NORTHERN REGIONAL MEETING, 1953

The first Northern Regional Meeting, attended by 78 members and guests, was held in the Department of Botany, University of Manchester, on October 31st, 1953, by kind permission of the Vice-Chancellor and Professor S. C. Harland.

When the meeting opened at 11.15 a.m. Professor S. C. Harland, F.R.S., welcomed members of the Society and their guests to Manchester, commenting on the great taxonomic advances which had been made since the days of Mr. Charles Bailey, who was so closely associated both with the Society in its early days and with the University which has benefited so much from his presentation of his fine herbarium. He then took the chair at the opening session, introducing the speakers, Mr. P. C. Sylvester-Bradley, Miss C. M. Rob and Mr. J. E. Lousley.

At the afternoon session Professor Tutin, the chairman, introduced Professor Harland's talk on the experimental work which is in progress on the genus *Senecio*, which was followed by an interesting and informative discussion.

After tea all adjourned to the laboratories to examine a large selection of exhibits and discuss points of interest. The meeting ended at 6 p.m., when Dr. Dony and Mr. Lousley thanked all who had contributed to the success of the meeting. I should like to take this opportunity of supplementing my inadequate thanks on the day of the meeting by recording here my indebtedness to Dr. Dony, Mr. Lousley, the local secretaries for Lancs. and Yorks and Dr. W. O. Howarth for their patience in replying to my numerous enquiries and appeals for advice both before and during the meeting, and to the exhibitors and others not only for their contributions on the day of the meeting but also for their help in compiling the report of the lectures and exhibits which follows.

E. M. ROSSER.

Lectures

THE TAXONOMIC IMPLICATIONS OF THE BRITISH ROSE SURVEY

P. C. SYLVESTER-BRADLEY

Mr. P. C. Sylvester-Bradley, in his interesting lecture, gave a brief account of the native roses and indicated what kind of information he hoped would emerge from the British Rose Survey.

The native roses can be divided into two sharply distinct groups on the basis of their cytological behaviour. On the one hand there are the two species with orthodox behaviour at meiosis: *Rosa arvensis* (diploid) and *R. spinosissima* (tetraploid). On the other there is the multitude of micro-species belonging to the section *Caninae*, with their aberrant

type of meiosis, leading to the production of gametes of unlike chromosome number, the pollen grains always being haploid. On fertilisation the parent number is restored. Tetraploids, pentaploids and hexaploids are known here, the pentaploids being the most frequent.

Unlike most plants, the principal species (as recognised by Warburg in the new British Flora) in each subsection show reasonably well-defined geographical replacement.

Local populations of roses would appear to show rather different types of variation. There are the densely populated areas with sometimes a very wide range of variation—it is on these, naturally, that field botanists have tended to concentrate in the past. But there are also areas where exactly the same microspecies is encountered over and over again to the exclusion of any other. Such areas would appear to be more sparsely populated than the "good" rose areas. But a great deal more information on these lines is required and this, it is hoped, will emerge as the results of the Survey are analysed.

SOME ALIEN PLANTS OF YORKSHIRE

Miss C. M. Rob

It is impossible to reproduce adequately here the humour and enthusiasm with which Miss Rob put forward her plea for more interest in the alien plants occurring in Yorkshire, but it is to be hoped that they had a lasting effect on her audience, and that any present who retain any vestige of what she believes to be distrust of "foreigners" will soon lose it and join in the recording of interesting aliens.

Reasons for devoting more serious study to alien plants were further stressed by Mr. Lousley in the discussion which followed. Firstly, he said, it was important to obtain early records of species which may subsequently spread (early records of *Senecio squalidus* and *Epilobium adenocaulon* are inadequate). Secondly, closer study of the introduction, spread and taxonomy of present aliens is likely to give information which will throw light on the status of many plants already in our flora and, thirdly, by compelling the use of characters of families and genera it leads to knowledge of the distribution and variation of genera and species and encourages the use of floras and monographs dealing with most temperate areas of the world. For these and other reasons the study of aliens is to be encouraged provided it does not detract from the investigation of native plants.

SOME RECENT DISCOVERIES AND RE-DISCOVERIES

J. E. Lousley

The purpose of this lecture was to discuss some of the more important additions to the British flora and re-discoveries which have been shown at the London meetings of the Society or described in *Watsonia*.

The additions to our flora were reviewed under two headings. First, those which resulted from the investigation of little-known areas and

were very easily recognised as different from previously known British plants. Of these *Diapensia lapponica* and *Artemisia norvegica* are excellent examples and were found on Scottish mountains in places which may not previously have been visited by botanists. *Koenigia islandica* is equally easily recognised but as at least one place where it grows in Skye is frequented by tourists it seems that its small size must explain why it was not detected earlier. These important discoveries suggest that there is still scope for further major additions to our flora from the more remote parts of the British Isles.

The second category of additions arises from the close study of critical groups. These are more numerous, and examples of species added to the British list recently were selected from the work of Dr. S. M. Walters on *Alchemilla* and *Aphanes*, of Dr. E. F. Warburg on *Sorbus*, and of Dr. J. Heslop-Harrison on *Dactylorchis*.

Roegneria doniana was selected as one of the most interesting examples of a species recently re-discovered. It was suggested that a similar careful examination of the records of some other species might result in them being re-found in old localities.

THE GENUS *SENECIO* AS A SUBJECT FOR CYTOGENETICAL INVESTIGATION

S. C. HARLAND

Professor Harland said that *Senecio vulgaris* was chosen for study because it was possible to obtain three or more generations in one year.

With the object of getting a number of clear-cut Mendelian differences to use as markers in interspecific hybrids 250 different geographical strains of groundsel from all parts of Europe, from Iceland, South America and the United States were grown in 1950 at the Manchester University Experimental Ground; but curiously there was little variation.

Attempts are being made to take the radiate gene from *Senecio squalidus* and, by repeated back-crossing to *S. vulgaris*, to put it in a groundsel background and discover whether it is the same gene. If it is this would indicate that *S. vulgaris* and *S. squalidus* had a common ancestry.

A groundsel variant called 'strap' which has been obtained is very weak, has narrow leaves and is male sterile but female fertile. This plant was pollinated extensively by *S. squalidus* pollen and a hybrid obtained which is a sterile triploid. 'Strap' provides the possibility of obtaining other hybrids with *S. vulgaris*. It hybridises readily with the alien described in Druce and Hayward's *Adventive Flora of Tweedside* as *Senecio lautus* Sol.*

*See J. E. Lousley, 1953, *Year Book, B.S.B.I.*, p. 107, for comments concerning the identity of this plant. It is there suggested that the plant is *S. inaequidens* DC., which has since been confirmed by the National Herbarium, Pretoria.—J. E. Lousley.

Excised roots of different geographical strains grown by Dr. H. E. Street and co-workers under artificial conditions have shown different growth rates. Lantern slides illustrating these differences of growth-rate were shown.

Exhibits

1. AN INTERESTING MINT FROM THE SHEFFIELD DISTRICT

The exhibit showed a peculiar mint form from the Rivelin Valley near Sheffield, v.c. 63, which bears a strong affinity to *Mentha smithiana* R. Graham and has perhaps arisen from this taxon by a somatic gene mutation. R. A. Graham identifies it as *M. smithiana* R. Graham var. *angustifolia* R. Graham forma. The Rivelin mint differs from *M. smithiana* and its variety *angustifolia* in having the pedicels and the bases of the calyces more or less hirsute instead of glabrous.

The leaf shape is very variable, some being lanceolate and deeply serrate and others approaching 'typical' *M. smithiana*.

F. W. ADAMS.

Mr. Adams also exhibited interesting sheets from

2. THE HERBARIUM OF JONATHAN SALT

3. *LOTUS HISPIDUS* IN WALES

See report of the London Meeting (*Proc. B.S.B.I.*, **1**, 83, 1954).

4. SPECIES PAIRS AND THEIR HYBRIDS IN THE ISLE OF MAN

Maps were exhibited showing the distribution in the island of 5 pairs of species: *Stachys sylvatica* L., *S. palustris* L. and *S.* × *ambigua* Sm.; *Glyceria fluitans* (L.) R.Br., *G. plicata* (L.) R.Br. and *G.* × *pedicellata* Townsend; *Rorippa nasturtium-aquaticum* (L.) Hayek, *R. microphylla* (Boenn.) Hylander and *R.* × *sterilis* Airy Shaw; *Veronica anagallis-aquatica* L., *V. catenata* Pennell and their hybrid; and *Potentilla reptans* L., *P. mixta* auct. angl. and their hybrid.

These were all selected as instances where the hybrids (usually quite sterile) occur plentifully in areas from which one or both parents are apparently absent. In the case of the *Veronica* the sterile hybrid is much more abundant in the island than either parent. The remarkable prevalence of hybrids in the Manx flora is perhaps partly explicable by the absence or excessive rarity of many species that are more plentiful in Great Britain, thus permitting the hybrids to occupy ecological niches from which they would normally be excluded by the much greater competition prevailing on the mainland.

D. E. ALLEN.

5. *ALCHEMILLA VULGARIS* (AGG.) IN NORTH ENGLAND

Eleven of the twelve micro-species of *Alchemilla vulgaris* occur in North England; pressed specimens of these species were shown, together with notes on their distribution. *A. monticola* Opiz, *A. acutiloba* Opiz and *A. subcrenata* Buser are localized in Teesdale and Weardale, *A. minima* S. M. Walters and *A. minor* Huds. in the Craven district (the latter occurs in Scotland and Ireland) and the other species are more widespread. Specimens, and/or records of "difficult" *A. vestita* (Buser) Raunk. and *A. filicaulis* Buser would be welcomed by Dr. S. M. Walters and myself.

Miss M. E. BRADSHAW.

6 *CALAMAGROSTIS NEGLECTA* IN SOUTH-EAST YORKSHIRE AND A PUTATIVE HYBRID WITH *CALAMAGROSTIS CANESCENS*

Calamagrostis neglecta and *C. canescens* were shown, together with the suspected hybrid and drawings of the floral structure of the parents, leaf positions and flowering spikes of *C. neglecta* and the hybrid.

Miss F. E. CRACKLES.

7. SOME INTERESTING PLANTS FROM YORKSHIRE, ETC.

Herbarium sheets of the following species were shown:—

Orchis traunsteinerioides (Pugsl.) Pugsl. A recently gathered Yorks. specimen.

Orchis fuchsii × *purpurella.*

Adiantum capillus-veneris L. Kent estuary, 1953.

Polystichum lonchitis (L.) Roth. Near Settle, Yorks., 1953.

Orobanche alba Steph. ex Willd. West Yorks., v.c. 64, 1953.

Veronica spicata subsp. *hybrida* (L.) E. F. Warburg. A plant from the exact Westmorland station where it was recorded as *V. spicata* type and so got into the *Comital Flora* for v.c. 69.

Myosotis brevifolia C. E. Salmon. Upper Wharfedale.

Gagea lutea (L.) Ker-Gawl. Upper Ribblesdale, its highest known altitude in Britain, where it very rarely flowers.

Mertensia maritima (L.) S. F. Gray. V.-c. 60. First record for West Lancs. Shingle near Morecambe, August 1941.

Epilobium alsinifolium Vill. V.c. 64. Upper Wharfedale, Yorks.

Linum catharticum var. *dunense* Druce from an inland station.

Brachypodium pinnatum (L.) Beauv. from the scar limestone, Yorks. All previous records are doubtful.

J. N. FRANKLAND.

8. *EGERIA DENSA* IN BRITAIN

This new and interesting addition to the alien flora of Britain was recently found by Miss Frost in a South Lancs. canal. Fresh material, drawings and herbarium specimens were shown, together with a map

illustrating the temperature gradients in the canal and the distribution of *Egeria* and associated species.

Miss L. W. Frost.

9. Flora of Israel

Two volumes of 50 illustrations each, the second having five plates in colour.

Mrs. A. N. Gibby.

10. British *POLYGALA* Species

The demonstration consisted of:—

(a) A specimen of *Polygala amara* seemingly from Jersey, collected by Babington, differing slightly from known British stocks of *P. amara* and *P. austriaca*. This is thought to justify a queried record for that locality.

P. calcarea (misidentified as *P. depressa* = *P. serpyllifolia*) from Thirsk. It seems most unlikely that suitable localities for the species occur in this neighbourhood, and as the species is not rare in the south of England it is thought that the locality on the sheet is an error (5/58 e. coll. Fletcher).

(b) A demonstration of capsules of *Polygala* species to draw attention to useful characters of wing venation, capsule shape and capsule rim. See report of the London Meeting (*Proc. B.S.B.I.*, **1**, 93, 1954) for further details.

(c) Herbarium material of the species, differences in habit, leaf shape and corolla proportions being pointed out. *P. vulgaris*, *P. amara* and *P. austriaca* tend to grow from the base, *P. serpyllifolia* and *P. calcarea* tend to continue the growth of a stem by shoots arising from the upper axils of overwintering stems, and in *P. serpyllifolia* from the axils beneath a spike. The leaves of *P. calcarea*, *P. amara* and *P. austriaca* are broadly spatulate below, narrowly above. (In *P. austriaca* the leaves are blunt, in *P. amara* pointed). Those of *P. serpyllifolia* are usually elliptic, broadest about the middle, and blunter than in *P. vulgaris*, where the broadest point is usually below the middle, and the leaves longer. The corolla is usually short-tubed with long petals and comb in *P. calcarea*, *P. amara* and *P. austriaca*, longer-tubed in *P. serpyllifolia* and *P. vulgaris*, the comb and petals being short in *P. serpyllifolia* and longer in *P. vulgaris*.

The similarity of *P. amara* and *P. austriaca* was pointed out and emphasized by the display of a sheet of *P. austriaca* from Shoreham, Kent, which has the habit of *P. amara*, and can only be distinguished with difficulty. The intergradation of *P. vulgaris* and "*P. oxyptera*" was again shown by the display of a collection from Wye, Kent, where "*P. oxyptera*" can be obtained on the top of the Down and *P. vulgaris*

below. The forms grade into one another, the series being visible in several flower colours, and leaf and wing shape seem constant throughout (the wing being greatly reduced in the "*P. oxyptera*"). It appears as one population, the "*P. oxyptera*" form being brought about by the exposed conditions.

The intergradation of *P. vulgaris* and "*P. oxyptera*" was emphasised throughout, the point being stressed that they do not differ in qualitative characters as do the other species, e.g., characters of wing venation, capsule shape and rim, corolla proportions, leaf shape or habit other than in size. It was also pointed out that there are various ideas as to what is meant by "*P. oxyptera*", various people employing habit, small size and few flowers, or wing shape, or the proportions of wing to capsule, to define it. It is felt that the non-significance of habit is shown by the population mentioned above, which also varies in wing-to-capsule proportions. Wing shape commonly varies in one population, as was shown in the demonstration of capsules, and is generally independent of plant size. It seems that all *P. vulgaris* in Britain has the wing narrower than the fully ripe capsule.

The similarities of *P. amara* and *P. austriaca* were also brought out, showing that they did not differ more than isolated populations of the other species.

D. R. GLENDINNING.

11. *EPILOBIUM LINNAEOIDES* HOOK. F. IN BRITAIN

See report of the London Meeting (*Proc. B.S.B.I.*, **1**, 93, 1954) for details.

MISS V. GORDON.

12. WATER COLOUR DRAWINGS OF SEEDS OF BRITISH PLANTS

A selection of water colours of seeds and fruits of British plants.

H. E. GREEN.

13. AN INTERESTING *SENECIO* FROM NORTH WALES

A specimen was exhibited of a large radiate *Senecio* which could not be named by any of those present. Seed of this plant, supplied by the exhibitor, is in cultivation at the Manchester University Experimental Ground and it is hoped that further information about this "giant groundsel" can be given soon.

H. E. GREEN.

14. TWO *SENECIO* HYBRIDS

The weak, narrow-leaved groundsel variant called "strap", which is male-sterile, was exhibited. This plant has been used as a female parent to obtain an inter-specific cross between *Senecio vulgaris* and *S. squalidus*, the hybrid being a sterile triploid. Interspecific hybrid seedlings were shown from the crossing of "strap" with an alien species thought at first to be *S. lautus* Sol., but now thought to be probably *S. inaequidens* DC. (See earlier reference.)

S. C. HARLAND and A. R. HAYGARTH JACKSON.

15. Excised Roots of *SENECIO* Species growing in Sterile Culture

The first part of the demonstration showed the methods of maintaining excised roots in sterile culture, and of increasing them for experiment.

The second part consisted of excised roots of the species *Senecio vulgaris*, *S. squalidus* and *S. jacobaea*, to show the striking differences in morphology between roots of these species.

Roots of strains of *S. vulgaris* from Norway, Iceland, Czechoslovakia and Peru demonstrated intraspecific differences in morphology and particularly in growth rate.

Finally there were roots of the Czechoslovakian strain growing on Arginine and Yeast media, showing the differential effect on growth rate exercised by these two substances which is not found with the Icelandic strain.

H. E. Street, H. P. Charles and B. Cholerton.

16. Some British Varieties of *FESTUCA*

A series of forms of *Festuca ovina* and *F. rubra* showing parallel divergences was exhibited, as, for example:—

A. Hairiness of spikelets illustrated by:—
   F. ovina (*mutica*) and var. *hirtula*
   F. ovina (type) and var. *hispidula*
   F. rubra (type) and var. *dumetorum*

B. Pruinose (waxy) surface illustrated by:—
   F. ovina var. *glauca*
   F. rubra var. *pruinosa*

Forms of *F. elatior* were also shown and the natural hybrid × *Festulolium loliaceum* (Huds.) P. Fourn.

W. O. Howarth.

17. Some Interspecific Hybrids in *POTENTILLA*

The demonstration included the preliminary results of a cytogenetical investigation of the relationships of *Potentilla erecta* (L.) Räusch. (2n=28), and *P. anglica* Laich. (2n=56). Natural hybrids between these species are frequently recorded in British floras under the names *P.* × *suberecta* Zimm., *P.* × *italica* Lehm. and *P.* × *mixta* Nolte. Crossing experiments, including all combinations, were successful in producing *P. erecta* × *anglica* and the reciprocal hybrid. All other combinations failed. The hybrids, 2n=42, are female fertile, and slightly male fertile. Backcrosses to both parents produced viable seed, and the backcross derivatives are mainly vigorous. Chromosome numbers already determined include 2n=28, 33, 35, 36, 49 and 51.

An investigation of the possibility of intergeneric hybridisation between species of *Fragaria* and *Potentilla* has shown that the most promising combination is *F. vesca* L. ♀ × *P. reptans* L. ♂. The two species cross easily, but the seedlings die after one or two months.

J. K. Jones.

18. EXHIBITS BY MEMBERS OF LIVERPOOL UNIVERSITY

(1) BRITISH *HIERACIA* OF HISTORIC INTEREST FROM THE HERBARIUM OF W. R. LINTON

The exhibit showed specimens of historic interest extracted from Herb. W. R. Linton, now in the possession of the University of Liverpool.

The Linton herbarium includes an extensive collection of British *Hieracia*, mainly collected by W. R. Linton, with many additional specimens contributed by E. F. Linton and other British and Continental *Hieracium* specialists.

The sheets exhibited showed only those species or varieties which appear to have been first described by W. R. or E. F. Linton. The interest of these sheets is considerably enhanced by the abundant critical comments or extracts from correspondence with other contemporary specialists. The names most frequently occurring are those of Dahlstedt, E. S. Marshall, F. J. Hanbury and Augustine Ley.

C. L. HARE.

(2) *DRYOPTERIS DILATATA*

Herbarium material of *Dryopteris dilatata* (Hoffm.) A. Gray was exhibited. Work on this species was carried out whilst the exhibitor was a member of Leeds University.

A wide range of form was shown to be present in tetraploid *Dryopteris dilatata*. A diploid form, collected on Ben Lawers, Perthshire, Scotland, by Mr. A. H. G. Alston of the British Museum, is considered worthy of specific separation owing to its morphological and cytological distinction. Hybrids between the diploid and tetraploid forms have been shown to be triploid and sterile, with approximately 'n' bivalents and 'n' univalents at meiosis (n=41 in *Dryopteris*).

S. WALKER.

19. TWO *ERICA* FORMS

Erica tetralix L. Herbarium specimens of this plant were shown in which the leaves were devoid of cilia. Similar plants were found in blanket bog in several localities in Connemara. Search in Herb. Bailey showed no similar plant among sheets of English material, but similar forms were found in material collected in Connemara.

The plants shown were growing among *E. mackaiana*, and typical *Erica tetralix* was rare here.

Erica cinerea L. A dwarf form with restricted inflorescence, a 'pinched' appearance to the corolla, and the corolla usually salmon pink, occasionally white. An unmistakable form in the field, scattered over the blanket bog behind Roundstone, Connemara, between Errisbeg and the Clifden road.

No similar plant was found in the English material in Herb. Bailey, but an exactly similar form (white-flowered) was found, collected in exactly the same locality in 1868, labelled 'nana fl. albo'.

J. N. MILLS.

20. A PUZZLING *GALIUM* FROM CONNEMARA

A small number of plants, all dwarfed like the specimen exhibited, were found on rocks at Connemara just above the highest tide-mark. Typical well-grown *Galium aparine* was growing nearby.

Professor D. A. Webb, who saw fresh material, commented, "A very odd plant; seems intermediate between the two (*G. aparine* and *G. tricorne*) in most respects, especially curvature of and length of peduncles and surface of fruit. Leaves are more like *G. aparine*; colour of fruit and frequent abortion more like *G. tricorne*".

The corolla, when fresh, was dirty yellow, like *G. tricorne*. Petals were usually 3 and leaves in whorls of 4, unlike either species, resembling *G. aparine* both in shape and in the direction of the marginal bristles near the apex.

Hybrid origin is improbable, as *G. tricorne* has never been recorded from Ireland.

J. N. MILLS.

21. A METHOD FOR THE ANALYSIS OF A SUSPECTED HYBRID POPULATION BETWEEN *CENTAURIUM MINUS* AND *CENTAURIUM LITTORALE*

See report of the London Meeting (*Proc. B.S.B.I.*, **1**, 98, 1954) for details.

MISS W. T. M. O'CONNOR.

22. A NATURAL HYBRID BETWEEN *VACCINIUM MYRTILLUS* AND *V. VITIS-IDAEA*, *V.* × *INTERMEDIUM* RUTHE

This hybrid was discovered in Germany in 1826, and *Vaccinium myrtillus* and *V. vitis-idaea* were suggested as parental species. The distribution of the putative hybrid and its supposed parents in N.W. Europe was presented on maps.

The results of artificial pollination experiments showed that *V.* × *intermedium* is formed from *V. myrtillus* × *V. vitis-idaea* of which the former is the maternal parent. Backcrossing of this hybrid by pollinating it from *V. vitis-idaea* yielded a progeny which showed more variability than any of the progeny of parental selfings or hybrid first generation progeny. Individuals of the backcross progeny provide strong evidence of introgression to the recurrent parent.

Using a pictorialized scatter diagram technique, the results of a field analysis of *V.* × *intermedium* were summarized and it was shown that the population (in the British Isles) is homogeneous, in that it shows no more variability than either parent.

Low pollen viability of the hybrid and the negative results of self-pollination experiment indicate that the production of a second generation is unlikely. Back-crossing experiments provide evidence for introgression to the recurrent parent, *V. vitis-idaea*. With one exception, in Sweden, the absence of evidence of natural introgression indicates that gene-flow between these two ecospecies has scarcely begun, being limited by the selective effects of environment. Further, the longevity of individual clones and their mode of reproduction—almost entirely vegetative—retards potential gene-exchange and convergence.

J. C. RITCHIE.

23. A SUCTION APPARATUS FOR THE EMASCULATION OF SMALL FLOWERS

The emasculation of the small flowers of *Trifolium* species for use in experimental crosses is achieved by the exhibitor by means of fine glass jets attached to a water pump which provides sufficiently strong suction to remove the anthers. He gave a number of demonstrations of his technique during the meeting.

A. SMITH.

24. SOME MEMBERS OF *CAREX* SECTION *ACUTAE*

Carex nigra (L.) Reichard is a common, variable and widely distributed species which in *Dansk Ekskursions-Flora* (7th edition by K. Wiinstedt) is divided into three species. It is probable that all three of these can be recognized in Britain, but one, *C. stolonifera* Hoppe, needs further investigation. *C. subcaespitosa* (Kükenthal) Wiinstedt is, however, a distinct plant in its densely tufted habit and fruit shape. It is known to occur near Edale and Malham and may well be found elsewhere. It appears almost certain that records of *C. juncella* (E.Fr.) Th.Fr. from this country refer to *C. subcaespitosa*.

The exhibit consisted of specimens of *C. subcaespitosa* together with sheets of *C. bigelowii*, *C. nigra* and what may be *C. stolonifera*. Specimens of *C. juncella* and *C. cespitosa*, neither of which appear to be British, were included for comparison.

T. G. TUTIN.

25. A DWARF ECOTYPE OF *GEUM RIVALE* FROM TEESDALE

Specimens were shown of a dwarf form of *Geum rivale* L. collected at a height of 1700 ft. from the grazed limestone grassland of Cronkley Fell, Upper Teesdale, and of the common lowland form.

These and other forms of *G. rivale* have been recently studied by Miss A. C. Tallantire at Durham. She has found that, in general, plants from montane habitats are significantly smaller than those from lowland habitats. Experiments on plants from Durham populations have shown that the forms retain their distinguishing characters in cultivation, breed true, and are perfectly interfertile.

The differences between the lowland and montane populations (which may be regarded as ecotypes) appear to be purely quantitative; no qualitative differences have been found.

Populations intermediate in size characters between the extreme forms demonstrated here have been found in sub-montane habitats in other parts of the British Isles; but the extreme dwarfness of the Teesdale population appears to be unique.

D. H. VALENTINE.

26. *RUBUS SPECTABILIS* PURSH FROM THE ISLE OF MAN

This attractive North American alien was recently recorded by the exhibitor near Port Sodrick in the Isle of Man, where it appears to be naturalised. Herbarium sheets were shown.

J. T. WILLIAMS.

27. THE STATUS OF *ROSA WILSONI*

The demonstration included drawings and microphotos of different stages in meiosis of *Rosa* × *wilsoni* Borr. and data on the breeding behaviour of this hexaploid hybrid between *R. tomentosa* and *R. spinosissima*. This new information suggests that *R. wilsoni* arose from a cross of the type:—*R. tomentosa* (female) × *R. spinosissima* (male), giving a hexaploid in one step, rather than from the reciprocal, followed by chromosome doubling to produce an allohexaploid as had previously been suggested. The observed breakdown of the meiotic system characteristic of the *Caninae* themselves, agrees with the results of Scandinavian and American workers on artificial hybrids between members of the *Caninae* and species from other sections of the genus.

A. P. WYLIE.