Roadside at Poulsallagh. | Clare. | 1751. 36.713. | Scarce. | Leaves were unspotted or were marked with blotches. Labella marked with loops and dots. One specimen (36.713) had labellum exactly matching *kerryensis*. |
| 24/5/36. | L. Skaghard. | Clare. | n.c. | Very scarce. | A single specimen only on the shore of the Lough. |

| Date. | Locality. | Vice-County. | Reference Numbers. | Frequency. | Notes. |
|---|---|---|---|---|---|
| 25/5/36. | Wet meadow at Ballinafad near Recess. | West Galway. | 1763. | Plentiful. | Usual range of variation. |
| 25/5/36. | Cregduff L., Roundstone. | West Galway. | n.c. | Very scarce. | A single plant in heathy ground above the Lough. |
| 25/5/36. | Clifden. | West Galway. | n.c. | — | Seen in 2 or 3 localities N. and S. of Clifden, not examined. |
| 26/5/36. | 2½ miles S. of Newport. | West Mayo. | 1786. | Plentiful. | All plants in this locality had spotted leaves. |
| 26/5/36. | 1 mile W. of Mallaranny. | West Mayo. | 1787. 36.751. | Fairly plentiful. | All plants in this locality had spotted leaves. |
| 26/5/36. | Between Mallaranny and Achill. | West Mayo. | n.c. | Plentiful. | Not examined, but seen in many meadows all along the east side of the Curraun peninsula. |
| 26/5/36. | Achill I. | West Mayo. | 1788. | Scarce. | As Nos. 1786 and 1787. Only seen in one place on the Island, a meadow north of the road about ¾ mile from the bridge. |
| 26/5/36. | About 1½ miles N.E. of Beltra. | West Mayo. | n.c. | — | Not examined. |

DISCUSSION.

The immediate impressions formed by Mr Simpson and myself as the result of our work in the field may be worth recording. They were:—

(a) That all the Marsh Orchids we had seen were con-specific;
(b) That all the Marsh Orchids seen in the west of Ireland from West Cork to West Mayo were but variations of one very variable species; and
(c) That the Wicklow Orchid represented a variety (or race) of the same species, closely related to, but distinguishable from, it, and with a distinct geographical range.

The questions, which arise for decision, are:—

(i) Are all the Orchids referred to in our observations con-specific?
(ii) If they belong to one species, is that species one not previously known in Britain?
(iii) If the answer to ii is Yes, is that species *O. majalis* Reichb.?
(iv) Are *kerryensis*, *occidentalis* and *Traunsteinerioides* separable and what are their relationships to one another?
(v) Do any of the described British species of Marsh Orchid exist in Ireland?
(a) *latifolia*, (b) *pardalina*, (c) *praetermissa*, and (d) *purpurella*.

i. The answer to this question must vary according to the individual writer's standard of the species, but taken on the same standard as that by which *O. latifolia* and *O. praetermissa* are accounted species I have no hesitation in supposing that all the plants included in this survey belong to one species, albeit the range of variation is somewhat greater than in either of those two species. But it is to be noticed about this range of variation that almost wherever Marsh Orchids were observed the same range of variation occurred. Not only was the type of variation constant, the habit of all these Marsh Orchids and their time of flowering were also constant. The immediate impression from field observations was that they were all con-specific; I see no reason after studying dried material, photographs and drawings to alter this opinion.

ii. Whatever the answer to the last question, there can be no doubt about the answer to this. These plants belong to a species not previously recognised as British. Though there are resemblances to *O. purpurella*, to which reference will be made later, these Irish plants which I have described are certainly not that species; with even more certainty they are not either *O. latifolia*, *O. pardalina*, *O. praetermissa*, or any form of *O. maculata*. No British species has a labellum like that which is typical of these plants, nor has such a range of variation of leaf-marking. The date of flowering is earlier than that of any British species, except *O. latifolia* in S. England, but be it noted that this exception does not appear to apply to Ireland, since we failed to see any *latifolia* in flower.

iii. Both *occidentalis* and *Traunsteinerioides* have been described by Pugsley as sub-species of *O. majalis* Reichb., while Wilmott admits the

close relationship of his *kerryensis* to the same species. It is remarkable that the dominant Marsh Orchid in Ireland should be a species not yet recognised in Britain and a species moreover which upon the Continent appears to be more common in Germany and the Netherlands than in Western France and Spain, but I believe that the kinship of these plants has been correctly stated to be with *majalis*. The habit is identical; I am informed by Mr P. Vermeulen that the remarkable range of leaf-marking observed in the Irish plants occurs also in Dutch *majalis*; it appears also that the variation in shape of the labellum is very similar. As to colour, Vermeulen, *Journ. Bot.*, *72*, 97 (1934), writes:—"The colour of the flower is a dark purple, such as *O. purpurella* Stephenson." The Irish plants certainly agree in colour with *purpurella*, but I should describe it as a rich reddish-purple rather than a dark purple. In this connection it is necessary to qualify my previous suggestion that *majalis* is a species not yet recognised in Britain. In its typical form it is not so recognised, but I think it can now be accepted as certain that both *O. purpurella* Steph. and Godfery's *O. latifolia*, var. *eborensis*, are related to *majalis*, and probably *O. Francis-Drucei* Wilmott also. But the latter does not seem to have quite the same early flowering habit, though it must be remembered that its only recorded locality is in high latitudes ("West Ross; slopes above Loch Maree, 23rd June 1935."). The close relationship between these three plants has already been recognised by Pugsley (*loc. cit.*, (1935)), who placed *purpurella* in his Section *Majales*. And I may perhaps be permitted to point out that in writing an account of Godfery's well-known Monograph (*B.E.C. 1932 Rep.* (1933), 79) I hinted at a relationship between *eborensis*, *purpurella* and *majalis* in the following words: "It is perhaps significant that though *eborensis* is described as a variety of *latifolia* it is printed not after that species but following *purpurella*. It may further be pointed out that Dutch botanists recognise a form of *latifolia—majalis*, which is characterised among other things by dwarf habit and early flowering; moreover, Dutch botanists have confounded this plant with *purpurella*." The clearer perception of the kinship of *purpurella* with *majalis* (through *occidentalis*) enables one to see the significance of *purpurella* having spotted or unspotted leaves, and it also enables one to discard var. *pulchella*, which I have come to consider cannot be maintained as distinct.

To return to the question of shape of the labellum, Figs. i-v show the outline of 5 labella of *majalis*, after Vermeulen, *loc. cit.*, 98. Figs. xiv-xxix, after drawings by Mr Simpson, and Figs. xxxi-xxxv from my own specimens, show the outlines of the labella of Irish specimens. These show at once the range of variation and similarity in many instances with labella of Dutch *majalis*. In Dr Stephenson's Herbarium separately dried labella of *majalis* from French localities (Figs. vi-xiii) show similar resemblances.

iv. This question is less easy to answer and one that cannot in my opinion be finally answered in the present state of our knowledge. It

is desirable that further observations should be made in those localities examined by us, in other seasons and at other times of the year, and in other localities. I have given reasons above for supposing that *Traunsteinerioides* is at least distinguishable from the Western Irish Orchids as a variety or form. With regard to the relative positions of *kerryensis* and *occidentalis*, I confess that my ideas are still somewhat confused. While my general impression was in the field, and is now, after further reflection, that all the plants seen in Western Ireland are but variants of one variable species, I must admit that in shape, colour and pattern of labellum, but not in habit, *kerryensis* is more distinct from typical *occidentalis* than is *Traunsteinerioides*. But there is this difficulty to overcome, if one is to believe that *kerryensis* is separable from *occidentalis*, that never once did we see a uniform colony of *kerryensis*. At Three Castles Head and in the type locality at Dingle, among the very small numbers of orchids seen plants conforming to *kerryensis* were in the majority. Elsewhere they occurred as isolated individuals among large numbers of *occidentalis* or were altogether absent. For those who would wish to maintain *kerryensis* as distinct from *occidentalis*, there may be some significance in the following facts brought out by our observations:—The localities where *kerryensis*-like individuals were seen are more or less confined to W. Cork, S. Kerry and the Dingle Peninsula, which might indicate a separate geographical range; proceeding north, as the number of *kerryensis*-like individuals decreases, so the proportion of plants with unspotted leaves decreases, until in W. Mayo localities were found where all plants noted had spotted leaves. On the other hand I consider that my Castlemaine specimen [Ref. No. 1674 B $\beta\beta$] with a pale labellum with dot pattern but of *occidentalis* shape and with spotted leaves, and Mr Simpson's Poulsallagh specimen [Ref. No. 36.713] with labellum agreeing exactly with *kerryensis*, though growing with undoubted *occidentalis* in *occidentalis* territory, are very strong arguments in favour of the theory that all the Western Irish orchids are variants in one range of variation.

To return to *Traunsteinerioides* I do not feel that one is justified in ranking this as a sub-species of equal value with *occidentalis*. I am of opinion that all the Irish Marsh Orchids alluded to should come under the name *majalis*, sub-sp. *occidentalis*, with *Traunsteinerioides* as a variety or race with an apparently distinct geographical range. The name *kerryensis* might possibly also be admitted as a sub-variety or form of the typical variety of *occidentalis*, merely to mark one end of the range of variation. But I must repeat that this is only a provisional opinion, for which I think it is possible to show a case at the present time, but that much more research is necessary before it can be stated as a fact.

I suggest that it is desirable that the description of *occidentalis* should be emended to embrace the very wide range of variation both in the flowers and in the marking of the leaves. In the case of the leaves the following are only some of the variations which may be found:—No spots, a few small dots at the base of the leaf, dots at the base and

apex—none in the middle, leaves peppered all over with dots, a few largish distant spots, ringed spots, large spots breaking up to form circles of dots, transverse bars, very heavy blotches and so on in endless variety. The illustrations (plates) show both the habit of the plant as well as some idea of the variation in the leaves and flowers. The occurrence of rose-pink specimens at Muckross and Lisdoonvarna is of interest in view of Pugsley's reference to specimens of *Traunsteinerioides* of this colour at Ballyman Glen.*

v. This question is another that cannot be answered finally.

(a) As regards *O. latifolia*, there is no doubt that this species occurs in Ireland and there is no reason to suppose that Praeger is wrong in stating that it is generally distributed and occurs in every Irish vice-county. Mr Brunker says that this is the prevalent species in Cos. Dublin and Wicklow. It is most remarkable that Mr Simpson and I saw no *latifolia* at all.

(b) There is at present no evidence for the occurrence of *pardalina* in Ireland. The presence of isolated specimens with leaves reminiscent of this species at Glenhazel and Dingle has been noted, but there is as yet no evidence as to what these plants were.

(c) There can be no doubt that the recording of *praetermissa* in *Comital Flora* from 5 Irish vice-counties is based largely upon the specimens in Herb. Druce, in which there are some interesting gatherings, and also that Druce supposed that Irish *praetermissa* principally took the form of his var. *pulchella*. There are 2 plants distributed through the Watson B.E.C. named *O. incarnata* L., Westport, W. Mayo, 22/6/1899, E. S. Marshall, which have been marked by Druce "praetermissa" in pencil. [W. Mayo is, however, not one of the 5 vice-counties for which *praetermissa* is given in *Comital Flora*.] One of these was correctly identified by Marshall and is *O. latifolia* L. (*O. incarnata* auct. *non* L.). The other is a different plant and is strongly suggestive of a hybrid, *latifolia* × *occidentalis*. A gathering from Woodford, Co. Galway, June 1909, Druce, named *O. latifolia* L., *teste* Rolfe, is undoubtedly *occidentalis*. The notes on this sheet are illuminating: by Druce "praet. praet. × mac."; by E.F.L(inton) "O. latifolia L."; by T. S(tephenson) "pulch. × ericetorum." These notes are not dated but clearly it was at one time thought that these plants were *praetermissa*, *praetermissa*, var. *pulchella*, or hybrids of one of these with *elodes*. There is also a gathering from Blackhead, Co. Clare, Druce, June 1930 or 1931. These are named *maculata* × *praetermissa* with the note "? *purpurella*—leaves spotted." At least two of these plants show the unmistakable heavy spots of *occidentalis* on their leaves. There can be no doubt that all Druce's Irish records of *praetermissa* are based on *occidentalis*, and there is no other evidence for the occurrence of *praetermissa* in Ireland.

*Rose-coloured flowers also occur in *O. purpurella* Steph., var. *maculosa* Steph. (see p. 356) but in that case the shade of pink is considerably darker than the very pale shade seen at Muckross and Lisdoonvarna.

(d) The position with regard to *purpurella* is far more obscure. It has already been pointed out that *occidentalis* and *purpurella* are closely related. I think it may ultimately be found that they are parallel and equivalent sub-species of *majalis*. To complicate matters further the existence of forms intermediate between *occidentalis* and *purpurella* in West Sutherland, Orkney and Shetland was pointed out by Pugsley (*loc. cit.*, 584, 1935) and such have since been found in other parts of Scotland. Mr W. Handyside, of Edinburgh, has sent me this year and last fresh specimens of an orchid which grows in large numbers, quite uniform, at Burntisland, in Fifeshire. This is distinguished from *purpurella* by its wide 3-lobed labellum and by having the leaves peppered all over with small spots, as occurs in many specimens of *occidentalis*, and is described elsewhere in this Report (p. 355) by Dr Stephenson as a new variety, *maculosa*, of *purpurella*. In 1935 I expressed the tentative opinion that it was intermediate in character between *purpurella* and *occidentalis*. I have since seen *occidentalis* in the flesh and think that there is no cause to revise my first opinion. Other plants of an intermediate nature have been collected by Miss E. S. Todd in Caithness and Sutherlandshire, and yet others by Miss M. S. Campbell in the Outer Hebrides, while in her collection there are some plants (see especially her Ref. No. 36613 B from N. Uist) which appear to be *occidentalis* or some very closely-related *majalis*-form.

Although there is evidence in support of the occurrence of *purpurella* in Ireland, Praeger's note on the Irish distribution of *purpurella*, " ? Frequent," does not seem to be justified at the present time, and it is probable that the vice-county records given by him are largely based on records by Druce of *praetermissa*, var. *pulchella*, now known as *purpurella*, var. *pulchella*. As has been shown above, it is probable that in most of these cases the plant in question was *occidentalis*, but at least one such record was correct, as is shown by two poor specimens in Herb. Druce, from Toome Bridge, Co. Antrim, Druce, 1909, which are annotated " pulchella T.S." These are no doubt the basis of Praeger's Antrim record of *purpurella*, and although they are very poor material, I consider from their habit that they are not *occidentalis* and are correctly named.

Other tangible evidence in support of the occurrence of *purpurella* in Ireland is that Dr W. A. Sledge tells me that he saw large quantities of that species in flower about Kylemore, Co. Galway, in July 1935. Dr Sledge knows *purpurella* and the other British species intimately and I think it highly improbable that, if he had seen the end of the crop of *occidentalis*, he would not have observed the great variability of that sub-species and the characters by which it differs from *purpurella*. Moreover, the time of flowering was correct for *purpurella* but too late, as far as we know, for *occidentalis*.† Further, Pugsley, *loc. cit.*,

†Dr Sledge points out further that if the plants seen by him were the end of the crop of the early-flowering *occidentalis*, he would have seen many fruiting specimens, which he did not. He also reports that he saw several hybrids, *elodes* × *purpurella*.

594-5, refers to specimens in Herb. Mus. Brit. from Cos. Donegal, Tipperary, Cork, and Waterford, identified by him as *purpurella*. He also tells me, *in litt.*, that he received specimens of *purpurella* collected by Mr Chase at Kinnegar, near Belfast, 2nd July 1934. The Irish distribution of *purpurella* is therefore at present very imperfectly known.

### HABITAT.

*O. majalis*, sub-sp. *occidentalis*, is principally a plant of pastures and hay meadows, generally moist, sometimes quite wet and boggy. The locality at Castlemaine was a marshy meadow with very coarse vegetation not unlike an English water-meadow. In many cases, as at Adrigole, the plant was associated with rushes or with *Iris Pseudacorus* as at Dingle in the type-locality for *kerryensis*.

In the matter of soil the plant appears to be to some extent indifferent. In the great majority of cases it was seen growing on an acid soil in association with *O. elodes*, or where that species would be expected, about Ennistymon on the shales, at Lisdoonvarna on the Old Red Sandstone and at Poulsallagh and L. Skaghard on limestone. In the latter cases, however, it is to be supposed that the orchid was actually growing in a layer of peaty detritus overlying the limestone, since at Poulsallagh a stunted form of *Schoenus nigricans* was seen growing nearby, and at L. Skaghard the locality was at the edge of a turlough, or depression in the limestone filled with water in the winter but drying up in the summer. *Viola canina* was associated with the plant in this locality, whence *V. stagnina* is also recorded but was not seen on this occasion.

It must be emphasised that this is a lowland plant and was seen by us nowhere above 500 feet above the sea. In fact, Mullaghveale, near Cloghane, shown on the 1 in. = 1 mile map as between 450 and 500 feet was the highest point at which it was seen.

It is noteworthy that we traversed seven out of the nine divisions into which Scully divides the County of Kerry, and we saw the plant in six out of these seven divisions, the one division in which we did not see it being Division IV, which contains Macgillycuddy's Reeks and is practically all high ground.

### DISTRIBUTION.

The distribution of *O. majalis*, sub-species *occidentalis*, in Ireland is as far as is at present known:—

H. 1-3, 8, 9, 15, 16, 20, 27.

S. Kerry !, N. Kerry !, W. Cork !, Limerick !, Clare !, S.E. Galway (Pugsley), W. Galway !, Wicklow ! (*Traunsteinerioides*), W. Mayo !.

### SUMMARY.

i. There is a Marsh Orchid widely distributed in Ireland distinct from any other recognised as British prior to the publication of Pugsley's paper in 1935.

ii. This is *O. majalis* Reichb., sub-sp. *occidentalis* Pugsl., which is so far known from eight vice-counties in Western Ireland from W. Cork to W. Mayo.

iii. An allied plant, described as *O. majalis* Reichb., sub-sp. *Traunsteinerioides* Pugsl., occurs in S.E. Ireland where it is so far only known with certainty from Co. Wicklow.

iv. The position of *O. kerryensis* Wilmott cannot yet be exactly defined, but it appears to mark one extreme limit of the range of variation of *occidentalis*.

v. *O. majalis*, sub-sp. *occidentalis*, is related to *O. purpurella* Steph., which may itself be regarded as a sub-species of *O. majalis* Reichb.

vi. Intermediate forms linking *occidentalis* and *purpurella* have been found in Scotland and the Hebrides.

vi. *O. purpurella* also occurs in Ireland but the information available as to its distribution is very incomplete.

viii. There is at present no evidence for the occurrence of *O. praetermissa* in Ireland.

I have to acknowledge with gratitude the assistance of many friends in the preparation of this paper. Reference has already been made to the help readily given by Mr A. J. Wilmott, Mr H. W. Pugsley and Mr J. P. Brunker. The two former have given further valuable assistance in the shape of criticism, and the value of Mr Wilmott's photographs is self-evident. I have also received much assistance from Dr Stephenson, Mr P. Vermeulen, Dr W. A. Sledge and Mr W. Handyside, whilst thanks are also due to the staff of the British Museum Herbarium for the care with which they preserved specimens. Last, but not least, I am indebted to Mr N. Douglas Simpson for the loan of his specimens and drawings, for many valuable suggestions, and above all, for his companionship on the expedition which made this paper possible.

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EXPLANATION OF FIGURES AND PLATES.

Figs. i-v.—Labella of Dutch *majalis*, after Vermeulen. ×1.

Figs. vi-xiii.—Labella of French *majalis*, in Herb. Stephenson. ×1.

Figs. xiv-xxix.—Labella of *majalis*, sub-sp. *occidentalis*, in Herb. Simpson. ×3.

xiv.=Ref. No. 36.626, cf. *kerryensis*, Three Castles Head.

xx.=Ref. No. 36.656d, from a small, lax- and few-flowered plant, Castlemaine.

xxi.=Ref. No. 36.656h, cf. *kerryensis* for shape of labellum, Castlemaine.

xxii.=Ref. No. 36.653, from type-locality for *kerryensis*.

xxiii.=Ref. No. 36.682b, cf. *purpurella* for shape of labellum, from the very large and variable colony of *occidentalis* near Inagh.

xxiv and xxv.=Ref. No. 36.683c and d, extreme shapes of labella, Lisdoonvarna.

xxvi.=Ref. No. 36.713, exactly matching *kerryensis* in shape of labellum, cf. Fig. xxx, Poulsallagh.

Fig. xxx.—Labellum of *kerryensis* after Wilmott. ×2.

Figs. xxxi-xxxv.—Labella of *majalis*, sub-sp. *occidentalis* in Herb. Hall. ×1.

xxxi.=Ref. No. 1642/3, cf. *kerryensis*, Adrigole.

xxxiv and xxxv.=Ref. No. 1750/8 and 1750/2, Lisdoonvarna.

Fig. xxxvi.—Labellum of *Traunsteinerioides* after Pugsley. ×3/2.

Figs. xxxvii-xli.—Labella of *Traunsteinerioides* in Herb. Hall. ×1.
xli.=Profile of xl. Reflexing of the side-lobes frequently produces a similar profile in *occidentalis*, cf. Plate IV J.

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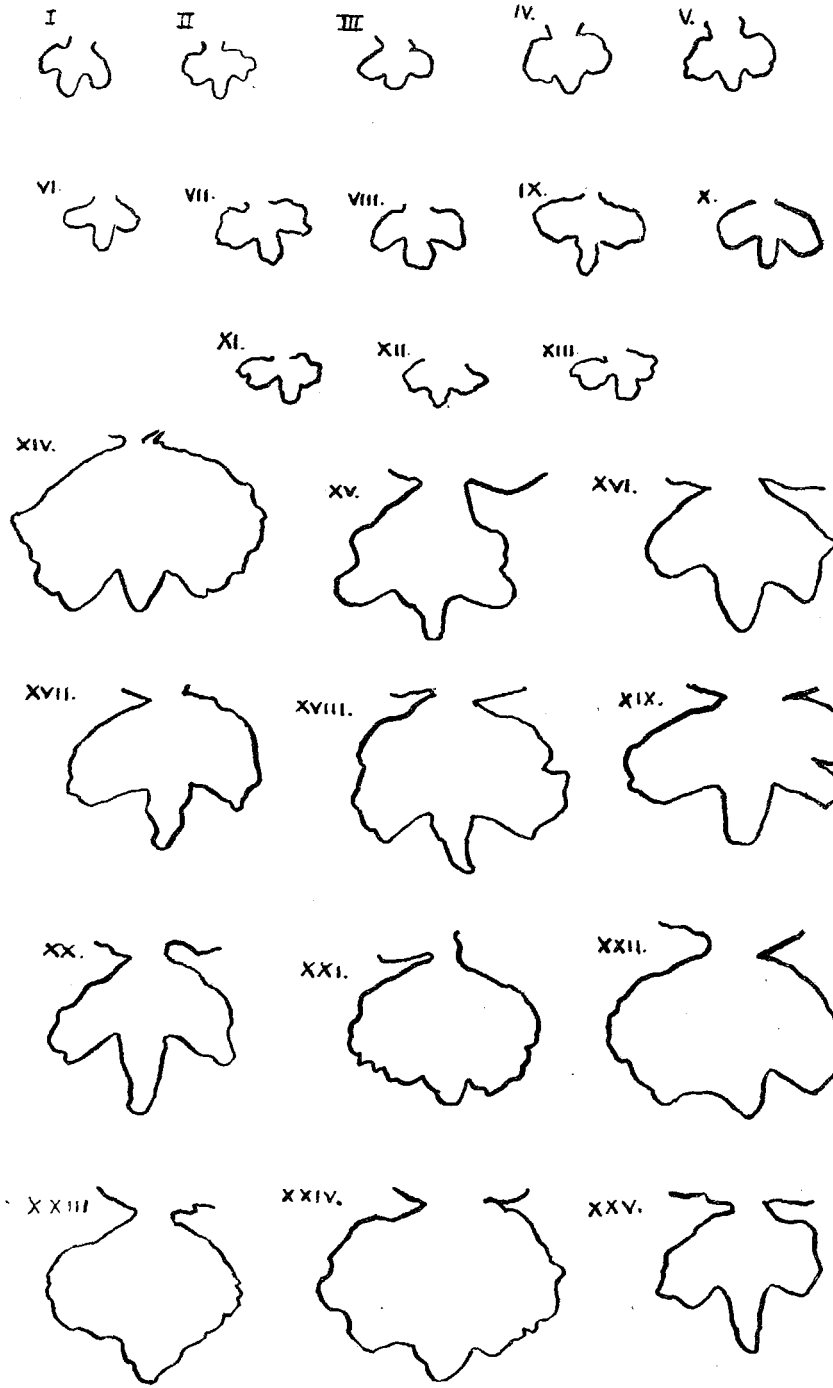
PLATES. All × 1. The lines on the prints are 2 cm. apart.

Plates II and III illustrate 8 plants from Glenhazel, W. of Kenmare, Ref. No. 1639, and show some of the variation in leaf-marking, shape and pattern of the labellum to be found in one not very large colony.

Plate II. A.=Ref. No. 1639/1a, cf. *kerryensis*.
B.=Ref. No. 1639/1b, leaves unspotted, pattern of labellum as in *kerryensis* but shape of *occidentalis* (see lowest flower in particular).
C and D.=Ref. No. 1639/2a and b, both with unspotted leaves.
Plate III. E, F, G and H.=Ref. No. 1639/4a and b, 1639/7a and b, all *occidentalis*.
Plate IV. I.=Ref. No. 1641/1, Cloonee, leaves unspotted but labellum of *occidentalis*, not *kerryensis*.
J and K.=Ref. No. 1674/5 and 6.
Plate V. L. and M.=Ref. No. 1674/7 and C.
J, K, L and M illustrate the very wide range of variation seen in the colony at Castlemaine. The form of labellum of J is very typical of *occidentalis*. Note that in M the lip-pattern is mainly of dots although the leaves are so heavily spotted.
Plate VI. N.=Ref. No. 1676A, *kerryensis* from the type locality.
O.=Ref. No. 1676C, *occidentalis* from the type-locality for *kerryensis*.
Plate VII. P and Q.=Ref. No. 1750/8 and 10, 2 plants with very heavily marked leaves from Lisdoonvarna, at or near the type-locality for *occidentalis*. Equally heavy markings were seen in many other localities.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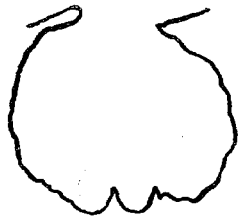
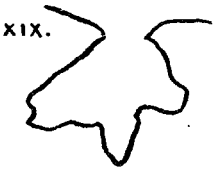
XXVI



XXVII

XXVIII.

XXIX.



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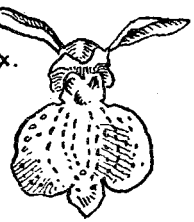

XXXII.

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XL.

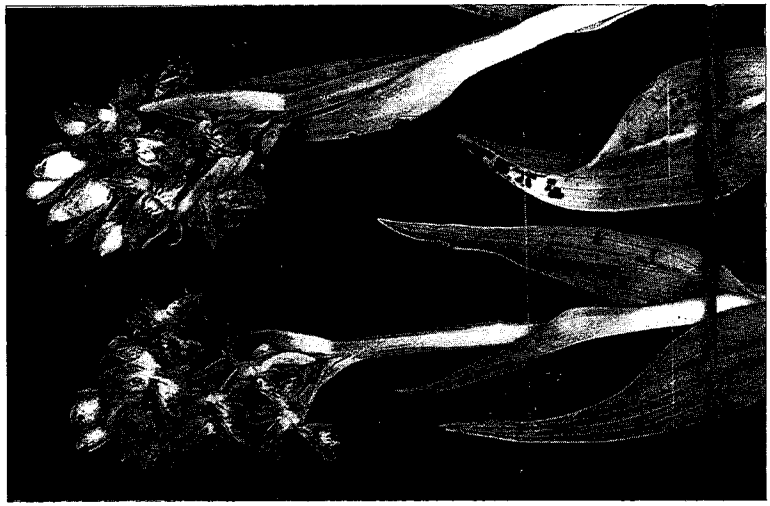
XLI.

C.

D.

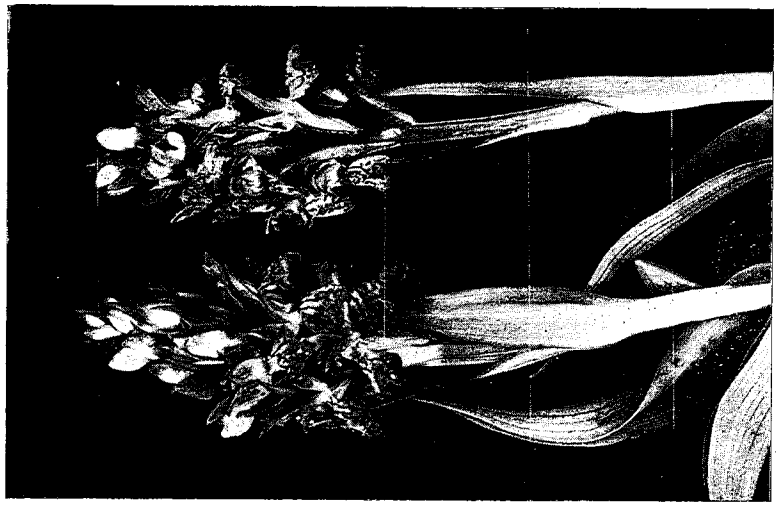
A.

B.



G.

H.



E.

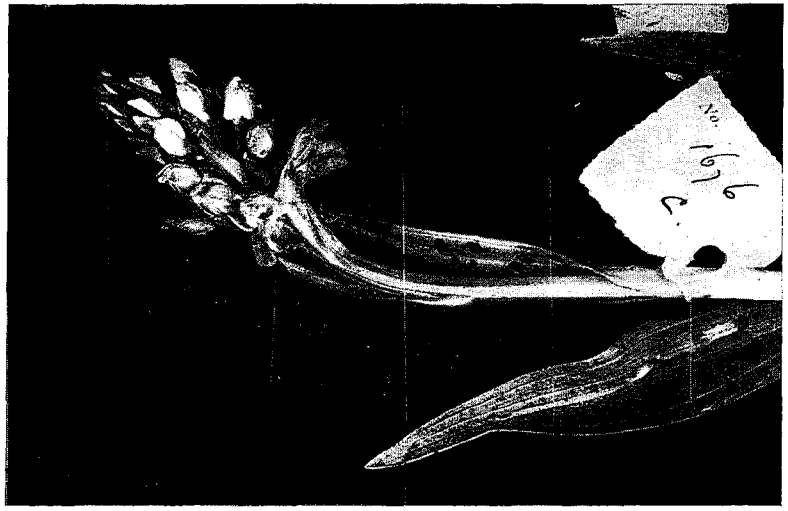
F.

K. J.

I.

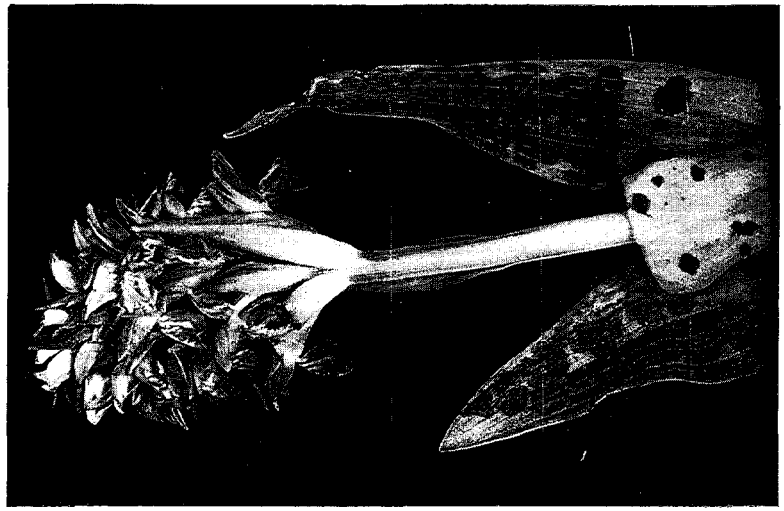
M.

L.

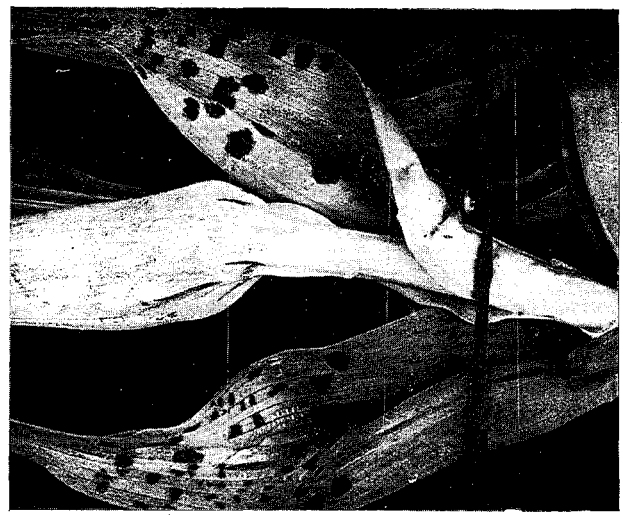


O.

N.



Q.



P.

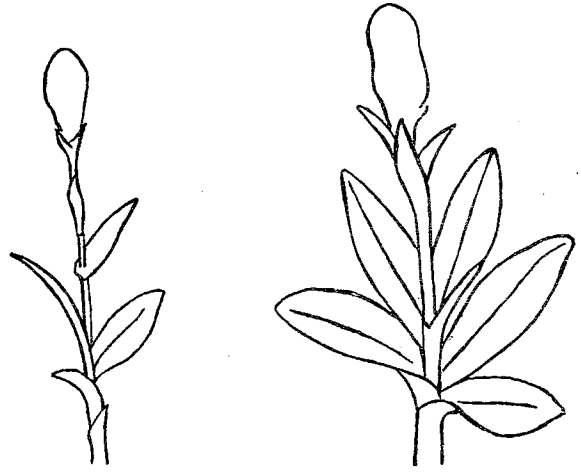
## TWO VARIETIES OF ORCHIS PURPURELLA Stephenson.

T. STEPHENSON.

Since 1930 Mr W. Handyside, of Edinburgh, has been studying two interesting colonies of forms of *O. purpurella* growing near Burntisland, Fife, on the site of long disused shale-oil works. The site has a Southern aspect, and is sheltered from the North by hills and refuse-mounds. It is close to sea-level, about 500 yards from the Firth of Forth.

We have here a site comparatively recently occupied, with fairly rich soil, conditions under which it is not surprising to find variations in a species belonging to what is the most changeable and probably the most recent group of Dactylorchids.

The larger colony consists of rather over 400 plants, and of these about 10% are typical *O. purpurella*. In 1935 five plants of *O. Fuchsii* were found, none in 1936. There are a few plants which might be hybrids between *O. Fuchsii* and *O. purpurella*. The rest are of the form described below.




ORCHIS PURPURELLA Steph.
(a) Habit of type-species.
(b) Habit of var. *crassifolia* Steph.
Actual height: (a) 22 cm., (b) 23 cm.

ORCHIS PURPURELLA Steph., var. **maculosa,** var. nov.

*Planta* habitu speciei typicae. *Caulis* saepe solidus. *Folia* plerumque crebris maculis parvis induta (nonnulla immaculata).

*Flores* colore purpureo-rubente vel roseo. *Labella* signis conspicuis colore comparibus inscripta.

The habit of the plants is that of the typical species, but the leaves, instead of having very few spots, are usually spotted all over with very small spots. In the typical species the few spots are found either at the base or the tip of the leaves. Where they are more evenly distributed, they are still very few. In the variety, a large proportion of the stems are solid. Some of the flowers are of the dark crimson-purple of the typical species, but many are rose-coloured. The lip-markings, as of the typical species, consist of small, thick, crescent-like curves, similarly arranged, whose colour varies with that of the lip, that is, being of the same colour, only deeper in tone.

The presence of solid stem and rosy flowers might suggest that these plants are only hybrids with *O. Fuchsii*, but this hybrid has paler flowers with narrower and more continuous line-patterns, more prominent centre-lobe, and usually larger and more irregular spots on the leaves. The hybrid is also larger as a rule. In fact, a few of these hybrids are actually on the spot, and are quite different from the principal group of plants.

The whole colony does not look to me like a case of fertile hybrids swamping the parents, but more like that of a set of plants drifting away from the species in the direction of a form with a solid stem, rosy flowers, and thickly-spotted leaves. Some genes, latent or newly evolved, have come into play in the new situation, perhaps because of different nutrient material and other environmental changes.

The smaller colony consists of about 200 plants growing in black mud beside a pool. The leaves are very large and thick, and the flower-spikes superb. The flowers have the form and colour of the typical species, but very rich, and larger than the average, the lips measuring 11 mm. in width by 8 mm. in length, in most cases, as against 8 mm. by 6 mm., the average for the typical species. The leaves are unspotted. The measures of the leaves of one plant are (in centimetres) 7 × 2.5, 12 × 4, 12 × 4, 13 × 3.75, 13 × 2.8, 11 × 2.4, and 9 × 1.4, the measures of an ordinary specimen of the typical species being 2.5 × 1, 7 × 2.2, 7 × 2, and 6 × 1.6. Mr Handyside has measured a leaf 13 cm. × 4.5 cm. The leaves are not only massive, but more numerous than in the typical species, 8 or 9, as against 6. The height of the plants is about 22-25 cm.

ORCHIS PURPURELLA Steph., var. **crassifolia,** var. nov.

*Planta* quam species typica valde robustior. *Folia* crassa, multo majora quam speciei typicae, plerisque juxta caulis basin insertis.

In the typical species, the leaves are fairly evenly spaced up the stem. In this variety, they appear to be springing from near the base, and the general appearance is very different from that of the type.

Taking into consideration both the outstanding size and the considerable number of the plants, all wonderfully alike, I think we have here something more than an accidental result of hypertrophy. This is possibly a giant-form with double the usual number of chromosomes. Col. Godfery, in his *Monograph of British Orchidaceae*, p. 4, mentions *Orchis Traunsteineri*, var. *gigas*, as a case of diploidy (20 chromosomes instead of 10). This probably applies also to the immense form of *O. palustris*, which grows in Algeria, named by me as var. *robusta*. A similar case may be that of *Orchis papilionacea*, var. *grandiflora*, which, at any rate in North Africa, is twice the size, in all its parts, of the type. Such varieties are well known in other plant-orders.

Mr P. M. Hall first introduced me to the Burntisland orchids. He has kindly read this paper, and made valuable suggestions. It may also be said that Mr Handyside has rendered excellent service in bringing into notice these interesting colonies of orchids.

A type-specimen of each variety has been deposited at the Department of Botany, British Museum, South Kensington.

## CAREX PSEUDO-PARADOXA S. Gibson.

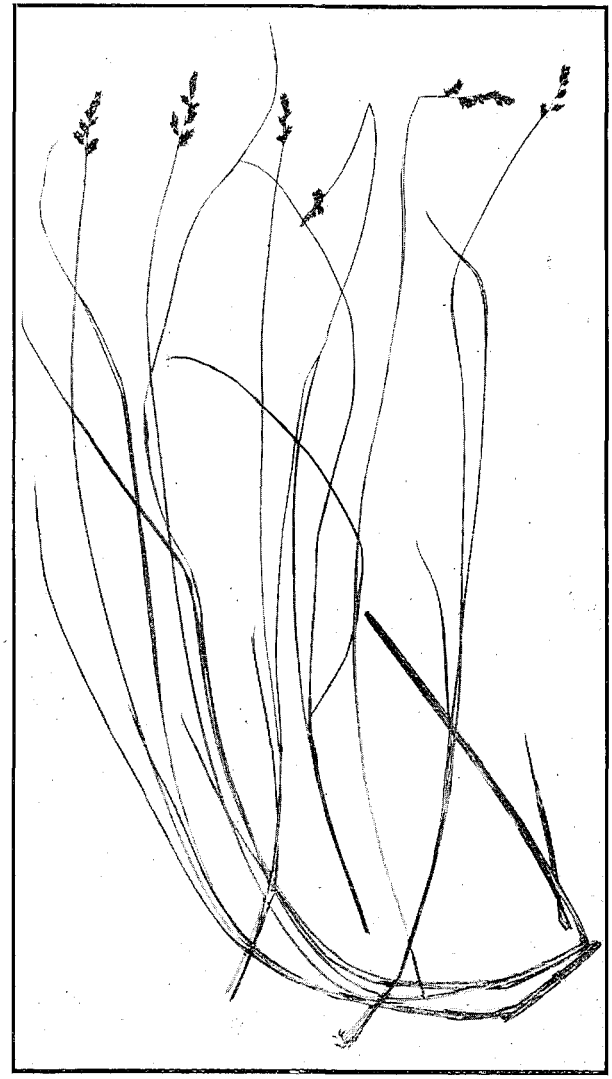
W. A. Sledge.

The object of this paper is to show that Gibson's *Carex pseudo-paradoxa* is a variety of *C. diandra*; that it is synonymous with, and antedated by, Koch's variety *major* of that species and that the illustration in *English Botany* (ed. 3, t. 1620, as *Ehrhartiana*) does not represent Koch's plant.

The sedge described by Gibson as a species has since been ranked by different authors as a variety of *C. diandra*, *C. paradoxa* and *C. paniculata*. The confusion respecting its status is reflected in its treatment in the current editions of the *London Catalogue* and Druce's *List of British Plants*. In the former it is included under *C. paniculata*, whilst in the latter it and *major* appear as different varieties of *C. diandra*. This confusion is partly due to Gibson's faulty description and partly to the fact that authentic material is not available for study in the national herbaria. Gibson's collection is preserved in the Belle Vue Museum, Halifax, and I have to thank the Keeper, Mr T. L. Gwatkin, for the loan of all the type material of this sedge for examination.

The first notice of the plant was in a short note by Gibson (*Phyt.*, i, 366, 1842) on "Additional Manchester Plants" where he refers to it as a variety of *C. teretiuscula* (*diandra*) "with its fruit (i.e. nut) agreeing with Leighton's figure of the fruit (nut) of *C. paniculata*." In the following year the plant was described as a species (*op. cit.*, i, 778, 1843). "*C. pseudo-paradoxa*. Spikes panicled, branches approximate; perigynium ovate, gibbous, acuminated into a serrulate bidentate beak, more or less plano-convex, with seven nerves on the convex side (three very slender in the middle, and two strong ones on each side of them), the outer nerves, or those nearest the margins, being very short; nut rhomboidal narrowing from below the middle; style enlarged at the base, stem three angled, angles rough on the upper part; leaves narrow, rough on their edges. This plant differs from *C. teretiuscula* in having its spikes more distinctly panicled, in its nut being narrowed upwards from below the middle and in its style being thickened at the base." The new species was described from material sent as *C. teretiuscula* from "near Manchester" (probably from the locality known as Chorlton Fields) in August 1842, by G. Crozier; and another gathering sent as *C. paradoxa*, by J. Sidebotham, in June 1843, from Seaman's Moss Pits, Cheshire. Gibson also records the same plant as growing plentifully by the sides of Malham Tarn, near Settle, and there are specimens in his collection gathered in 1840 which match the Manchester and Cheshire plants.

Several botanists contributed to the discussion which followed the publication of the new species. Dr J. B. Wood and W. Wilson, of Manchester, who were well acquainted with the plant at Seaman's



CAREX PSEUDO-PARADOXA S. Gibs.

Moss Pits, were unable to see in it "anything else than a modified form of *C. teretiuscula*." In this opinion they were confirmed by Dr Boott to whom Wood sent specimens. As the controversy developed on distinctly bitter and personal lines the editor of the *Phytologist* was appealed to for his opinion. In an impartial reply Luxford gave a careful account of the plants submitted to him by Sidebotham and Wood, and a detailed comparison with all three allied species led him to conclude that the position assigned to *pseudo-paradoxa* as a variety of *C. teretiuscula* in the recently published *London Catalogue* "is doubtless its true place, if allowed to retain an existence separate from the normal form; for as a distinct species it certainly appears to have no claim to a station in our Flora."

Though his opponents were unanimous in referring the plant to a form of *C. teretiuscula*, Gibson vigorously defended his new species in a further article (*op. cit.*, 1038-1044) and contrasted it with its allies as follows:—"My *Carex pseudo-paradoxa* differs from *C. teretiuscula* (when mature) in its nut being narrowed from below the middle and in the perigynium being broader and truncate at the base; it also differs from that plant in its stem having three *acute* angles with their interstices *flat*. From *C. paniculata* it differs in its perigynium being differently ribbed and less distinctly bifid at the point, and in having narrower leaves. From *C. paradoxa* it will be found to differ in its perigynia being less distinctly ribbed on its inner side and also in the form of its stem. And from all the other three it differs in its mode of inflorescence." But in spite of his reiterated claims for its distinctness, Gibson still found no supporter for his new species. Babington, to whom Wood had also sent specimens, expressed his opinion of the plant in his treatment of it (*Man.*, ed. 2, 357, 1847, and subsequent editions) as synonymous with *C. teretiuscula* Good., var. *Ehrhartiana* Hoppe. The same position was given to it by Hooker (*Stud. Fl.*, 408, 1870, and subsequent editions), and Syme (*Eng. Bot.*, ed. 3, 88, 1870). The variety has been taken up by several continental authors who have differed more widely as to its position. Richter (*Pl. Eur.*, i, 149, 1890) makes it a variety of *C. paradoxa*, whilst Ascherson and Graebner (*Synops. Mitteleurop. Flora*, ii, 2, 46, 1902) treat it as a variety of *C. paniculata*.

In 1912 C. E. Salmon (*Journ. Bot.*, 14, 1916) collected a sedge at Restennet, Forfar, which he concluded was Gibson's *C. pseudo-paradoxa*, the correct position of which was under *C. paniculata* rather than *C. diandra*. In reviewing the original controversy over Gibson's plants he points to the records in De Tabley's *Flora of Cheshire* for both *C. teretiuscula*, var. *Ehrhartiana* and *C. paniculata* at Seaman's Moss Pits and suggests that Gibson's critics had been discussing the former plant whilst Gibson had described a form of the latter. Salmon's suggestion, however, is quite untenable as there is every evidence from Wood's comments that he knew the disputed plant in this locality far better than Gibson himself. Indeed there is no evidence to show that Gibson ever collected at Seaman's Moss Pits. All the specimens in his herbarium

from this locality were received from local botanists, including Wood. Moreover, one of Wood's gatherings of this sedge was agreed to as *C. diandra* by Salmon when it was sent to him by S. H. Bickham (*Journ. Bot.*, 113, 1917). I have not seen the Restennet plants but other specimens sent to the Watson Exchange Club in 1921 by J. E. Little as *C. paniculata*, var. *pseudo-paradoxa*, and agreed to by Salmon, have the fruits of typical *C. paniculata* and are in my opinion a form of that species with reduced panicle. As Kükenthal (*B.E.C. 1916 Rep.*, 430, 1917) also determined a gathering of Druce's from Restennet as *C. paniculata*, var. *simplicior* Anders., there can be little doubt that Salmon's plant was the same, and that his conclusions respecting the relationship of Gibson's plant were quite unjustifiable.

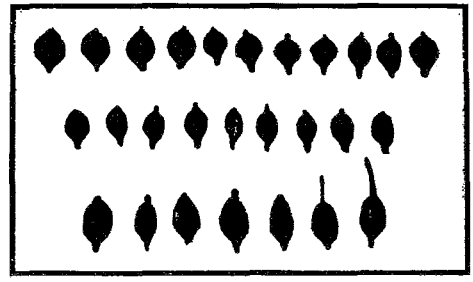
An examination of Gibson's own specimens of *C. pseudo-paradoxa* leaves no doubt as to the reason why contemporary botanists were unable to confirm the characters attributed by its author to the fruits of this plant. The shape of the nut, narrowed upwards from below the middle " as in *C. paniculata*," was stressed as separating it from *C. diandra*, which has a turbinate nut; whilst the shape of the style base was said to differ in the two plants. The accompanying photographs show ripe nuts of *C. diandra* (upper row), *C. pseudo-paradoxa* (middle row), and *C. paniculata* (lower row). No wonder no support could be found for the reputed differences! My examination leads to conclusions which are wholly in agreement with Luxford's verdict (*op. cit.*, 923) that:—" The perigynium is equally variable in its form and markings with that of *C. teretiuscula*. . . . The nut, too, so far as I can see, is perfectly identical in the two plants. There are the same variations in outline, and, what is of perhaps greater importance, the base of the style in the two plants is enlarged in precisely the same manner."

Only in the subpaniculate inflorescence do Gibson's specimens show a marked difference from typical *C. diandra*. This character gives the plants such a distinctive appearance that Wood himself at first thought the plant might be *C. paradoxa*. But Wood also refers to a difference in the habit of Gibson's " species " which " assumes a pseudo-caespitose appearance " and has " elongate and slender stems " as compared with the " isolated and detached mode of growth " of *C. diandra*. Hence the plant fulfils all the requirements of *C. diandra* Schrank, var. *major* (Koch) A. & G., which is described (*Syn.*, ed. 1, 751, 1837) as " duplo saepe altior, radice magis caespitosa, spica crassiore magisque composita." The angularity of the stem referred to by Gibson as characteristic of his plant would appear to be a character associated with all large specimens whether of the normal form or the variety. Lloyd (*Fl. de l'ouest de la France*, 2 ed., 538, 1868) says:—" Les individus robustes ont la tige triquètre à angles obtus à la base, puis le milieu à faces convexes et le sommet très rude à angles aigus." I have not been able to detect any difference between Gibson's specimens and large *C. diandra* in this respect.

It has been urged that Koch's variety should be dropped as being not sufficiently well marked (*Watson B.E.C. Rep.*, 30, 1900-1; 22, 1901-02), a procedure which has been adopted in the last two editions of the *London Catalogue*. This view has been strengthened by the misleading illustration in *English Botany* (ed. iii, t. 1620, as var. *Ehrhartiana* Hoppe) which shows a plant with smaller and more slender and interrupted spikes than the normal form of the species. The illustration appears to have been prepared from specimens sent by Sidebotham from Seaman's Moss Pits and, apart from the discrepancy between it and the accompanying plate showing Gibson's specimens from the same locality (the difference is obviously much more marked in the Malham specimens), there is added reason to suppose that the wrong plant may have been sent as Gibson complained that Sidebotham had sent out ordinary *C. diandra* to both Babington and Samuel King as his *C. pseudo-paradoxa*. Though this accusation was denied, the illustration certainly does not bear out the accompanying description, and cannot be accepted as representing the variety. Misled by it, material sent through the exchange clubs, which scarcely differs except in size from normal *C. diandra*, has been passed as Koch's variety. Though there is no doubt that a complete range exists between *diandra* and *major* in the form of the inflorescence, the very distinctive appearance of such subpaniculate plants as Gibson's might alone justify a distinctive name whilst the different growth habit of such plants fully entitles them to varietal status.

EXPLANATION OF PLATE.

Type specimens of *Carex pseudo-paradoxa* S. Gibs. The two specimens on the left from Malham Tarn (coll. S. Gibson, 1840), the right-hand specimen from "near Manchester" (? Chorley Fields) (coll. G. Crozier, 1843), the remaining three from Seaman's Moss Pits (coll. J. Sidebotham, 1843).



Ripe nuts of *C. diandra* (upper row), *C. pseudo-paradoxa* (middle row), and *C. paniculata* (lower row).

## REVIEWS.

BOTANICAL RECORDS OF THE LONDON AREA. Being a List of Plants observed within 20 miles of St Paul's Cathedral. Edited by E. B. Bishop, R. W. Robbins, and H. Spooner. Compiled by the Botanical Section of the London Natural History Society, and published in annual parts from 1928 to 1936, the eight parts being obtainable from the Secretary, Mr A. B. Hornblower, at 91 Queen's Road, Buckhurst Hill, Essex, at 6d each (plus postage).

This useful volume of 114 pages reflects great credit on its compilers and supplies a need in providing an accurate and recent account of the flora of the country within easy reach of London. The area covered includes Middlesex, and parts of Herts, Essex, Kent and Surrey, the published Floras of which are dated 1869, 1887, 1862, 1899 and 1931 respectively. Although the present work is by no means exhaustive, and consists entirely of records made by members of the London Natural History Society, yet as providing an account of the persistence of plants in their old recorded habitats, and the spread of various plants not known to the old botanists within an area fast being invaded by suburban villas, the importance of this small book is very considerable. Examples of plants which are rapidly spreading within the district are *Galinsoga parviflora*, *Senecio squalidus*, *Cynosurus echinatus*, *Lepidium Draba*, and *Cotoneaster Simonsii*. Extinctions cannot be traced so easily since failures to refind old records are not mentioned, and only in a few cases where plants have died out quite recently is the fact stated. It is stated that the destruction of *Maianthemum bifolium* at its old Middlesex station was due to the construction of a new path, but other observers have believed that an excepionally hot and dry summer was the cause. It is interesting to note that the compilers of this list consider *Galanthus nivalis* " truly wild " by the River Mole in Surrey, an opinion far nearer the truth than one would suppose from the misleading account given on page 605 of Salmon's *Flora of Surrey* (1931). Actually the Snowdrop still occurs on the banks of the Mole at intervals for about 12 miles of its course, and the reviewer recently found one of these stations from directions a century old.

Evidently every care has been taken to ensure the accuracy of all records, and consequently obvious errors in the book are very few. But it should be noticed that *Euphrasia stricta* Host is not known as a British plant, that *Chenopodium urbicum* has probably in some instances been confounded with *C. rubrum*, var. *blitoides*, and that *Epipactis atropurpurea* is not a Surrey plant, *E. leptochila* probably being intended. Some of the omissions are rather surprising—thus *Fumaria Vaillantii*, *Polygala austriaca*, *Myriophyllum alterniflorum*, *Gentiana anglica*, *Orobanche elatior*, *Mentha longifolia* and *rotundifolia*, *Prunella laciniata*, and *Wolffia arrhiza* are certainly still to be found within the area South of the Thames.

It is to be hoped that the members of the L.N.H.S. will continue their careful work so that we shall have a permanent record of the detailed distribution of plants in this rapidly changing district.

J. E. LOUSLEY.

CLARKE, LILIAN J., D.Sc., F.L.S. Botany as an Experimental Science in Laboratory and Garden. Pp. xvi + 138, with 9 photographic plates and 26 text figures. London: Oxford University Press, 1935; 6/- net.

The authoress of this little book was for many years head of the Science Department of James Allen's Girls' School, Dulwich, and here are recorded the experimental methods adopted by her in the teaching of botany. The great interest of the book lies in the account which is given of the ecological experiments carried out, consisting of the establishment of natural habitats, sand-dune, salt-marsh, and so on, in the garden, and of the subsequent recording of their history. This will be of interest to the practical ecologist as well as to the teacher of botany, who is also well provided for in the clear description and illustration of the laboratory experiments. P. M. HALL.

GILBERT-CARTER, H., M.A., M.B., Ch.B. (i) Our Catkin-bearing Plants, an Introduction. Pp. xii + 62 with 17 photographic plates. London: Oxford University Press, 1932; 4/6 net. (ii) British Trees and Shrubs, including those commonly planted: a Systematic Introduction to our Conifers and Woody Dicotyledons. Pp. xv + 291. London: Oxford University Press, 1936; 12/6 net.

These two works by the same author may well be noticed together. The first is a second edition of a well-known little book which has been found useful for its handy size for the pocket, illustrations and concise descriptions.

The title of the second work involves a somewhat wide use of the term "British," since in it are described not only our native trees and shrubs but all those which are "widely grown in British gardens and parks." It follows, therefore, that this volume holds greater interest for the student working in botanical gardens, or even for the gardener, than it does for the general botanist. The arrangement follows Engler's classification and the author's views on nomenclature are challenging. The International Rules are established as the basis of botanical nomenclature, and it is accordingly regrettable to find such unfamiliar spellings as *Pirus*, based on the author's inability "to take seriously Article 70 of the Rules." Careless proof-reading is responsible for such minor typographical blemishes as *Rhamnus frangula*, *Erica tetralix*, *Pinus cembra* and others, which were noticed. The diagnoses are concise and good, and the printing is excellent. The general reader will welcome in particular the classical quotations, as well as the notes on pronunciation and derivations, which are a valuable feature of both volumes. P. M. HALL.

HANDBOOK AND GUIDE TO THE HERBARIUM COLLECTIONS IN THE PUBLIC MUSEUMS, LIVERPOOL. 84 pp.; illustrated with 14 plates. Published by the Director of Museums, Liverpool; price 6d.

This excellent sixpennyworth provides not only a guide to the 70,000 specimens in the City of Liverpool Herbaria, but also contains much of general interest to British Botanists. The list of collections incorporated in the Herbaria will prove of great value for critical workers, and one would wish that similar handbooks might be issued at a reasonable price by all similar institutions in Britain. There are Biographical Sketches of 26 Botanists, including Charles Bailey (Secretary and Treasurer of the B.E.C. from 1879 to 1900), Robert Brown, Sir William J. Hooker, Linnaeus, Sir J. E. Smith and other notable British and Foreign Botanists, and there is a chronological list of Liverpool Floras. The 14 plates include a photographic frontispiece of a specimen of the extinct *Erythraea latifolia*, portraits of various botanists, and photographs of a number of sheets in the Herbaria. A copious index is provided which is a clue to much useful information scattered through the text.

J. E. LOUSLEY.

[I can confirm Mr Lousley's good opinion of this handbook, but have one suggestion to make. Reference is made to the presence of Linnean types in the Liverpool collections. In a second edition it would be of value to enumerate these types.—ED.]

HESLOP HARRISON, J. W., D.Sc., F.R.S. The Natural History of the Isle of Raasay and of the Adjacent Islands of South Rona, Scalpay, Fladday and Longay. Reprinted from the Proceedings of the University of Durham Philosophical Society, Vol. x, Part 5 (pp. 246-341), with map and 17 photographic plates. Newcastle-upon-Tyne: Messrs T. & G. Allan; no price stated.

A short synopsis of the botanical results obtained by the parties from Durham University, which have visited Raasay and the adjoining Islands in recent years, is given in the paper on p. 299. Those who are interested will find the results set out at greater length in this publication, which combines papers upon the Geology, Flora, Lepidoptera, Trichoptera, Cecidomyidae, Hymenoptera, Psyllidae, and Hemiptera-Heteroptera: many of these papers are by Professor Heslop Harrison and the whole is edited by him. The photographic plates are excellent, and illustrate the remarkable geology and scenery of the Islands, as well as some of the more interesting plants in their natural surroundings. The book is well printed and will be an indispensable companion for any botanist visiting this interesting group of Islands. P. M. HALL.

HITCHCOCK, A. S. Manual of the Grasses of the United States. Pp. 1040, illustrated with 1696 figures. Government Printing Office, Washington, 1935; price $1.75 in buckram.

This book, with its average of over three excellent figures for every two pages, probably represents the best "value for money" which has

ever been offered to English-speaking Botanists. Every page is written with authority by one of the greatest students of the world's grasses, who has unfortunately passed away since publication, and the whole work presents the very latest views, especially on the thorny question of nomenclature. The labour which the book must have entailed may be judged from the fact that 1100 species are described, mostly with illustrations or distribution maps, and that the types of practically all of these and of their synonyms have been examined.

There are 29 useful pages on Morphology, Uses of Grasses, Nomenclature, Keys to the Genera, and Descriptions of the Tribes, followed by 742 pages of the descriptions of the genera and species. Synonomy is treated separately in 207 pages at the end of the volume, where full references to publication and types are given. Finally, there is a glossary and an excellent index.

Although only the most important varieties are included, this work will be of great value to British field botanists, since a very large proportion of our own grasses are described either as native or introduced American species. It can be confidently recommended as a volume which should be included in the library of every member interested in the Gramineae.

J. E. Lousley.

Hyde, H. A., M.A., F.L.S. Welsh Timber Trees, Native and Introduced; second edition. Pp. viii + 106 with 25 photographic plates and 24 figures in the text. Cardiff: National Museum of Wales and the Press Board of the University of Wales, 1935; 2/-.

This is a completely revised edition of the first of the excellent series of publications issued by the National Museum of Wales. The opportunity has been taken to incorporate additional notes and references and to bring the nomenclature up to date, as witness the adoption of the name *Q. petraea* Liebl. for the Durmast Oak. Although intended primarily to deal with Timber Trees from the sylvicultural standpoint, there is much in this book that will interest the general botanist. Of particular interest in this respect will be the treatment of the Elms, which has been entirely revised since the first edition. The botanist will regret that such genera as *Prunus*, *Pyrus* and above all *Sorbus* do not fall within the category of Timber Trees, while critical treatment of the Willows is also beyond the scope of this work. The photographic plates and text-figures are alike admirable and this very cheap little book should be in the library of every botanist, Welsh or otherwise. Its value is enhanced by the addition of Bibliography, Index and Glossary.

P. M. Hall.

Makins, F. K. The Identification of Trees and Shrubs. 2500 diagrams. J. M. Dent & Sons, 1936; 15/-.

The present work contains brief descriptions of all trees and shrubs cultivated or wild in this country, and hence might be expected to be of some use to British Field Botanists. The very wide scope of the

enterprise, however, has entailed reducing the descriptions of the various species to an average of about two lines each, which is scarcely sufficient for even superficial scientific identification. The diagrams occupy 128 pages, but with a little more care they might have been more helpful. Additions and Corrections occupy no less than seven pages. The Horticulturist should find the volume useful as amplifying commercial catalogues, but to the Botanist it is likely to make little appeal.

J. E. LOUSLEY.

PENNELL, FRANCIS W. The Scrophulariaceae of Eastern Temperate North America. Academy of Natural Sciences of Philadelphia, Monograph No. 1. Philadelphia; 1935.

A very scholarly work containing several notes of considerable interest to British workers. The author's treatment of *Mimulus guttatus* and *moschatus*, and *Limosella subulata*, deserves careful study, and his remarks on *Veronica humifusa* Dickson suggest that the American plant so named may not be identical with the Scottish. Pennell states that *Chaenorrhinum minus* (L.) Lange, which was introduced in ballast to American sea-ports from Europe, spread to cindery railroad banks, finding there such an ideal environment that it now occurs exclusively in such habitats. In Britain, of course, the plant occurs widely in the cinders between the permanent way, having spread thence from arable fields. *Verbascum Thapsus*, introduced from Europe, spread so rapidly that at least one American botanist was deluded into supposing it native! This latest work on the Scrophulariaceae may be warmly recommended to those whose interests stretch across the seas.

J. E. LOUSLEY.

SKENE, PROFESSOR MACGREGOR. Flower Book for the Pocket. Illustrated by C. G. Trower and R. Weston. Oxford University Press, 1936; 7/6.

This delightful little volume is one of the best attempts yet made to enable those who are not yet botanists to identify our wild flowers with reasonable accuracy. Though sufficiently simple to be used by the novice with equal (if not greater) ease than those absolutely artificial keys based primarily on flower colour with all its pitfalls which have several times appeared in recent years, Professor Skene's new work also provides an admirable introduction to the botanical system employed in more advanced works. Identification is based first on a key to the Families in which simple though botanical characters are used, then on keys to the genera, and finally on descriptions of the species opposite to which, in most cases, a coloured illustration is provided. A total of 844 species described should enable the beginner to identify almost all the plants he is likely to encounter. The coloured illustrations of 501 species are a special feature of the work, and many of these were reproduced from drawings by the late Miss C. G. Trower, who for many years was a member of the B.E.C. and a highly respected friend of Dr

Druce. As mentioned in *B.E.C. 1928 Rep.*, 851 (1929), Miss Trower gave her beautiful paintings to Dr Druce, and it is by kind permission of his Executors that many of these have been published in the present work. The reproduction of the drawings by the two artists is very well done, and it is not easy to select any examples for special commendation, but the writer of this review was especially pleased with the plate showing two of the colour variations of *Erica vagans*, and those of *Calluna vulgaris* and *Bidens tripartita*. A very few of the drawings appear to have suffered in the necessary reduction of size, and that of *Antennaria dioica* is not likely to prove very helpful to the beginner. In addition to the colour plates, there are 28 grasses illustrated in black and white. The "Flower Book for the Pocket" may be warmly recommended as a suitable present for any friends whom members may wish to interest in British Botany.

J. E. Lousley.

Vachell, Miss E., F.L.S. (i) Flowering Plants and Ferns [of Glamorganshire]. Pp. 56 with 7 photographic plates. (ii) Glamorgan Botanists. Pp. 3. Both reprinted from Glamorgan County History, Volume I—Natural History; Cardiff: William Lewis (Printers) Limited, 1936.

The first of these reprints consists of two parts: first, a general review of the Flora of the county in relation to its geology; and, secondly, a list of Glamorganshire flowering plants and ferns. The second part is strictly a check-list, bringing up to date and summarising all the scattered information which has been published on the flora of this very interesting county. Though it will not give the field botanist much information on the lines of the usual County Flora, by which he may find plants, this part will be of considerable value for those who are working on what may be called the statistical side of the British flora. The introductory portion contains concise descriptions of the features of those districts of Glamorganshire which are of special interest botanically. This portion is no doubt devised for the general reader, and caters both for the amateur and expert botanist by enumerating the "English" and Latin name of every species referred to. This does not make for greater readability and if I may criticise without being captious I would suggest that the invention of "English" names for the Characeae—e.g., "Flaccid Nitella" (*Nitella flexilis*)—is somewhat absurd. The photographic plates illustrate some of the scenery and plants which will be familiar to those botanists who have visited the county. They vary somewhat in quality, but the photographs of *Limosella* at Kenfig and the patch of *Lathraea* are especially pleasing.

The second reprint gives a very short résumé of the lives and work of those who have contributed to the knowledge of the Glamorganshire flora, among them the authoress' father, Dr C. T. Vachell. Miss Vachell herself may well feel gratified at the result now achieved, the summary of her own work in Glamorgan and the work of those who preceded her.

P. M. Hall.

WILD FLOWERS, GRASSES AND FERNS OF EAST KENT. A catalogue compiled by J. Jacob. "Dover Express and East Kent News," Dover, 1936; price 1/6.

In this small work of 32 pages the author lists over a thousand species (and varieties given as species), of which he has traced records for East Kent. The exact limits of the district are not defined, but apparently v.-c. 15 is intended. The catalogue is based on Hanbury and Marshall's *Flora of Kent*, with additional localities added from the author's fifty years' experience in the district. Although the work contains a number of records which will be of interest to students of the county flora it is primarily issued as a check-list for the use of local naturalists and is in no way intended as a scientific publication. It is hoped, therefore, that the zealous compiler will not be discouraged by the criticism which certain features must receive from more critical botanists, but will rather use it as a guide in producing an improved second edition.

Many of the records have been abstracted from Hanbury and Marshall's Flora—sometimes with unfortunate results. Thus *Silene italica* is given for Folkestone in spite of much that has been written on the Kent plant erroneously so labelled; *Cicuta virosa* and *Sonchus palustris* are given for Minster though the authors of the *Flora of Kent* wisely rejected the old records for that locality—though the last-named plant still occurs just within the vice-county on the Medway banks. One wonders what is intended by *Fumaria muralis* and *Taraxacum palustre*, and the popular name of *Limonium vulgare*, var. *pyramidale*, is certainly not "Matted Sea-Lavender." Neither is the distinction between old and recent records always clear—thus *Lythrum Hyssopifolia* is given for Faversham without authority, which may or may not mean that it still occurs there, and similarly we are left in doubt as to whether Mr Jacob has found *Calamagrostis lanceolata* at Walmer, whence there is an old record. But some of the records are of greater importance, though amongst those claimed as new to the area we notice *Galeopsis versicolor*, *Teucrium Botrys* (see also *Journ. Bot.*, 1925, 339) and *Daphne Mezereum*, which are not N.C.R.s for v.-c. 15. He has seen *Verbascum Blattaria* in two stations, and records *Calamintha Nepeta*, and it is pleasing to read that *Euphorbia Cyparissias* is abundant at the old Dover station. The Orchid list is a very good one, and we note that *Himantoglossum hircinum* is "increasing in recent years," and the author's suggestion that the famous Wye supposed hybrid of *Ophrys aranifera* and *muscifera* is perhaps a broad-lipped form of *O. muscifera* is interesting. The explanation of the records of *Cephalanthera rubra* as "probably planted" is novel—mis-identification is more frequently the case.

The nomenclature is archaic in parts. Misprints are fairly numerous, but not likely to mislead, and the general style of printing is good for such a publication. In spite of manifold shortcomings this little book should prove useful to Botanists visiting East Kent.

J. E. LOUSLEY.

YOUNG, WILLIAM. A List of the Flowering Plants and Ferns recorded from Fife and Kinross (v.-c. 85). Trans. and Proc. Bot. Soc. Edin., xxxii, pp. 173, with uncoloured map, 1936; 7/6.

Mr Young has supplied a long-felt want in producing this List of the Flowering Plants of the counties of Fife and Kinross (v.-c. 85). His task must have been an arduous one, for although several herbaria, such as those of the British Museum and Boswell Syme, who was a native of Fife, have not been examined, yet most of the herbaria and a very great deal of the available literature has been consulted. One hopes that his example may be followed by other Scottish botanists, as there are still so many counties in Scotland which, although they have been more or less explored, have no collected records of their flora. In a brief introduction, Mr Young, after indicating the extent and topographical characters of the two counties, refers at some length to the various sources of information upon which he has drawn up to the present time from that of Sibbald, who published a list of plants in his "History of the Sheriffdoms of Fife and Kinross" more than two centuries ago. The literature is fairly extensive and the plants recorded are all listed in the Flora proper. Many of these old records, however, are of little value, noticeably those taken from the "New Statistical Account" (1836-45), written by the various parish ministers. These ministers were invited to supply, amongst other matter, notes on the botanical features of their parishes. Many, fortunately, refrained from doing so. If these Fife and Kinross records are, as they seem to be, as unreliable as those of most of the other Scottish counties, one feels it would have been better if they had been omitted altogether. There seems to be also a good deal of misstatement as to the comparative rarity or frequency of many of the plants. One can hardly credit that *Viola palustris* L. is rather rare and *V. odorata* L. frequent; that *Anthriscus sylvestris* Hoffm. is only frequent while *A. vulgaris* is common. Other rarities cited are:—*Cardamine flexuosa* With., *Geranium sylvaticum* L., *Spergula sativa* Boenn., *Lathyrus pratensis* L., *Taraxacum erythrospermum* Andrz., and *T. laevigatum* DC., etc. It is surprising, too, that in Fife, with its long coast line and stretches of duneland, *Cerastium semidecandrum* L. should be recorded as uncommon. Notwithstanding several inaccuracies, however, and a want of more careful observation on the author's part of the present-day distribution of the plants, this is a useful publication and a welcome addition to the literature of the flora of the Kingdom of Fife and of Kinross.

R. H. CORSTORPHINE.

## ABSTRACTS FROM LITERATURE.

A. J. WILMOTT, assisted by Miss M. S. CAMPBELL and P. M. HALL.

The Abstracts are arranged on the same plan as was adopted in the Report for 1935, except that those Abstracts relating to changes in British taxonomy and nomenclature have been included in "Plant Notes," and those relating to vice-comital distribution have been included in "Plant Records."

[Pressure of work has prevented me from examining so many pediodicals as last year, but I hope to include those omitted this year in next year's Abstracts.—A.J.W.]

### GENERAL.

#### (A) ANATOMY.

The principles of the rhythmic development and radial organisation of the flower are discussed by Saunders (1936 A).

#### (B) ECOLOGY.

DEAD-NETTLE AND STINGING-NETTLE ASSOCIATION.—The theory is advanced by Poulton (1936) that *Lamium album* L. is stimulated by the presence of *Urtica dioica* L. To test field observations, which appeared to support this view, two sowings were made of *Lamium album* seeds; one sowing was top-dressed with earth from a nettle-bed and the seedlings of this sowing were more vigorous than those of the other sowing. The soil used for the top-dressing was found to be comparatively rich in nitrogen, which, however, may have been inherent in the soil and not attributable to the Stinging-nettle, which grew in it.

GRASSLAND.—The effects of irrigation of hill pasture in the Pentlands are described by Heddle and Ogg (1936). It is found to raise the pH (hydrogen-ion concentration) of the soil, reducing the amount of calcium required to neutralise acidity. *Festuca ovina*, *Deschampsia flexuosa*, *Vaccinium Myrtillus* and *Nardus* are reduced and *Agrostis*, *Festuca rubra*, *Trifolium repens* and *Poa trivialis* are encouraged by irrigation.

*Lawn.*—An account of the ecology of a lawn sown in the University of Pittsburg, U.S.A., is given by Van Dersal (1936). The grasses used were *Lolium perenne*, "*Agrostis alba*," *Poa pratensis* and *Agrostis canina*. There was no need to add organic material to the soil, as it tended to increase. The optimum pH lies between 5.0 and 6.5 when the grasses are sown separately, but competition may change the reaction at which a species succeeds. Clover is excluded at pH 5.5, and at or over 7.0 crowds out the grasses

HEATH.—The association of *Cornus suecica* L. with *Pteris aquilina* at the Hole of Horcum, Saltersgate, N. Yorks, is discussed by Flintoff (1936 C). The *Cornus* is here found on relatively dry ground with a

northern aspect. Owing to *Calluna* burning, *Pteris* is spreading and the shading effect is beneficial to the *Cornus*.

(C) EVOLUTION.

The interesting theory is advanced by Hamshaw Thomas (1936) that, in view of the experimental production of mutations by short wave radiations and of the large number of species, especially endemic species, in mountainous areas, it is possible that mutations may be produced in nature by intense bursts of cosmic rays at high altitudes.

(D) NOMENCLATURE.

INTERNATIONAL RULES.—A résumé of the principal decisions on nomenclature at the 6th International Botanical Congress (1935) is given by Sprague (1936). In general, the text of the "International Rules of Botanical Nomenclature," ed. 3 (1935), representing the decisions of the 5th Congress, Cambridge (1930), has been accepted. January 1, 1935, is accepted as the starting-point for obligatory Latin diagnoses, instead of January 1, 1932.

LINNAEAN SYNONYMY.—Caspar Bauhin's "Pinax" and Burser's Herbarium are both of considerable value in the determination of Linnaean types. At the time when he was preparing for the first edition of "Species Plantarum," Linnaeus was in the habit of recording his specific names in the margin of his copy of the "Pinax." A Linnaean MS. contains Linnaeus' determinations of most of the plants in Burser's Herbarium, which still remains at Uppsala University. Linnaeus' own herbarium did not in 1753 contain all the species described in "Species Plantarum," ed. 1, and it is certain that there are many Linnaean type-specimens in Burser's Herbarium.—Savage (1936).

(E) PHYTOGEOGRAPHY.

DISPERSAL OF AQUATIC PLANTS.—Many acres of land on Benton Moor, north of Wallsend, have recently become water-logged, presumably on account of the collapse of disused mine workings. The margins of the newly-formed pond have become colonised by *Ranunculus Lingua* L., *Hippuris vulgaris* L., *Sparganium ramosum* Huds., and other species. This and other cases are described by Temperley (1936) as instances of aquatic plants being distributed by gulls and water-fowl.

ENDEMISM.—That the older and larger a genus is, the larger number *and proportion* of endemics it should contain, and that the Monocotyledons appeared, and became dispersed, later than the Dicotyledons, are among the theories discussed by Willis (1936).

ORIGIN OF THE BRITISH FLORA: ENDEMICS IN THE BRITISH ISLES.—An account of the British endemic phanerogams is given by Wilmott (1936 C), and their importance to the study of the origin of our flora and the effects of the glacial period is discussed. It is held that while some of them might have originated since the glacial period, and some (*Hieracia*, *Rubi*, etc.) possibly during it in an inter-glacial period, others must be per-glacial survivals, and indicate an annual

mean climate (in spite of neighbouring ice) which enabled them to do so.

(F) TOPOGRAPHICAL.

BRITISH ISLES.—The changes in the British Flora during the last 50 years, with a brief description of the species lost and gained and the reasons for such changes, are discussed by Wilmott (1936 A), who concludes: "The nett result would appear to have been some gain, little loss, but much danger from the varied activities of greedy or ignorant people."

CORNWALL.—Cornish records of Flowering Plants and Ferns for the years 1930-1934 have been compiled by Thurston (1936). Many of the records have been published before in the Reports of this Society and of the Watson B.E.C., in the Journal of Botany, and elsewhere, but students of the Cornish flora will find in this paper many hitherto unpublished records. Some of the more interesting of the latter have been included in "Plant Records."

CAMBRIDGESHIRE: WICKEN FEN.—The long study of this interesting area now permits comparison of present and past distribution in detail, and the development of the fen scrub is described by Godwin (1936). The chief colonists in early stages are *Rhamnus frangula*, *R. catharticus* and *Viburnum Opulus*, and in the area studied the first is by far the most abundant. This preponderance appears to be responsible for the preponderance of seedlings of *R. frangula*, and not such factors as seed production, germination, and soil acidity. *R. catharticus* extends rapidly and kills out *Salix atrocinerea*. Eventually the *R. frangula* may also all die out and is replaced by carr dominated by *R. catharticus*. Many detailed maps and transects made in different years are given.

SUFFOLK AND NORFOLK: BRECKLAND.—The first of a series of papers dealing with the ecology of this interesting area deals with its topography, climate, soil and generalities of the vegetation: Watt (1936).

GLOUCESTERSHIRE: COTTESWOLD HILLS.—The effect of human habitation and exploitation on the vegetation of the Cotteswold hills is discussed by Beckinsale (1936). The ancient records have been searched for evidence of wood cutting, charcoal burning, common rights and the like, affecting the history of the vegetation. Much planting has taken place in the last 200 years.

YORKSHIRE.—The aquatic flora of Malham Tarn was examined in September 1936 by Drs W. H. Pearsall and W. A. Sledge, who found that the dominant species are *Potamogeton lucens*, *Chara aspera* and *C. delicatula*, which form almost pure communities. *P. alpinus* appears only to occur in shallow water, while *P. praelongus* and *P. angustifolius* were not seen. The plankton-flora is described and discussed.—Sledge (1936 A).

PERTH-ANGUS BOUNDARY ON THE MAP IN "COMITAL FLORA."—On this map the western boundary of Angus is shown coincident with the R. Tay, whereas it should extend south-east from Coupar Angus. The area

thus erroneously shown as part of Angus (approximately covered by the word " Sidlaw " of Sidlaw Hills on this map) is part of E. Perth, v.-c. 89. It is already pointed out on p. xxx of *Comital Flora* that Kinross is also wrongly coloured—it should be coloured pink, being included with Fifeshire, v.-c. 85.—Lousley (1936 A), 201.

OUTER HEBRIDES: BARRA.—The vegetation of the island is dealt with ecologically (many lists) in the results of the Edinburgh University Biological Society's expedition in July 1935: Watson & Barlow (1936) (see also *The Book of Barra*, edited by J. L. Campbell, 1936—Routledge).

(G) SYSTEMATICS.

6. RANUNCULUS L. The nectary, its scale and their vascular supply have been studied in various British and other species, including *R. acris* L., *R. repens* L., *R. Ficaria* L., and *R. bulbosus* L. The inverted bundle which supplies the nectary does not reach the scale, but despite this the scale is presumably an " enation which follows the law of laminar inversion."—Arber (1936).

6/9. R. ARVENSIS L. The structure and venation of the carpel is discussed by Troll (1934); its peltate plan is compared with that of others similar (*Thalictrum* and *Anemone*) in the same family, and with a parallel form in a leaf of *Spinacea oleracea*.

6/33. R. FICARIA L. The single bifid cotyledon is for various reasons considered by Metcalfe (1936) to be a single foliar organ and not the result of fusion; sometimes two bifid cotyledons and sometimes trilobed cotyledons occur; nothing in the anatomy or morphology is found which contradicts this view, and several points observed confirm it.

BERBERIDACEAE. The pistils are considered to be derived from three free spirally arranged carpels, which have become fused, sometimes with expansion of the lowest carpel (*Berberis* . . . ), and sometimes with loss of one carpel (*Epimedium* . . .); the family is thought to have originated from a pro-ranalian ancestor, to have developed parallel to the *Ranunculaceae*, and to show similarities (? ancestral or parallel) to the *Papaveraceae*.—Chapman (1936).

17/1. BERBERIS VULGARIS L. The embryology of this and other species of *Berberis* is detailed by Mauritzon (1936).

54. BRASSICA L. Chromosomes. *B. campestris* (2 varieties) 2n=20; *B. juncea*, 2n=36.—Alam (1936).

CISTACEAE. The vascular ground-plan of the flowers is described by Saunders (1936).

88/2. VIOLA " MONTANA L." A photograph of a dried specimen, which matches plants in Woodwalton Fen, is published by Blom (1936 A), who details the occurrence of this species and its hybrids with *V. canina* and *V. Riviniana* in Goteborg and Bohus. [My article showing that *V. montana* L. was not this species but *V. elatior* Fries is once again ignored.—A.J.W.]

92/2. DIANTHUS DELTOIDES L. This species is included by Lemperg (1936) in a study of perennial pinks; var. *glaucus* Ser. with glaucous leaves and pale flowers is distinguished from var. *serpyllifolius* Borb., the most important green form, but British material is not mentioned.

96/1. SILENE MARITIMA With. Three different plants were crossed with a single plant of *S. Cucubalus* and the resulting populations are analysed by Marsden-Jones and Turrill (1936). The indumentum involves two main factors and one modifying; the leaf shapes require at least four; armadillo seeds are recessive to tubercled. The number of flowers per inflorescence, anthocyan development, and sex, are also complicated genetically: FFMM=☿, FFmm=♀, FFMm=fluctuating intersexes.

96/4. MELANDRIUM NOCTIFLORUM Fries. No "male" flowers were found among plants grown at Bedford College, Regent's Park, London. The petals of the "female" flowers are smaller than those of the hermaphrodite flowers. The majority of the hermaphrodite flowers only open once but the "female" flowers may open more often, the number of times perhaps depending on the pollination of the flower and on the weather. The "female" flowers are pollinated by night-flying insects but the hermaphrodite ones are always self-pollinated, the anthers dehiscing before the bud opens. There appear to be a number of strains or races within the species, which may have arisen through the self-fertilisation of the hermaphrodite flowers.—Halket (1936).

133/3. IMPATIENS PARVIFLORA. The chromosome number given by Schürhoff (n = 10) is not confirmed by Wulff (1934), who finds n = 12 in the generative cell.

LEGUMINOSAE. The Vascular anatomy of some British species is described by Moore (1936), who recognises three types (*Baptisea*, *Lathyrus*, *Phaseolus*); all the British species mentioned—*Medicago lupulina* and *sativa*, *Melilotus alba* and *officinalis*, *Trifolium hybridum*, *pratense* and *repens*, *Lotus corniculatus*, (*Coronilla varia* and *Lathyrus latifolius*)—belong to the *Lathyrus* type.—Moore (1936: 279-). The floral nectaries and discs may represent various floral parts; perigyny is the usual condition of the flower.—Moore (1936: 354).

153/3. MEDICAGO SATIVA L. Variability in the seed production of this crop has produced a considerable literature on the pollination of this species. The pollen is normally shed in the bud into the keel and normally covers the stigma, which is surfaced by a film of cells which keeps the pollen from the underlying sticky tissue on which it can germinate. The staminal column is under tension and when the flower is visited by an insect or otherwise disturbed the explosive release of tension drives the stigma up against the standard (the movement known as "tripping" of the flower) and the protective stigmatic film is ruptured. Cross

pollination is therefore to some extent possible, and this results in stronger plants with greater seed production. Complete self-pollination results in a reduction of 40% seed production in one year and 70% in two. The seed-production does not vary exactly in proportion to the percentage of flowers "tripped" except in the greenhouse where no tripping results in no seed. In the field in dry conditions self-pollination without tripping occurs. Abortive pollen occasionally limits seed-production and rarely the stigma may be placed above the pollen shed in the bud and pollination is thus prevented.—Brink and Cooper (1936).

154/2. MELILOTUS ALBA Desr. Two populations of biennial diploids were heated at the time of division of the zygote and proembryo. In one population heated for 30 minutes at 40°-41° C. (104°-106° F.) one tetraploid [n = 16; 2n = 32] was found which was almost completely self fertile. In another population heated for 20 minutes at 38°-40° C. (100°-104° F.) one triploid, which was only slightly self fertile, occurred.—Atwood (1936).

155. TRIFOLIUM L. Seeds from 38 packets discovered in a box belonging to Charles Darwin and at least 53 years old were tested. The seeds belonged to various genera but the only seeds found to be viable belonged to three species of *Trifolium*.—Turner (1936).

166/3. ASTRAGALUS DANICUS Retz. Details of its occurrence and habitat in Sweden, where it is rare, are given by Frisendal (1936).

176/3. VICIA CRACCA L. The range of this species in North America, and the distinctions from allied alien species (which are those also alien in Britain) are set out by Fassett (1936).

195(2). SORBUS L. Gatherings of Sorbi made in Gloucestershire by Riddelsdell were sent to Hedlund for determination. As a result a new name is published: *S. globulifera* ["Hedlund in litt. sub-sp. nov." ex] Riddelsdell (1936: 298). A description quite useless for the distinction of such critical forms is given, but fortunately a type is cited (S. 34/12 in Hb. H. J. Riddelsdell). [In spite of protest against this action while Mr E. F. Warburg and myself were working at this group, this determination of Hedlund's has been published. Since the Sussex (Bignor) specimen previously known to Hedlund is cited, it is doubtful whether the type cited by Riddelsdell would have been cited by Hedlund. As the type and publication both depend on Riddelsdell (who thus confuses both Hedlund's and our own studies), Hedlund's name is better omitted from the citation, the more so as Hedlund's MSS. sub-species is published as a species. Until the § *Aria*, to which it belongs, is better known in this country, its value cannot be ascertained. *S. Aria* is very variable on the Cotteswold hills, and the type specimen was gathered after a summer drought. The chief characteristics mentioned are the small leaves and tiny fruits. For the moment it is best ignored.—A.J.W.]

199/18. SAXIFRAGA CERNUA L. Details are given by Melchior (1934) of the distribution in the Alps of this "arctic" species (with a map); it occurs in the Bernese and Maritime Alps, the Silvretta and Oetztal Alps, the Dolomites, and three more eastern massifs in Austria, but for the most part the localities are few and wide apart. [It is clearly a relic of glaciation.—A.J.W.]

211. SEDUM L. Part IV (with index to the whole work) completes the monograph of the genus by Floderström (1935).

DROSERACEAE. This family has been held to be closely allied to the *Violaceae* on account of similarities in floral structure, the purely vegetative features affording points of distinction. Bergdolt (1935), however, finds great similarity in the arrangement and form (fringing) of the stipules, which in the apparently primitive state (seen in *Drosera anglica* growing in insufficient light) is an outgrowth from each side of the leaf in both families.

220/1. EPILOBIUM ANGUSTIFOLIUM L. Its deep seated renewal buds afford excellent protection against burning, and the unusual development of (interxylary) periderm each year gives external and internal protection against desiccation.—Moss, E. H. (1936).

223. OENOTHERA L. Contrary to views published by Gates, *O. muricata* was the first of the American Oenotheras in Europe (England, 1612). *O. biennis* was probably the first in French gardens. A long account of the history of the genus in Europe is given by Wein (1936).

287/2. SAMBUCUS NIGRA L. Bushes with "white" fruits are said to produce the best berries for Elderberry wine; the average weight and diameter of "white" fruits are greater than those of normal fruits.—Dallman (1936 C).

301. VALERIANA L. Blackburn (1936) discusses the paper by the late Dr E. Drabble in *B.E.C. 1932 Rep.*, 249-257 (1933) with special reference to Northumberland and Durham specimens and material in the Hancock Museum and Armstrong College Herbaria. It is pointed out that in describing *V. officinalis* L., f. *dentatifolia* Druce, Drabble must have obtained details from the type specimen, since Druce's original diagnosis does not point clearly to this plant. [The citation, therefore, should strictly be "Druce emend. Drabble," if *dentatifolia* is retained as a variety, in which grade it was originally described; or "(Druce) Drabble," if the grade is changed to forma.—ED.]

It is stated that in *V. dioica* L. the chromosomes are in multiples of four, but in *V. officinalis* L. agg. in multiples of seven, *V. sambucifolia* having 56 and two forms of *V. officinalis* 14 and 28 respectively.

320/3. ERIGERON CANADENSIS L. Chromosomes n = 9, Cooper and Mahony (1935: 847).

370/4. CHRYSANTHEMUM LEUCANTHEMUM L. Chromosomes n = 18 in "var. *pinnatifidum*"; Cooper and Mahony (1935; 847).

419. HIERACIUM L. A booklet containing forty photographs of Swedish (Småland) specimens determined by Dahlstedt has been published by Lundin (1935); several of the species are those in our British list.

425/2. LACTUCA SCARIOLA L. Chromosomes n = 9 in " var. *integrata* " —a ring of 4 chromosomes and 7 pairs—Cooper and Mahony (1935; 847).

427/4. SONCHUS OLERACEUS L. Chromosomes confirmed as n = 16 by Cooper and Mahony (1935; 847).

431/1. LOBELIA DORTMANNA L. This species is dealt with by McVaugh (1936) in a paper on the North American species of the genus. Its seeds are figured in plate 435, fig. 13. " The modern range . . . suggests a circumpolar range in pre-glacial times " (p. 247, map p. 358).

PRIMULACEAE. The anatomy of the gynaecium shows a development of " fundamentally the same type " as that of the *Caryophyllaceae*: Dickson (1936).

The vascular anatomy of several British species has been studied by Douglas (1936):—*Lysimachia Nummularia* L., *L. punctata* L., *L. thyrsiflora* L., *Anagallis arvensis* L.

460/1. PRIMULA ELATIOR (L.) Jacq. The characters and variation of the hybrids between this species and *P. veris* L. and *P. vulgaris* Huds., with special reference to the East Anglian forms, are discussed by Melville (1936).

478. CENTAURIUM Hill. The types of habitat of the three forms found on Ross Links, Cheviotland, are described by Heslop Harrison (1936 C).

478/3. CENTAURIUM LATIFOLIUM (Sm.) Dr. An account of the occurrences of this plant in Lancashire, together with a list of specimens in public Herbaria and photographic plate of the most recent specimen, " Sandhills, Formby, August 1871, R. Brown," is given by Stansfield (1936) and Wigglesworth (1936).

POLEMONIACEAE. From studies of floral anatomy and morphology it is suggested that the family represents " a line of development from a three-carpellate Caryophyllaceous stock " before free central placentation became established.—Dawson (1936).

511/4. CONVOLVULUS SOLDANELLA L. This species spreads by rhizomes about 10 cm. below the surface and at some seasons by arching aerial branches, the whole growth system being discussed by Purer (1936).

517. SOLANUM L. An account of the species occurring adventively in Sweden is given by Blom (1936 B).

532/26. LINARIA CYMBALARIA (L.) Mill. Monographic study of the sect. *Cymbalaria* by Cufodontis (1936); the form with white flower (throat yellow) is f. *albiflora* Guad. (p. 61), and that without a spur is f. *antirrhiniflora* (Gerb.) Cufodontis.

543/18. VERONICA PERSICA Poir. Chromosomes 2n = 28 (tetraploid: with tetrad structure in premetaphase): Beatus (1936).

543/19. V. AGRESTIS L. Chromosomes 2n = 28 (tetraploid: with tetrad structure in prematephase): Beatus (1936).

588. PLANTAGO L. The structure of the ovary in the five British [Linnean] species is discussed by Dowling (1936). In all five species the ovary is bilocular with an axile placenta. It is suggested that the British species present a series showing increasing sterility of the ovary from the many-seeded condition of *P. major* to the two-seeded condition of *P. lanceolata*, in which a one-seeded fruit frequently results from the abortion of one ovule.

588/5. P. MARITIMA L. An introductory study of the species, based on cultivation and statistical observations of a large number of different features, is given by Gregor, Davey, and Lang (1936) as No. 1 of a series entitled "Experimental Taxonomy." The data tabulated indicate the wide variation of this polymorphic species. The authors consider that although this is not antagonistic to orthodox taxonomy, the experimental results cannot yet be absorbed into the existing system without confusion.

588/8h. P. LANCEOLATA L., var. ANTHOVIRIDIS Wats. The imperfect pollen grains in the variety are 18-20 $\mu$ in diameter, as against 30-34 $\mu$ in the typical form. Viable seeds are formed in the variety but further experiment is necessary to determine whether the variety breeds true or reverts to type.—Watson (1936).

611/3. SALICORNIA DOLICOSTACHYA Moss. Most of the material from the West Coast of Sweden determined as *S. dolicostachya* Moss seems to be *S. strictissima* K. Gram.—Blom (1936 C).

616/1. FAGOPYRUM ESCULENTUM Moench. The embryo is of Schnarf's crucifer type and its apparent curvature is due to enormous growth in width of the Cotyledons.—Mahony (1936).

621/1. ASARUM EUROPAEUM L. In spite of the floral structure this is considered by Kugler (1934) to be self-pollinated. Flowers when slit open never contained an insect, nor have insect visitors been observed after many hours watching (only during the day the author thinks nocturnal visitors unlikely and was unable to make observations). The stigmas were always found to be free from pollen until the first stamen had dehisced (table of daily development is given), but were then always found pollinated, and the course of development of stamens makes self-pollination easy.

628/11. EUPHORBIA CYPARISSIAS L. This species is [at least sometimes] self sterile, and when an isolated colony has arisen from a single seed it is found to be barren; if a colony has arisen from several seeds it fruits freely.—Muenscher (1936 B).

632/1. MERCURIALIS PERENNIS L. A detailed study of this species has been made by Mukerji (1936). The seed and its germination, the development of the seedling and the biology of the adult

plant, both root and shoot systems, flowering, pollination, seed dispersal and vegetative multiplication, are dealt with in detail. The first part deals with the taxonomy and distribution of the whole genus. The far eastern *M. leiocarpa* Sieb. & Zucc. is regarded as one of three varieties of *M. perennis*, the other two being var. *genuina* Müll.-Arg. and var. *Salisburyana* Mukerji, 1927, the characters of all three being given as well as those of six habitat forms.

The effects of various soil factors on growth and distribution are examined in Part IV, and of light intensity on the growth and distribution of the two sexes in Part V. The vigour seems to be unaffected by low or high carbonate content, and the species is not a true calcicole but an " oxyphobe," i.e., avoider of acid soil. Soils with high organic content are preferred. High light intensity favours the male plants and low intensities the female; in medium intensities the two sexes are about equally mixed.

633. ULMUS L. Results of studies of this genus continued during 1935 are given by Bancroft (1936 A), who considers that the solution of its species problem lies in the impossible task of breeding them out, and does not believe that the species limits can at present be determined. *Ulmus minor* [*U. sativa* Mill. sec. Moss] is said to be common in the Cotentin [Normandy: dep. Manche].

Details of autumnal colour changing and leaf fall are given by Bancroft in a second note (1936 B), and the series is further continued with miscellaneous observations, including:—Winter Silhouettes (p. 127), Observations in the Cotentin (p. 392), Guernsey Elm (p. 429), in the Netherlands, and a Summary (p. 445).

Dr Bancroft's conclusions are questioned by Hillier (1936), who evidently considers (as do I) that the fact that the variability bewilders Dr Bancroft does not mean that the specific limits are so indefinite that the attempt to define species should be given up. An important point made is " the regrettable fact that prior to the Great War for one hundred years, and probably much longer, cheap seedlings and transplants of hybrid Elms had been imported from France yearly by the thousand. . . . Consequently these hybrid Elms are met with as planted trees in many parts of the country."

656/1. ELODEA CANADENSIS Michx. This species was used in experiments by Wilson (1936) on root hair formation; root hairs are produced from specialised hair-producing cells, and the conditions inducing their production are the entry of the substratum (especially if this is clean sand) by the root. Roots produced in darkness do not make root hairs until they enter the substratum.

Increase of light markedly increases the salt absorption: Ingold (1936).

669/14. ORCHIS MASCULA L. A very remarkable spike bearing ten flowers, each composed of twelve parts including the five anthers normally suppressed, was gathered by J. D. Grose in N. Wilts. A detailed account of this abnormality, thought to be the first of its kind recorded from Britain, is given by Hall (1936 A).

669/18. HIMANTOGLOSSUM HIRCINUM (L.) Koch. A detailed account of the occurrences in England up to 1933 is given by Good (1936), together with a survey of the total range of the species, illustrated by a map. The very marked increase in distribution in the south and east of England between 1900 and 1933 coincides with (and is attributed to) a climatic change, which occurred about 1900. The spread of the species in England is illustrated by 4 maps.

702/6. ALLIUM URSINUM L. Studies of the distribution of this species in the Göttinger Wald have been continued by Schmucker (1934). The plant is limited to the high ground, and a detailed map and profile diagram are given. The water content of the soil is an important factor in determining the distribution, for the species is excluded from areas only slightly wet in spring.

724/1. ACORUS CALAMUS L. The indigeneity of this species in the United States is discussed by Harper (1936). Previous to the Civil War several writers were sceptical, " but less skepticism seems to have been expressed since."

727. LEMNA L. Studies of the interaction of external factors on the growth are continued by White. Strains of *L. minor* from different localities grow at different rates under constant conditions, the differences increasing with higher light intensity.—White (1936; 847). The rate of increase in frond number varies with potassium concentration, and potassium-starved colonies show high starch content and low assimilation rate.—White (1936; 195). The effects of varying nitrogen are tabulated.—White (1936; 416).

729/1. ALISMA PLANTAGO-AQUATICA L. Pollen grains described and figured (with others of the family) by Wodehouse (1936).

734/1. BUTOMUS UMBELLATUS L. The flowers are normally proterandrous although self-pollination can occur as some pollen may be still left in the inner stamens when the stigmas ripen; this is, however, purposeless, since the species is quite self-sterile.—Pohl (1935).

NAIADACEAE. The flower structure of the simplest *Helobiae* (a group in Engler's system of classification which includes families 102 and 103 in Druce's list, ed. 2) is discussed by Markgraf (1936) in relation to their phylogeny. A key to the genera is appended, in which the British genera are placed as follows:—

Potamogetonaceae.

Triglochineae: *Triglochin.*
Potamogetoneae: *Potamogeton, Ruppia.*
Zostereae: *Zostera.*

Naiadaceae.

Zannichellieae: *Zannichellia.*

Naiadeae: *Naias.*

The remaining genus of the old Juncaginaceae—*Scheuchzeria*—is included in the Liliaceae (Tofieldieae).

737. POTAMOGETON. L. Seeds of eighteen species were germinated by Muenscher (1936 A). After drying in air for two months germination is almost nil and storage for two to six months in cold water increases the percentage of germination in most of these species. The § *Pusilli,* which normally grow submerged so that wind pollination is difficult and improbable, may produce viable seeds; they also reproduce vegetatively by winter buds.

737/31. POTAMOGETON DENSUS L. Unlike *Elodea* (q.v.) this species produces root hairs independently of the root entering the substratum.—Wilson (1936; 127).

738/2. RUPPIA ROSTELLATA Koch. The relation of this species to its habitat and its association with *Zostera* is detailed by Philip (1936).

740. ZOSTERA L. A very full account of the morphology of both *Z. marina* and *Z. nana* is given by Markgraf (1936) from examination of material collected by himself in 1935. Existing contradictory statements are deemed due to incomplete observation of fact.

740/1. Z. MARINA L. The relation of this species to its habitat in the Humber estuary has been studied in considerable detail by Philip (1936).

741. NAJAS L. An account (with distribution maps) of the occurrence of *N. marina* L. and *N. minor* All. in the United States is given by Clausen (1936; leaf bases and seeds are figured on pl. 438).

750/1. CLADIUM MARISCUS R. Br. The anatomy has been investigated from an ecological standpoint by Conway (1936). Until it flowers, all the growing parts are below water; the large internal air spaces are probably continuous throughout the plant, although in some parts they are much restricted. In the second paper the conditions of its habitat in Wicken Fen (Cambs.) are stated (two years of records), especially as regards soil temperature and soil atmosphere. The absence of frost is significant. Unless the soil is actually waterlogged, oxygen is at least 12% in the peat soil.

GRAMINEAE. Although it is generally supposed that the grass flower is derived by suppression from the normal trimerous organisation of the Monocotyledons, it is remarkable how constant are the two styles of most groups and how rare are cases of reversion. The occurrence of three styles has been recorded in *Briza media* and in *Hierochloe.*—Salisbury (1936).

758/3. SPARTINA TOWNSENDII H. & J. Groves. From information so far received the attempts to grow rooted offsets and seeds from England in places in or near the tropics, with the exception of Honolulu, have been unsuccessful. Experiments in Australia show promise. The normal period of viability is about fifteen weeks but the journey through the tropics has a depressing effect on seed germinated in New Zealand, and in no case has germination been reported from the tropics.—Bryce (1936).

780/2f. AGROSTIS STOLONIFERA L. Chromosomes—var. *palustris* (Huds.) 2n = 28; var. *maritima* (Lam.) 2n = 56, " 28 bivalents with much lagging " (pollen about 50% sterile and abnormal cells frequent): Church (1936; 12).

787. AMMOPHILA Host. Among *A. arenaria* and *A. baltica* growing together on Ross Links, Cheviotland, it was noticed by Heslop Harrison (1936 D) that *A. arenaria* bore a plentiful crop of Ergots, whereas none were seen on *A. baltica*.

802/1. PHRAGMITES COMMUNIS Trin. The long shoots which this species rarely produces, either floating on the water or running along the surface of the ground to a length of 20 yards, have a structure half-way between that of the stem and rhizome. They produce adventitious roots and lateral shoots instead of leaves, and have a strong and unlimited growth. Causes of their production are mechanical influences, currents, wave action, and wind.—Müller-Stoll (1936).

824/2. POA PRATENSIS L. In New England chromosomes (fig. 8-16) 2n = 56 with much lagging in heterotypic division; pollen 50% shrivelled.—Church (1936; 14).

826/4. FESTUCA ELATIOR L. Chromosomes 2n = 14 (diploid) in England, Germany, and New England—Church (1936); St Ives, found 2n = 14 in sub-sp. *pratensis* and 2n = 42 in sub-sp. *arundinacea*.

826/9. F. OVINA L. Chromosomes vary; tetraploids and hexaploids (x = 7) occur in Europe and an octuploid in New England.—Church (1936).

826/12. F. CAPILLATA Lam. Chromosomes confirmed as 2n = 14 by Church (1936).

840/1. TAXUS BACCATA L. Certain differences given by Chamberlain between this species and *T. canadensis* (concerning the gametophytes) are shown by Saxton (1936) not to exist.

850/1. PHYLLITIS SCOLOPENDRIUM (L.) Newm. For photograph of this species in its single locality in Sweden (map p. 236) see Skottsberg (1936: p. 238).

851/5. ASPLENIUM ADIANTUM-NIGRUM L. A detailed map of the distribution in Scandinavia is given by Skottsberg (1936; 236).

857/4. CYSTOPTERIS FRAGILIS Bernh. Regenerating leaves produced both normal sporophytes and abnormal prothalli; diploid

prothalli and tetraploid sporophytes were also obtained by Lawton (1936).

864/1. OSMUNDA REGALIS L. Diploid prothalli and, subsequently, tetraploid sporophytes were obtained by Lawton (1936) by regeneration from primary leaves of diploid sporophytes.

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NOTE.—This bibliography refers not only to the Abstracts from Literature but to the contents of the Report in general, except such papers as may have their own bibliography.

### ABBREVIATIONS OF TITLES OF PERIODICALS.

ADDITIONS to list previously published see *B.E.C. 1935 Rep.*, 153-155 (1936).

BDB.Ges.=Berichte der deutschen botanischen Gesellschaft.
Nat.=The Naturalist.
P.Cottesw.Nat.FC.=Proceedings of the Cotteswold Naturalists' Field Club.
JRIC.=Journal of the Royal Institution of Cornwall.
SE.Nat.=The South-eastern Naturalist and Antiquary (being the Proceedings and Transactions of the South-eastern Union of Scientific Societies).
Vasc.=The Vasculum.

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## APPENDIX.

### REPORT OF THE FIELD WORK SUB-COMMITTEE.

Miss M. S. Campbell, Miss E. Vachell, Dr R. W. Butcher, Mr H. W. Pugsley.

It appears to be the feeling of a large number of members of the B.E.C. that the Club's excursions have often been exclusively devoted to visiting well-worked localities, with their special and frequently very rare plants, under the leadership of local botanists. After consideration the Sub-Committee finds that the interests of British Botany would be better served by the institution of a series of excursions with a somewhat different object in view, such as are outlined in this Report. The Sub-Committee hopes that these excursions, if revised as proposed, will not only maintain the advantages of the existing system but have a wider appeal than in the past, as they should afford greater opportunity for real field-work, possibly resulting in contributions to the knowledge of the British Flora. The use of these excursions for the purpose of listing and gathering wild flowers for competitions should be discouraged.

The Sub-Committee proposes that excursions should, where possible, be:—

(1) to places where the flora appears to have been inadequately studied,
(2) to places promising an interesting, varied, or unusual flora,
(3) to places which would afford special opportunities for the study of certain critical groups.

If possible there should be from four to six excursions each year, including one lasting for about a week (or longer in special circumstances), one or two to occupy a week-end or two to three days, and two or more day or half-day excursions within easy reach of centres having a large membership.

It is considered desirable that an account of the botanical work undertaken on these excursions should form a contribution to the B.E.C. Reports, and that some members of every excursion party should be responsible for the compilation of the necessary information.

The Sub-Committee recommends that the organisation of excursions should in future be entrusted to a permanent sub-committee; such sub-committee to consist of a convener and two other members, with power to co-opt additional members and to enlist the services of Local Secretaries when required. This sub-committee should draw up a leaflet or leaflets announcing the dates and places to be visited, with the names of the referees and/or leaders and particulars of headquarters and accommodation available (members will then make their own arrangements). Other information on the leaflets should include an outline of the routes to be taken and details of permission to visit estates, and where possible a general account of the natural features and any other desirable data.

The matter of guests attending excursions is referred to the General Committee.

Members of the Club could be invited to forward suggestions for suitable localities for excursions, in time for consideration by the sub-committee, who would present their programme for each ensuing year at the November (or other) meeting of the General Committee, with a view to a preliminary announcement at the Conversazione, or other suitable occasion.