BSBI NEWS

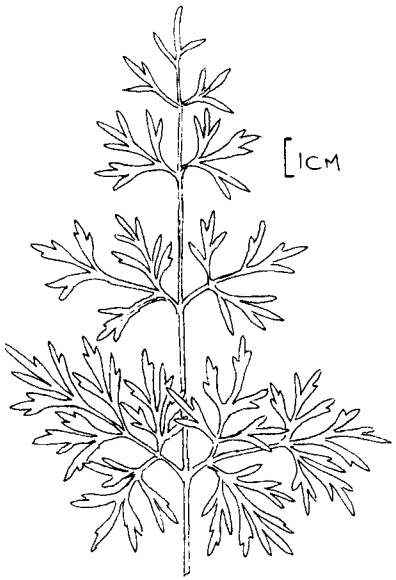
September 1998

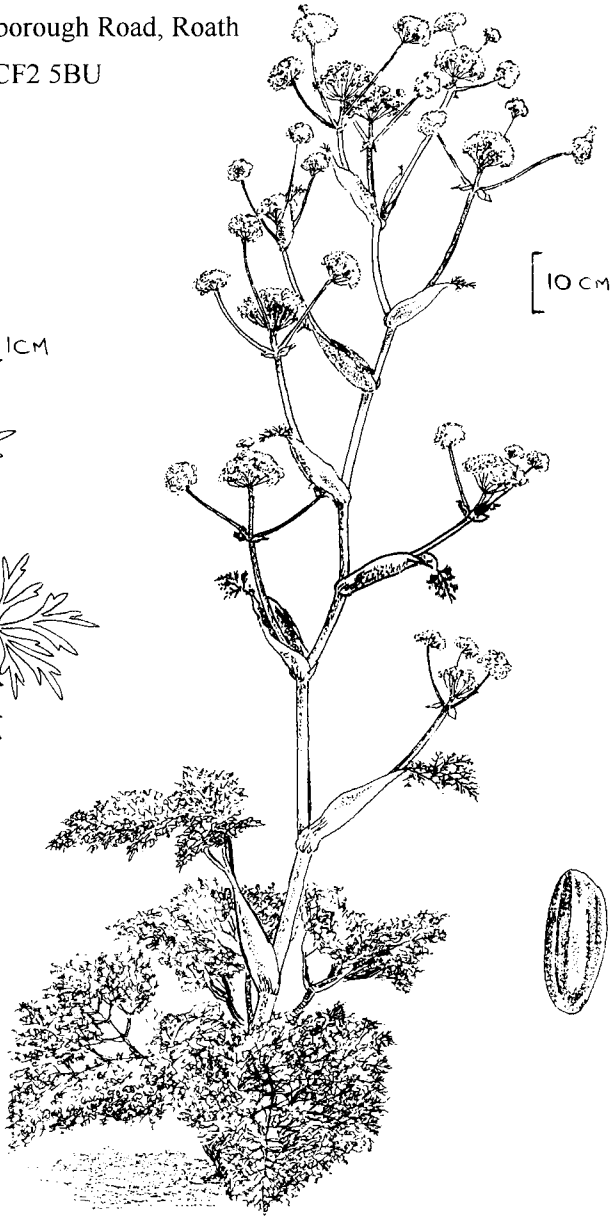
Edited by R. Gwynn Ellis

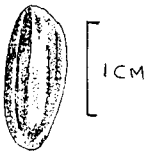
No. 79

41 Marlborough Road, Roath

Cardiff CF2 5BU







Ferula tingitana L. Hort. Gosport, del. C. Hogg © 1998 (see page 64)

ADMINISTRATION

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TREASURER AND MEMBERSHIP SECRETARY

It is very important for members to remember that the jobs of Hon. Treasurer and Hon. Membership Secretary have been split up.

Our Hon. Treasurer is **Michael Braithwaite** and all queries of a financial nature **apart from SUBSCRIPTIONS** should be sent to him at: 19 Buccleuch Street, Hawick, Roxburghshire, TD9 0HL; Tel. 01450-372267. Fax 01450-373591, **and not to his home address** (given in the *Year Book*) which is for his vice-county recorder duties only.

Mike Walpole is our Hon. Membership Secretary and all queries regarding **SUBSCRIPTIONS** and **MEMBERSHIP** should continue to be sent to him at: 68 Outwoods Road, Loughborough, Leics. LE11 3LY; Tel. 01509-215598; E-mail: mike.walpole@dial.pipex.com

EDITOR

CONTRIBUTIONS INTENDED FOR *BSBI NEWS* 80 should reach the Editor before NOVEMBER 1 1998

IMPORTANT NOTICES

MESSAGE FROM THE PRESIDENT

This is an opportunity to thank you for the great honour of election as President and I shall endeavour to fulfil your vote of confidence.

In the 38 years in which I have enjoyed membership of BSBI, there have been considerable changes in the botanical world, and inevitably, these are reflected in some changes in our activities now. But one aspect of BSBI which I have most valued is the co-operation and exchange of ideas and records within the society between professional and amateur botanists, and this I hope will not change; I will hope to maintain this in every possible way while in office.

The main project currently in hand, with which we are progressing is the completion of recording and production of text for the publication of the Atlas 2000. We also look forward to taking the lead in maintaining records of our British and Irish rare and endangered plant species on a database. I am confident too that we will maintain the high standard of our publications, providing accurate and accessible information on the wild plants in Britain, Ireland, and further afield when appropriate; also to provide news of BSBI activities and comment for the information of members. I hope that the wide variety of meetings arranged for members will be well supported, and in particular to have a really good attendance, and a full house of exhibitors, at the Annual Exhibition Meeting on Saturday November 28th – this year in London, and for which the notice and application form is in this mailing.

The Society's members have many diverse botanical interests and we aim to provide information and enjoyment for all. I will be pleased to hear comments from members on this.

MARY BRIGGS, President

BSBI RESEARCH FUND

This report supersedes that in *BSBI News* **74** (1997). Ed.

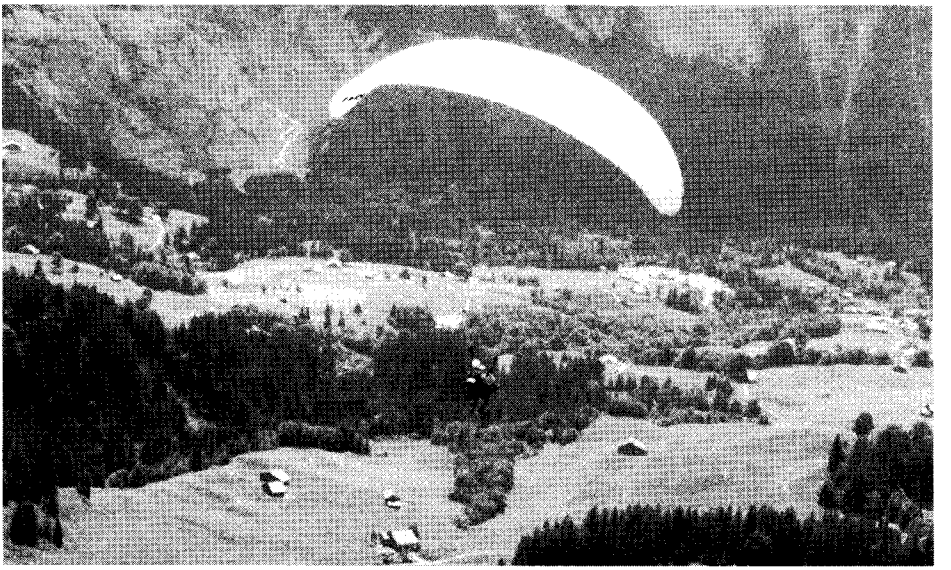
The Background to the Research Fund

The Research Fund (until 1994 known as the Welch Bequest) originated in 1988 as a result of a generous legacy from Barbara Welch, former Assistant Secretary and an Honorary Member (see *BSBI News* **74**: 4 (1997)). The Society's Council decided that the income arising from this significant addition to our capital funds should not be used to defray normal running costs but should be set aside for special projects. Recently our share of the jointly-administered (with the British Bryological Society) E.F. Warburg Fund was added to the Research Fund, as will any legacies to the Society, which we hope will be made in the future.

The Fund is managed for the Society by the Scientific and Research Committee, under the Chairmanship of Professor John Parker, and will be deployed to promote botanical studies of high quality. We will seek to fund the following areas of study relating to the British flora (but in a European perspective). As the Society develops and makes known its own strategy for research, projects which contribute to that programme will be encouraged. Financial assistance may also be considered for PhD students pursuing these topics when other funding is unavailable; direct grant-aiding of PhD students will not be considered:

- taxonomy and systematics, including molecular studies;
- ecology, incl. autecological, physiological and phenological studies;
- genetics, at the population and ecological levels;
- plant geography;
- plant/animal interactions, incl. plant biochemistry;

All togged up and ready to fly?



'She flies through the air with the greatest of ease'

Madam President paragliding in Switzerland. Photo © 1998

- evolution;
- management and conservation of rare and endangered species or populations.

Grants may also be given along the following lines to help members develop their interest in plants whilst at the same time contributing to a scientific project, or otherwise communicating botanical knowledge:

- for visits to herbaria, botanic gardens, museums;
- towards field work / surveys for floral studies (distribution, mapping, ecological measurements);
- for attendance at BSBI conferences, field trips and workshops or survey meetings in order to give papers or workshop presentations.

Grants given to research projects could include support for the following but contributions to salaries will not normally be made:

- travel and subsistence;
- publication by conventional and electronic means (including hardware and software for data handling, preparing camera-ready copy, including preparation of illustrations and printing); when publications are for sale, grants may be made on the understanding that they are paid back when the publication costs are recovered from sales;
- networking and dissemination of information through BSBI News and other periodic newsletters and through the BSBI, or other, web-sites;
- scientific equipment, and consumables;
- special services (laboratory fees, hire of equipment, etc.).

How to apply

Application forms are available from the Secretary of the Science and Research Committee at the address below. They may also be downloaded and returned via the BSBI web-site at http://members.aol.com/bsbihgs.

Grants will be allocated in February and September, and must be received for the former by 14 January and for the latter, by 31 July. Grants in excess of £2,000 will be subject to the approval of Council that will meet in March and November.

Successful applicants will be asked to submit annual reports on the progress of their project and grants specifically for publications will not normally be made in full until the book/paper has reached the 'ready for press' stage.

A.C. JERMY, Secretary BSBI Science and Research Committee, 41 Tudor Drive, Otford, Kent TN14 5QR. Tel. and fax: 01959 523 654. E-mail c.jermy@nhm.ac.uk

DIARY

N.B. These dates are supplementary to those in the 1998 Calendar in *BSBI Year Book* 1998.

1998

October

11 The International Cotoneaster collection open day (see page 69)

1999

February

6 Druce Lecture, Max Walters on *The Changing Flora of Cambridgeshire* (see page 69)

March

18-21 John Ray and his Successors, Conference (see page 70)

May

4-8 BSBI Field Meeting in Ibiza (see page 69)

EDITOR

EDITORIAL & NOTES

Congratulations to Mary Briggs on her election as our first lady President. As far as I am aware, she is also our first President to go Para-gliding (see page 4), and the first (as Vice-president) to appear with Noel Edmonds and Mr Blobby on *Noel's House Party*! I believe a video of the latter escapade exists, maybe we can have a viewing at an Exhibition Meeting or AGM?

Thanks to Brian Rushton who has recently retired as Receiving Editor for *Watsonia*. Brian has been an editor for fourteen years and Receiving Editor for the last seven. His role has been taken over by Martin Sanford.

Thanks also to David Pearman who has done so much for the Society during his four years in office, one as Vice-president and three as President. David will continue to play a leading role with both the Atlas 2000 project and the BSBI Co-ordinator.

And also to Cameron Crook for all his hard work as BSBI Co-ordinator. Thanks to his efforts, more BSBI Vice-county Recorders are computerised than before, and outside bodies are beginning to take note of the Society, its message and its resources.

Welcome to our new 'stand-in' Co-ordinators, Sarah Whild and Alex Lockton, who have taken over Cameron's duties until a new BSBI Co-ordinator is appointed.

An apology: There is a dyslexic phone number for our new President on page 2 of *BSBI Year Book 1998* – although the correct number is given on page 3. In case of doubt the correct number is **01798 873234**.

Apologies to *James* Dickson, Professor of *Archaeobotany* and Plant Systematics at the University of Glasgow for getting both his Christian name and Chair wrong in the last issue.

And also to Geoffrey Kitchener – something seems to have gone adrift with the text of his abstract on *Epilobium* × *montaniforme*, after it left his hands. This (*BSBI News* **78**: 90), refers to the length of the *seed pods*; it should have referred to *seeds*. As Geoffrey says 'there is quite a lot of difference'!

Orchids and bistorts: The entire audience at a recent BSBI Wales AGM, which included the Hon. General Secretary, two Vice-presidents, 10 Welsh vice-county recorders, the Atlas 2000 Organiser and half of the BSBI Co-ordinator couldn't tell their 'orchids' from their 'bistorts'.

During a talk by Geoff Battershall, a slide was shown of a plant whose name Geoff could not remember. This was variously called 'a Gymnadenia', 'a Pseudorchis', but *definitely* an orchid. Geoff then found his notes and pronounced it an 'alpine bistort'.

Mind you, we all agreed afterwards (quite untruthfully) that it was a *remarkably* poor photograph!

Obituaries See Obituary Note page 73.

Covenants and Direct Debit forms. Enclosed with this mailing is a leaflet appealing to members to consider covenanting their subscriptions. Please read it carefully; if every member who could covenant, did so (at no cost to themselves), their subscription would be worth an extra £5.37, that's 25% more. It really is worth doing. Also enclosed is a Direct Debit Form which should only be competed if you currently pay your subscription by annual cheque. **If you already pay by Direct Debit do not fill in the form**.

Code of Conduct With the Government's ratification of the changes to the Wild Life and Countryside Act, a new edition of the *Code* has been completed and will be published this Autumn and mailed to members with the Christmas edition of *BSBI News*.

And finally, I'm sorry that the leaflet on the Plant Finder CD-ROM did not appear with the last mailing, a short notice appears on page 71. Among the inserts this time are *BSBI News* **79**; *BSBI Abstracts*; Annual Exhibition Meeting booking form; Scottish Exhibition Meeting notice; Covenant and Direct Debit forms; *Botanical Books from Oundle* catalogue, and pre-publication offers for *Flora of County Dublin* and *The Flora of Norfolk*.

EDITOR

PROFILES OF NEW HONORARY MEMBERS

At the Annual General Meeting in Cardiff, two new Honorary Members were nominated for election. The sponsor for each candidate gave a short profile of the nominee and these are published here, more or less as they were presented.

Richard Fitter

I first met Richard Fitter soon after the war at the then PEP lunch club, at the time he had written the seminal New Naturalist *London's Natural History*. In the early 1950s I was contemplating producing for the Wild Flower Society a Flora to replace the out of date Bentham & Hooker, when Richard walked into my office and said that Billy Collins (The book publisher) wanted us to do just that. Billy was so anxious lest someone else beat us to it, that it had all to be done, text, specimens for plates and the plates themselves in two years. It could never have been done but for Richard's organising ability and rapid expert knowledge of wild flowers. And this he has kept up and enlarged ever since – his tally in Parnassus in the WFS well exceeds 3,000 and he is adding to that in an active way; all this despite the important offices he has undertaken. For his extensive other activities and responsibilities I must refer you to *Who's Who*. But here we are concerned with his botanical prowess. In that invaluable work you may see set out the record of his numerous books. on wild flowers.

In Guernsey, Honorary members may be called Membres d'Honneur. So welcome him to the honour of joining our list of Honorary Members.

DAVID McCLINTOCK

[David McClintock was unfortunately unable to be present at the AGM and David Pearman acted as joint sponsor. Ed.]

In David's absence it falls to me to propose Richard Fitter. As a follower of them both I can stress the importance and value of Collins' *Pocket guide to wild flowers*, a generation before 'Keeble Martin' and two before 'Rose'. It was still in print after 30 years and with its unique starring system encouraged the hunt and discouraged rash identification in equal measure. Richard followed this with the *Wildflowers of Britain and N. Europe*, with his son and Marjorie Blamey, and the delightfully quirky *Finding wild flowers*, which helped travellers so much with localities to visit and plants to see. When I purchased my first 'McClintock & Fitter', thirty-five years ago, I little dreamt I would be standing in for one, commending the other.

DAVID PEARMAN

Bengt Jonsell

Professor Bengt Jonsell was born in 1934 and educated in his native Sweden. He first came to botanical prominence when he wrote the thesis for which he was awarded his doctorate by Uppsala University – on the genus *Rorippa*. This was published in 1968 as 'Studies in the northwest European species of *Rorippa*' and took up 222 pages of *Symbolae botanical upsaliensis* – a work of considerable weight. It's importance for British botanists was that it established for the first time that *Rorippa islandica* was not one species but two of which *R. islandica* was much the rarer. This was not in time for the account by Valentine in *Flora Europaea* Vol. 1 or for the Atlas or *Critical Supplement* but was immediately spotted by Duggie Kent who provided a two page summary complete with keys in *Proceedings of the Botanical Society of the British Isles* 7: 410-412 (1968) and has been accepted ever since. The original study also investigated hybridisation in the genus. Bengt contributed a paper on the subject to the BSBI

Conference in Cambridge in 1974 – *Hybridization in Yellow-flowered European* Rorippa *species, Conference Report* **15**: 101-110 (1975) the findings of which were taken up by Clive Stace in *Hybridisation and the Flora of the British Isles* of the same year.

By this time it had become clear that Bengt's talents extended beyond the fields of pure taxonomy. By 1972 he had replaced Hylander as the Regional Adviser for Sweden to *Flora Europaea* for which he subsequently provided accounts of the grass genera *Lophochloa* & *Trisetum*. A few years later he replaced Hulten as the Regional Collaborator for Sweden on the Committee for Mapping the Flora of Europe. His International/European ben[g]t was reflected in his election as a Fellow of the Linnean Society of London in 1974, and because of his links with the Swedish Linnean Society, Svenska Linne-Saaskapet, of which he is now President, I had the pleasure of co-operating with him and appreciating his organising talents, in planning the joint Anglo-Swedish events to commemorate the 200th anniversary of the death of Linnaeus in 1978. His connections with the Linnean Society of London were further strengthened when they honoured him with honorary Foreign Membership in 1995.

Though continuing to live in Uppsala his work now took him to Stockholm where, since 1985, he has been Bergius Professor and Director of the Bergius Botanic Garden. Widely accepted as the leading Scandinavian plant taxonomist, on the world stage, he is currently President of the International Organisation of Plant Biosystematists. From this position he has used his influence and charm to co-ordinate a major taxonomic initiative, *Flora Nordica*. This will cover Denmark, Finland, Norway, Sweden, Iceland, Faeroes and Spitzbergen and deal with c. 2,100 native and 6-700 alien species with their subspecies and varieties. The first of the four proposed volumes will be published shortly and will clearly be of enormous interest and relevance to British botanists because we have so many species in common. It will indeed be fascinating to compare with Sell & Murrell's *Flora of Great Britain and Ireland*.

But Bengt is no dry taxonomist. His frequent visits to Britain on Flora Europaea or Linnean business have given him opportunities to broaden his understanding and love of our country. I remember well a visit with two of his four boys to Oundle in the 1970s when I thought we should visit Barnack Hills and Holes but found the excursion cut short when we came upon cricket being played on the village green. I spent the next half hour pointing out fine-leg and cover-point rather than pasqueflowers or knapweed broomrape. He has also taken his wife Lena, a distinguished botanist in her own right, and the boys visiting English castles of which, according to Arthur Chater, he has a formidable knowledge. He is also extremely well informed about the British political scene and can give the names of our cabinet ministers when most of us would have difficulty in naming even their Prime Minister. His natural history interest and expertise do not stop with plants – he is also a gifted field ornithologist. Moreover he knows the birds in Britain by their English names, though there was one occasion, Arthur tells me, when Bengt, who is a coffee addict and, needing a 'fix' every two hours in the field carries a primus stove in his rucksack for the purpose, confused kettle and kestrel, announcing that he must stop to boil a kestrel.

Bengt joined the BSBI in 1983. He is one of the most distinguished and yet British of our overseas members and a very helpful and conscientious correspondent. In recognition of all the work he has done and will continue to do to further Anglo-Swedish understanding at the human and botanical level, I am delighted to have been asked to propose him as an Honorary Member of our society.

FRANKLYN PERRING [with grateful thanks to Arthur Chater & Clive Stace for their help]

ATLAS 2000

PROGRESS REPORT

Penultimate Recording Season Closes

Following such a dreadfully wet field season, it's almost a relief to be back in the office (well, not really!). Despite the weather, however, all the recording meetings I've been on this year have been exceptionally well attended. Most attracted around 16 or 17 participants, all of whom were enthusiastic to undertake basic 'square bashing', and a huge amount of recording has been done as a result. It's always encouraging to meet people so keen to contribute towards the *Atlas 2000*, and I hope this commitment continues into next year. This is because, as frightening as it seems, *next year will be our last chance to record in the field*!

Full reports of the meetings will appear in a future edition of *News*, but a few highlights are worth a mention. The Isle of Wight trip was notable for the number of rare and scarce species seen, including *Pilosella peleteriana* subsp. *peletariana* (Shaggy Mouse-ear-hawkweed) and *Orobanche artemisiae-campestris* (Oxtongue Broomrape) at on chalk cliffs at West High Down, and *Silene gallica* (Small-flowered Catchfly) in a set-aside field. The Bute meeting proved productive, with *Teesdalia nudicaulis* (Shepherd's Cress) being found on sand dunes and *Dicentra formosa* (Bleeding-heart) well established in a damp wood. *Galium boreale* (Northern Bedstraw), *Minuartia verna* (Spring Sandwort) and *Potentilla neumanniana* (Spring Cinquefoil) were all seen on the Sterlingshire meeting. At the very popular Strontian meeting, a huge amount of good recording was done, with updated records for *Rhynchospora fusca* (Brown Beak-sedge), *Centaurium littorale* (Seaside Centaury), *Potamogeton* × *griffithii* (Griffith's Pondweed) and *Descampsia cespitosa* subsp. *alpina* (Alpine Hair-grass). Finally, the equally popular Donegal meeting saw finds of *Eriocaulon aquaticum* (Pipewort), *Arctostaphylos uva-ursi* (Bearberry), *Lamium confertum* (Northern Dead-nettle) and *Anagallis minima* (Chaffweed). I would like to thank all those people that have attended any of our recording meetings, and hope that you enjoyed them enough to participate again next year.

Having spent so much time recording in the rain, I can thoroughly recommend a Weather Writer (as described in *BSBI News* **76**: 11). This is a superb companion in the field as it leaves you with a clean, dry recording card at the end of the day and can also double as a map holder and even a temporary specimen holder!

Final Season

As I mentioned above, the 1999 season is the final one for Recording for the *Atlas*. It has been agreed by Meetings Committee that all field meetings next year will be recording meetings (some Vice-county Recorders are now panicking over the amount of recording yet to be done!). Please keep your diaries clear ready for the 1999 programme of meetings. We also hope to tell you if there are particular squares that need attention, in the hope that you may be able to visit them!

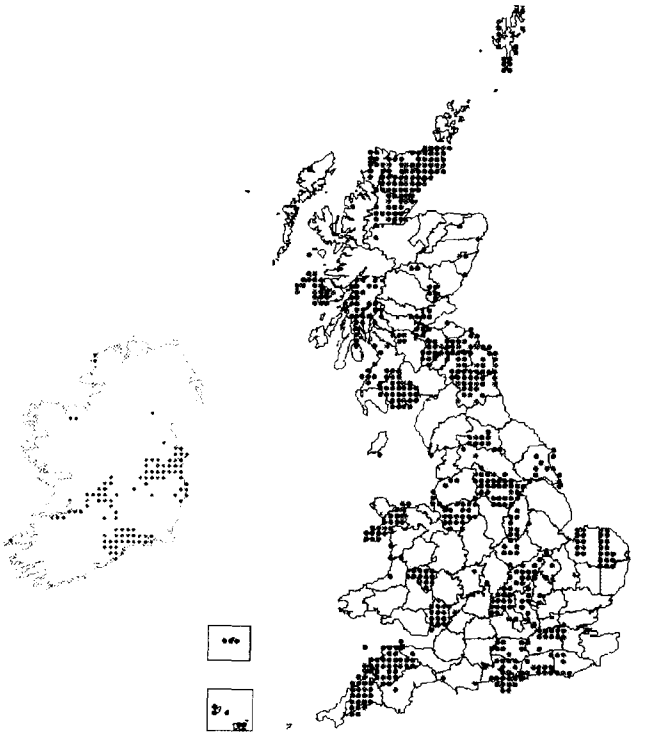
An important point is that the final date for submission of records by Vice-county Recorders into the project is **November 1999**. This means that you should pass your 1999 records to your Vice-county Recorder by about September, so that they have time to process and submit them by November. This will be an anxious and worrying time for many Vice-county Recorders – please help them wherever and however you can.

Records Submitted

The submission of *Atlas 2000* records will undoubtedly increase again as the recording season draws to a close. However, given the abysmal 'summer' we have just suffered, it's not surprising that rainy days have been spent compiling records. This is reflected in the map below, showing the 10 km squares for which Atlas 2000 records have now been submitted (**the map is a composite of two images, so scale and positions of Britain and Ireland are relative**). In Britain (below right), records have currently

been received for 676 squares (24% of the total), covering 66 Vice-counties. Of these, 52% are on Mastercard, 48% on disk.

In the Republic of Ireland, records have now been submitted for 130 10 km squares. In Northern Ireland, records are being submitted directly to CEDaR (Centre for Environmental Data and Recording), who will pass the data on to us at the end of the project. The lack of recorders in Ireland is causing continuing concern, and anyone that can help (in the field or elsewhere) is strongly urged to do so.



Progress at Monks Wood

One of the major tasks of the *Atlas 2000* project was to computerise the original British data from the 1962 *Atlas of the British Flora*. This has now been completed, with the addition of 410,000 records to the database. Much other data is already in the database (such as Individual Record Cards from recorders and herbaria, Scarce Plants Project data, loch survey data, etc.) and draft maps of this data are now being produced. It's incredible to see how much change there is from the original Atlas maps, even before the inclusion of Atlas 2000 data. Looking at the draft maps really makes you appreciate how much we need the Atlas 2000!

Atlas 2000 data submitted by disk and Mastercard are now being entered into the database, and the flow of records back to Vice-county Recorders (for checking and editing) should begin soon.

Taxa We Will Be Mapping

With 4129 taxa included in the Atlas 2000 project, it would be impossible to produce a practical *Atlas* with a single map for each taxon. There is also little point in actually mapping some taxa; many aliens we are covering, for example, occur in only 2 or 3 hectads (10 km squares) while others are highly casual. We have therefore devised a set of criteria for mapping, and probably only those taxa that fulfil these criteria will have a map in the final *Atlas*. The remaining taxa will appear in an appendix with summary data (such as a list of 10 km squares) describing their distribution. Data on all taxa in the project will be used to produce biodiversity maps.

Recording of Aliens and Hybrids

From the data that has been coming in so far, it looks like aliens and hybrids are being pretty well covered by recorders (although hybrids less so). However, there is still much to be done regarding historical (and modern) records and these are vital in producing worthwhile distribution maps. There are several sources of alien records that should be incorporated (*Alien Records* in *BSBI News* is one) and I would be very pleased to hear from anyone that could extract such records into a spreadsheet or database.

Winter Help

Once again, winter will soon be with us and I would like to make a plea for members to help their Vice-county Recorders as much as possible. The compilation of *Atlas 2000* records is an onerous task for many Recorders, and offers of help with the extraction of records (from floras, local herbaria, wildlife agency reports, etc.) or with the direct compilation of Mastercards will be most welcome. As we come closer to the end of the project, the level of panic will undoubtedly increase. **Please help our Vice-county Records as much as possible!**

TREVOR DINES (Atlas 2000 Organiser) Rhyd y Fuwch, Bethel, Nr Caernarfon, Gwynedd LL55 3PS.
Tel: 01248 670789; e-mail: TrevorDines@compuserve.com

CO-ORDINATORS' CORNER

We would like to introduce ourselves as the new 'acting co-ordinators' for the BSBI. Cameron Crook retired from his post at the beginning of June to take up a new career as a consultant, and we were asked to 'hold the fort' on a part-time basis over the summer while the Executive Committee considers what the BSBI needs from a co-ordinator in the future.

Sarah Whild is known to many in the Society as the Recorder for Shropshire (v.c. 40) and, until this latest development, a member of Council. She has, of course, stepped down while working as co-ordinator. She is a lecturer at the University of Birmingham where, in response to an appeal from Franklyn Perring for better natural history courses, she organised a Certificate in Biological Recording and Species Identification which is now in its second year and which has recruited about 80 credit students and many others who come on the courses without studying for credit.

Alex Lockton has worked with Sarah for the last five years building up a biological recording database for Shropshire, which is largely botanical but includes ecological information such as vegetation communities as well as a certain number of records of animal taxa. He has written four booklets using this database – two editions of *Rare Plants of Shropshire*, one draft *Checklist* and *Dragonflies of Shropshire*. He also operates a records centre service for the county, responding to enquiries from individuals and organisations from all sectors.

One of the jobs we have been asked to do, of course, is to help the other Vice-county Recorders to become computerised – those that have not done so already, that is. There is no doubt that it is hard work getting all of a county's records on computer in the first place, but it makes life much easier for

the County Recorder when it is done. Nearly all the reports you might want are available at the touch of a button.

It will take some time to get the BSBI fully computerised. Of course in some counties the Recorder has already accomplished a lot, but others have made slow progress or even given up. This is not unusual: it is a complicated and time-consuming task, and it helps if it is the sort of thing you enjoy. Over the last 2½ years Cameron has been helping Recorders by supplying computers with grant funding from the Country Agencies, but the need is now for help with inputting data and with training on the software. We are doing this by providing telephone support, by recruiting helpers to work on the computers, and by organising training sessions. In October, for example, our 'team' from South Lancashire, led by Peter Gateley, will be spending a weekend at Preston Montford Field Centre inputting data and learning about the program *Recorder*.

Two requests, please:

- In some counties there are recording groups or 'link' people who hold databases on behalf of their v.c. Recorder. We suspect that not all of these are known to us, so would any 'missing links' please let us know they are there, so that they can receive software support and the Recorders' Newsletter.
- Secondly, we will be looking for a small number of additional people to help with computerisation. You need to be highly skilled, highly motivated and not desirous of financial remuneration! We would love to hear from anyone who thinks they might fit this description, most especially if they have an interest in historical botany and would like to help build up a database of this subject.

Another of the co-ordinator's tasks is to facilitate the exchange of information, particularly good-quality botanical information, to conservation organisations such as the country agencies, Plantlife, and the Wildlife Trusts. The BSBI collectively has an incredible wealth of knowledge, but you have to know who to talk to if you want to find something out, and it can be somewhat frustrating if you don't. Probably the most important contribution the Society makes towards conservation is the occasional publication of a County Flora and even a National Flora now and then, but there is certainly a demand for more up-to-date information in many cases.

To save people the job of writing to dozens of Vice-county Recorders whenever they have an enquiry – and to save our v.c Recorders some of the burden of replying – we are looking into the practicality of using the co-ordinator as a spokesperson for the Society who will be able to answer queries and who will know who to turn to for help with difficult questions. This will involve holding a central database for certain types of information – rare species, for example – and using this to facilitate the transfer of information between the Recorders, the BRC and others who have a legitimate use for the data.

Sarah is the person responsible for this. She has contacted most of the people who have regular business with the BSBI but it is quite likely that there will be people reading *BSBI News* who are not aware of these developments, and they might like to get in touch. It is fairly easy to contact us, by phone, fax, email or post, and we aim to respond to every message the same day, if only to acknowledge it and explain how long it might take to get a full answer.

There are several initiatives underway at the moment. We are drawing up guidelines for preparing County Red Data Books and would like to hear from anyone who is working on such a project at the moment. We have been asked by DETR to become the Lead Partners for Sea Lavender, *Limonium* spp. A 'lead partner' is, in this context, the organisation responsible for drawing together all the available information about a species (or group of species, as it happens) and providing advice about its conservation. This could usefully serve as a pilot project to see how easy it is to gather the information together – and of course redistribute it to the v.c. Recorders as well. If anybody has any records or other information about this group, which is not very well known in the Shropshire region, we would very much like to hear from you.

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RECORDERS AND RECORDING

AMENDMENT NO. 2 TO *BSBI YEAR BOOK 1998*

Panel of Referees – Change of address:

Callitriche: Richard Lansdown has moved to: Floral Cottage, Upper Springfield Road, Stroud, Glos. GL5 1TF Tel./fax: 01453 763348 E-mail: rlansdown@ardeola.demon.co.uk

MARY CLARE SHEAHAN, 61 Westmoreland Road, Barnes, London SW13 9RZ; tel.: 01817484365, e-mail: m.sheahan@rbgkew.org.uk

V.c. Recorders

Appointments

V.c. 97 Westerness	Dr I. Strachan, Seileach, Inverroy, Roy Bridge, Invernesshire, PH31 4AQ
V.c. H13 Co. Carlow	Dr S. Parr, 51 Wedgewood, Dundrum, Dublin 16 to replace Miss E.M. Nic Lughadha.

Change of Address

V.c. lb Scilly	Mrs R.E. Parslow, 15 Lode Lane, Wicken, Ely, Cambs., CB7 5XP

Other change

V.c. 72 Dumfriess.	Dr C. Miles (not Myles). We apologise for the mis-spelling.

DAVID PEARMAN, The Old Rectory, Frome St Quintin, Dorchester, Dorset DT2 0HF

VICE-COUNTY RARE PLANT REGISTERS: THE STANDARD MODEL OR A REVISED ALTERNATIVE?

The value of detailed locality information on rare plants has been recognised by many conservationists, and a number have developed their own detailed lists. These have all, in their own way, proved to be very useful, but they raise problems of consistency, as each one tends to use different criteria, creating potentially competitive formats. In a recent issue of *BSBI News* (No. 77, December 1997), Cameron Crook addressed this issue directly, and proposed guidelines for a standard Vice-county Rare & Threatened Plant Register.

His National Criteria are well-established, and relatively straightforward – although compilers might find it hard to obtain species lists for the 3rd edition Red Data Book (RDB) for Vascular Plants (in prep.), and for some of the more obscure statutes. There is also, to my knowledge, no standard list of taxa endemic to the British Isles . . . and to some extent these could be a false priority. Following on from the RDB and Nationally Scarce lists, there may not be very many notable taxa endemic to Britain and Ireland, whereas several more widespread species and subspecies have very significant populations here and are declining throughout their range. In other words, we should perhaps prioritise taxa which are 'near-endemic', or declining / restricted in our Biogeographical zone; an International Criterion for Rare Plant Registers (which, in the simplest sense, is what 'endemism' tries to express).

But, with the possible exception of Internationally significant taxa, the first levels of priority are not really a problem. Vice-county recorders should be able to provide accurate lists of taxa selected on National Criteria (in consultation with Government agency botanists, if necessary), and the priorities are supported by all previous authors (see list of references cited by Crook). The real difficulty comes with the proposed Local Criteria. These are far less well-established, and actually go against the advice of several references here. They are, in fact, likely to present real difficulties to anyone trying to start up and maintain a Register.

To begin with, the definitions of Locally Scarce and Locally Rare – 0.6% and 0.2% of the total 1 km squares – are imprecise and apparently arbitrary. What approach to take, for instance, when either of these percentages is not a whole number (which happens more often than not)? The decision to round up or round down the threshold can have quite significant consequences, and can follow from a relatively small increment in the total. Equally, with populations present along the border of two or more 1 km squares: do we regard them as one locality or two (or more)? And how to select a six-figure grid reference for a plant that is widespread across a 1 km square (assuming that six-figure grid references are standard)?

It is not hard to come up with an answer to these questions, because there are several equally good solutions, but that would only resolve the local difficulty. And, in fact, each individual approach is likely to confuse the situation. For Local Criteria to work they need to observe Nationally common standards, which means, in effect, greater depth and consideration of the variables. A basic difficulty with this proposal is the lack of detail, and certainly any criteria would require further definition – and consultation – before they were accepted as a standard.

But there is another, more fundamental difficulty with these 'Local Criteria'. There is no explanation or reference here for the 0.2% and 0.6% thresholds (they have not been proposed by anybody in the list of references and, in fact, these authors generally support a quite different criterion), and it would take an extraordinary effort to collect this amount of data, even in a bare list form, for the average vice-county.

When Arthur Chater (v.c. 46, Cardiganshire) saw these proposals in draft, he made an attempt to work out just how many sites for 'Locally Rare' plants he might have in his vice-county. By going through all the species with names beginning A-C, he was able to find 59 species restricted to 15 or fewer 1 km squares the 0.6% threshold in the approximately 2,500 km sq. of Cardiganshire. And for these 59 species he found a total of 329 sites, which means that, since the species with names beginning A-C take up approximately 20% of Cardiganshire's species file, there should be more or less 1,600 sites for Locally Rare species in v.c. 46, by these criteria.

This trial run only took a few hours, because there was no attempt to transcribe the data (and because the records for this vice-county are very well maintained and organised), but it would take much longer if all the records had to be collected into a Register, and many orders of magnitude more if the data were to obey a few common standards (see above). But remember, if we don't say how to resolve locality variables in some detail – how to record species growing on both sides of a 1 km grid square line; what sort of locality information to record; how to lay out a Register, even – we can guarantee that different people will do it differently, and then the output will be useless.

So this would probably take many days, if not weeks to produce. And, assuming that we have a basic layout similar to existing Registers, the finished document would be approximately 100 sides of A4, which represents a substantial photocopying bill for the average vice-county Recorder, if he or she wished to distribute the findings. And a 5,000-odd page document for the British vice-counties as a whole.

Perhaps most tellingly, this would all be a serious overload in terms of day-to-day recording. Imagine trying to keep up with new records for species which are known from 15 sites in a vice county. These are practically in the Widespread category of plants, and most people simply could not be expected to remember whether a species is one of the 'Locally Rare 300' (in this example) or just outside it. It's too big a fraction of the Flora.

It might help to know where these proposed new thresholds had come from, and what they were supposed to mean. The curious, unexplained precision of figures like 0.2% and 0.6% leads one to suspect that they represent a significant fraction of the land area (perhaps like to the percentage cover of Britain taken up by fifteen 10 km squares – the threshold of national RDBs – for instance), or a frequency below which species have difficulty outcrossing or colonising new sites. But plant species rarity really does not conform to such rules, and RDB thresholds were primarily adopted, after consultation, as workable limits. There is no sense, for instance, in which this number of 10 km squares in the area of Britain was intended as an international unit of rarity.

My best guess is that percentage thresholds were an attempt to 'standardise' the limits of 3 and 10 sites for a species per vice-county, as defined by Lynne Farrell and Franklyn Perring in their 'Guidelines for the Preparation of County Rare Plant Registers' (1996). These authors were careful to qualify their upper limit ('Any . . . native taxon in the area which has been long established in 10 or fewer sites which could move into the rare [i.e. 3 site] category in the foreseeable future because of its recent rapid decline, identifiable threats or frailty of the habitat'; my emphasis), however, and to provide meaningful

definitions of a site ('an area not exceeding 1 km square in extent (i.e. a moveable 1 km square) or a single continuous habitat'). The latest proposal neglects any practical definition of a species site, and leaves no room for informed decision.

But there is another way in which figures like 0.2% and 0.6% of the total 1 km squares are not the equivalent of 3 and 10 sites for a vice county. Percentage calculations hardly ever give a whole number of 1 km squares, which means that some awkward fraction has to be rounded up or rounded down. When a small increment in the total causes a whole number difference in threshold (i.e. when the definition of a rare plant in one vice-county end at 4 squares, and in a slightly larger vice-county it reaches 5), any claims for equivalence wear a bit thin. Despite the apparent objectivity of percentage frequencies, attempts to measure difference and similarity between vice-counties on this basis would be statistically meaningless.

I'm afraid all that this quibbling about threshold values may seem relatively boring and arcane. From time to time we have marked the location of rare plants on maps with coloured pins, but now it seems as if we are arguing about how many angels dance on them. But Vice-County Rare Plant Registers are important (and increasingly so in the world of Local Biodiversity Action Plans, Local Records Centres, etc.), because they can help Wildlife Trusts and Local Authorities and Government agencies conserve plants that might otherwise be overlooked. In order to work, all they need is to be straightforward, readily accessible, and to allow simple comparisons between vice counties (and preferably be approved by the BSBI Records Committee).

In this light, it would be interesting to find out whether any vice-county recorder has actually adopted the latest suggestion, and how many have stayed with the original Farrell & Perring (1996) Guidelines? Perhaps not many of each, but if it is any encouragement – which, after all this might be fairly necessary – I cannot recommend too highly the fully worked-out example of Arthur Chater's Cardiganshire Register. This has been going since 1978, steadily ironing out all these practical difficulties we have discussed and, in the meantime, influencing many other recorders around the country. It is, in fact, one of the models which Farrell & Perring use in their Guidelines, because it employs the basic concept of 3 moveable 1 km squares, and it really works, it set the standard for trial Rare Plant Registers developed by CCW for Monmouthshire (v.c. 35), Breconshire (v.c. 42) and Radnorshire (v.c. 43), in association with their recorders, and for a similar draft developed independently for Caernarfonshire (v.c. 49) by its recorder, Geoff Battershall. Most recently, the Cardiganshire model has been the template behind Richard Pryce's superb new illustrated Rare Plant Register for Carmarthenshire (v.c. 44), supported by both CCW and the Local Authority.

I feel very strongly that this format should be used as a standard, and most of the available literature certainly supports this. But, pending further decisions by the Records Committee, people may have to decide for themselves. Fortunately, you can at least do so from an informed point of view: anyone wishing to have a copy of the Cardiganshire Rare Plant Register, with its detailed introductory guidelines and sample text, can obtain a copy free of charge from the address below.

Acknowledgements – Thanks to Arthur Chater for his supporting data, information and helpful comments.

References

Crook, C.S. (1997). Vice-county Rare and Threatened Plant Registers Recommended Species Selection Criteria for the British Isles. *BSBI News* 77.

Farrell, L. & Perring, F. (1996). Guidelines for the Preparation of County Rare Plant Registers. *BSBI News* 71.

ANDY JONES, Rare Plant Ecologist, Countryside Council for Wales, Ladywell House, Newtown, Powys, SY16 1RD

Response from the Co-ordinators

In the letter above, Andy Jones has quite correctly pointed out the problems with Cameron Crook's versions of the 'locally rare' and 'locally scarce' categories for Vice-county Rare Plant Registers, and suggests that Farrell & Perring's guidelines are more workable.

This autumn we are preparing guidelines to standardise rare plants registers, which will be discussed at the Recorders' Conference and by Records Committee, and then formalised as the agreed BSBI

opinion on this matter. In brief, the guidelines are likely to endorse Farrell & Perring's criterion of three sites or fewer and the use of the vice-county as the unit within which the registers are produced. They will also explore the format and content of vice-county registers and list sources of information, including web sites.

If anyone would like a copy of the guidelines, or would like to have any further input into the discussion, would they kindly get in touch with us.

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SINGLE SPECIES SITE REGISTER

Many contributors to *BSBI News* (see for example, **65**: 27, **70**: 30, or **73**: 15, but the possible references are too numerous to itemise) have alluded more-or-less explicitly to the need for sound locational detail in plant recording. In particular and most recently, Geoff Toone's note (**78**: 19-20) raises important issues. His final comment – '. . . clarity of definition depends on maps' – specifically prompts my offering the idea below for wider use.

Like Mr Toone, I cannot convince myself that no precursors or parallels exist. Lynne Farrell, I believe, created a similar format for documenting rarities. Nonetheless, I do not recall comparable aids to recording described in BSBI literature; my apologies for re-inventing the wheel, if this is the case!

The scheme arose as follows: data I inherited in Cleveland Wildlife Trust's 'Sites of Nature Conservation Importance' (SNCI's) included some whose justification depended on one notable species in otherwise mundane surroundings. I was unhappy about letting such phenomena enjoy the same celebrity status as, for example, genuinely rich, often extensive, Ancient Woodlands. At the same time, it seemed unacceptable to lose track entirely of these incidental records of interesting and sometimes locally unique occurrences.

Thus the 'Single Species Site Register' was devised precisely to accommodate these records, thereby complementing the more major SNCI system. The SSSR uses a single A4 sheet for each entry, which embraces the obvious and necessary items such as date of observation and Grid Reference (correctly stated, I hope!) The latter is far from sufficient, however; hence SSSR's chief feature, occupying a prominently central position – white space for the all-important locational details to be shown by sketch-map and supporting text. Careful, on-site effort must be devoted to this drawing and description. I recommend a field-work draft from which 'best copy' is translated soon afterwards.

Since its inception as a sweeper-up of trifles (relatively speaking, in conservation terms), the Single Species Site Register has demonstrated a second useful function. Cleveland's only colonies of Herb-Paris (*Paris quadrifolia*), for example, are hidden in remote, well-vegetated woodland, and were in fact lost to view for many years until re-discovered during Phase II surveys. Now, thanks to information in SSSR forms, their positions are exactly pinpointed, and the facility established for easy and effective monitoring of this significant member of the SNCI flora.

As a means of recording and monitoring at the local level, the Single Species Site Register seems to be working. Several observers have contributed. It now comprises nearly 200 entries, covering 120 plant species, adding valuable material to simply listing occurrences. No doubt my scheme could be improved, or at least adapted to circumstances, but I venture to suggest that it could serve as a useful tool for many of the surveys described in the pages of BSBI News – mistletoe, black poplar, *Sorbus devoniensis*, Scarce or RDB Species . . . and perhaps even provide a cure for Tim Rich's oft-mentioned 'now-you-see-it-now-you-don't' *Sedum telephium*!

CHRISTOPHER J. LOWE, 25 North End, Hutton Rudby, Yarm TS15 0DG

SINGLE SPECIES SITE REGISTER

Species Name

English : herb paris
Scientific : Paris quadrifolia

Date of Observation: 6th May, 1994.

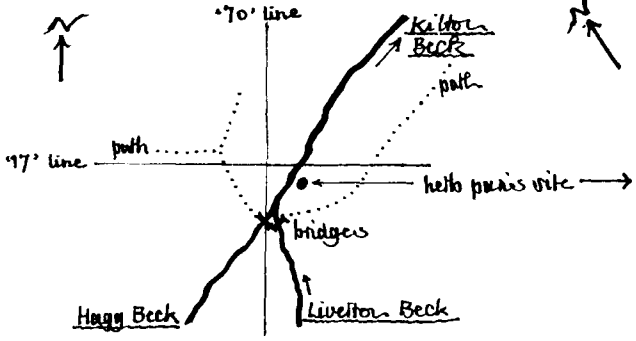
Habitat (e. g. woodland; road verge; pasture; edge of arable field)
within dense undergrowth of Ancient woodland, riverine situation

Location KILTON BECK WOODLANDS (part of County Wildlife Site)

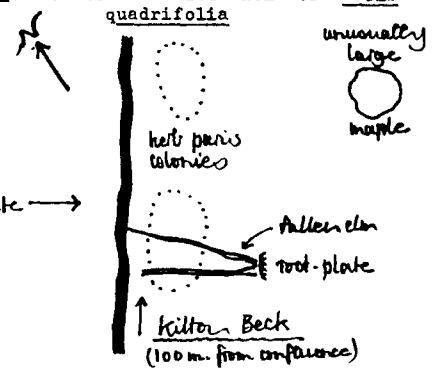
Grid Reference : NZ 701168

Description : (include sketch-map)
on right (East) bank of Kilton Valley, about 100 metres downstream from ford and bridge at confluence of Hagg and Liverton Becks; colonies just above river-bank, in very overgrown, hard-to-reach position : see below.

map 1: main features of area (based on 1 : 50 000 O.S.)



map 2: details of location of Paris quadrifolia



No. of plants : single / scattered individuals / clump / colony ✓

Associated Species :

various woodland ground-floor species, e.g. dog's mercury (Mercurialis perennis), O/F; wood anemone (Anemone nemorosa), O/F; woodruff (Galium odorata), O; bramble (Rubus fruticosus), O; ferns (e.g. Dryopteris affinis, Polystichum setiferum), both R.

Observer's Name(s) : (please print, sign)
Christopher J. Lowe

Observer's Address : (and telephone number)
Cleveland Wildlife Trust, Bellamy Pavilion, Kirkleatham Old Hall, Redcar, TS 10 5 NW; (01642) 480033.

Sample sheet from Single Species Site Register for *Paris quadrifolia*

LINGERING ON LUNGA

The Treshnish Isles lie about 5 km off the west coast of Mull. In 1987 I was fortunate enough to spend 2 hours on a glorious day on the north part of the Dutchman's Cap, which lies in the BSBI monitoring square 17/4.2. I never dreamt then that I would become Recorder for the Mid Ebudes, v.c. 103, 10 years later and seek the chance to go again for Atlas 2000 recording.

The Treshnish Isles consist of a series of small islands and many skerries. On a good day they are a magical place but in bad weather they seem extremely isolated and inhospitable. All of them are uninhabited and now ungrazed. There are 3 main islands – the Dutchman's Cap or Bac Mór, Lunga and Fladda. Other islets include Bac Beag, Sgeir a' Chaisteil, Sgeir an Eirionnaich, Cairn na Burgh More and Cairn na Burgh Beg.

Getting there is the first problem – you have to have a local boatman who really knows the waters and is willing to adapt his timetable of tourist trips to ferry you from one island to another and to land you – which is not easy in some cases. Of course it is the weather that really controls it all. Even though it may appear to be a perfect day atmospherically, there may be a swell which makes landing impossible.

Once you are there where do you stay? (It's even more expensive to sail out each day from Ulva ferry.) You camp of course – but where's the freshwater source? There is a well on Lunga near the deserted 'village' but that won't supply all your needs, and there is no stream, so most of the water has to be taken out.

The islands are owned and permission must be obtained in order to stay there and this will only be granted for serious science for a limited period. Daily visitors in restricted numbers are allowed.

So you set off from Oban catching the 7 a.m. ferry, land at Craignure, Mull, drive across to Ulva ferry, unload all your gear, load it on to the boat before the tourists arrive and chug for 1½ hours to Lunga. Then you unload again and carry everything up the slope to a suitable camp site and unpack it! Fortunately, it's not raining. Now you're there – so it must be lunchtime – at 2.30 p.m. Well, it will be light until at least midnight.

After lunch – you start recording. What's this – Lunga is in 4 tetrads, the Dutchman's Cap in 2, Fladda in 4 and Sgeir a' Chaisteil in 2?! The Cairn na Burghs at least are in just one. Now what was Elaine Bullard saying about islands being recorded using sensible units? Why did I decide to start recording v.c 103 on a tetrad basis?

Monday 1st June was a long day starting at 2 a.m. for some of us and ending at 2 a.m. Tuesday, after 'watching' but mainly hearing storm petrels on the stony beaches. Still, we did one tetrad thoroughly. On Tuesday we went to Fladda, discovered Oysterplant (*Mertensia maritima*) had been lost from its former site but found a new single plant on the east side and a short-eared owl nesting. The island looked to be just a red-pink haze from a distance but proved to have excellent maritime heath and be home to a flock of greylag geese and 2 great skuas – the latter a new record. Five hours is just about sufficient time for 4 botanists to cover the island. It was overcast and still dry.

Wednesday saw the sun appear and remain with us all day and with a steady north easterly blowing we were able to get to the Dutchman's Cap, land and climb to the top for magnificent views all round the island, despite being screeched at by the resident peregrine. It was such a lovely day that our boatman stayed with us. Even he knows how rare it is to have a good day there. Having recorded the south part and taken in the views I got an offer I couldn't refuse – a paddle in a 2-man inflatable to Bac Beag, the adjacent islet. I had one hour to record here whilst our geomorphologist was paddled round the islet to make notes on the rock wave platforms. Avoiding nesting fulmars, geese, gulls and shags is one of the hazards. You must look where you put your feet – that stone may be an egg and it may not be precipitating but birds do have a habit of dropping other things on you. Magic day, finished off at 1 a.m. Thursday listening to Manx shearwaters returning to their burrows from sea, despite the wind dropping and the midges emerging for the first time. Oh yes, at dinner time about 8 p.m. the ornithologist flushed a corncrake which I saw!

Later on Thursday – 6 hours later in fact, arise to another nice day when we hoped to visit Staffa (nearby the Treshnish). However, too many tourists booked for the normal day run so we only have the

chance for a quick visit to 'the northern rocks' whilst the tourist maraud 'our' island. Still, we record most of Sgeir a' Chaisteil in 1½ hours and count the best Oysterplant colony in the area which has around 500 plants. The others land on Cairn na Burgh More for 45 minutes, noting as many plants as they can and hear a corncrake.

The day ends at 11.30 p.m. for most of us, after watching a magnificent sunset from the cairn on top of Lunga and by now suffering from lack of sleep. Drat that snipe, it started drumming again at midnight right outside the tent!

All too soon we reach Friday, finish off our fourth tetrad on Lunga, find another new locality for Adder's-tongue Fern (*Ophioglossum vulgatum*), pack up again and jump aboard the boat for a seaward tour of Staffa only, as we'll miss the last ferry back from Craignure to the mainland if we land and start recording. Anyway, there has to be some reason to return.

Did I forget to mention that the storm petrels nested in the walls of the 'village' houses and make superb noises at breakfast time? Or the fact that the BBC sail boat arrived and put up all the seabirds off Harp Rock by zooming through the narrow channel in their inflatable at 10 p.m.? Or that 2 intrepid yachtsmen arrived at 8 p.m. having sailed about 30 miles from Castlebay, Barra that day? Or that 12 sea kayaks came ashore, without permission, and proceeded to camp within 30 meters of us? Or . . .

If you want to know what plants we did find, read the forthcoming article, yet to be written, in *Watsonia*, I hope.

PS. V.c. 31 was never like this.

LYNNE FARRELL, Scottish Natural Heritage, Argyll and Stirling Area, 1 Kilmory Estate, Kilmory, Lochgilphead, Argyll PA31 8RR 12 June 1998

NOTES AND ARTICLES

A NEW ORCHID HYBRID FOR BRITAIN – ×*ORCHIACERAS MELSHEIMERI* (*ACERAS ANTHRPOPHORA* × *ORCHIS PURPUREA*)

On 27th May 1998, my friend and fellow botanist Owen Davis and I obtained permission to visit a site in E. Kent (v.c. 15) where I had, years ago, seen abundant *Orchis purpurea* (Man Orchid). We found this still to be plentiful in open woodland, together with several plants of *Aceras anthropophorum* (Lady Orchid). Among these were two striking orchids with long narrow spikes of rather brownish pink florets. Careful study of these made it quite clear that they were the hybrid, *Aceras anthropophorum* × *Orchis purpurea* (×*Orchiaceras melsheimeri* Rouy). Photographs were taken which showed the florets of this plant to have spurs 1.0-1.5 mm long. *O. purpurea* has spurs *c.* 3 mm long; *Aceras* has no spur, only a tiny convex 'bump'. The narrow, long labellum segments are bordered with purplish pigmented cells, as is often the case in *Aceras*, but never the case in *O. purpurea*.

At the request of the owner of the wood, the location of the site is being kept completely confidential, but it is a private woodland on chalk with open glades among beech, etc. This hybrid, as far as I have been able to trace, has not been recorded in Britain so far, though it has been rarely recorded on the continent. The hybrid of *Aceras* and *Orchis simia* has of course been recorded in Kent (Bateman & Farrington 1987).

Reference

Bateman, R.M. & Farrington, O.S. (1987). A morphometric study of ×*Orchiaceras bergonii* (Nanteuil) Camus and its parents (*Aceras anthropophorum* (L.) Aiton f. and *Orchis simia* Lamarck) in Kent. *Watsonia* **16**: 397-407

FRANCIS ROSE, Rotherhurst, 36 St Mary's Road, Liss, Hampshire GU33 7AH

×*Orchiaceras melsheimeri* inflorescence
Photo O. Davis © 1998

Top 2 florets ×*Orchiaceras melsheimeri*
Lower floret typical *Orchis purpurea*
Photo O. Davis © 1998

SERAPIAS LINGUA IN SOUTH DEVON (V.C. 3)

Serapias lingua (Tongue-orchid) was first recorded in Britain in May 1992 when a plant was found in Guernsey by John Finnie. In June 1998 a very robust plant of *Serapias lingua* was found in a hay meadow near the coast in the Kingsbridge area of South Devon (v.c. 3) The owners of the site have asked that the precise location remain confidential.

The plant had three flowering spikes, each 25 cm long, with 4, 5, and 6 flowers respectively. Dissection of a single flower (DCL) revealed the single large, purple callus at the base of the labellum which is diagnostic of *Serapias lingua*. The edges of the lateral lobes of the labellum were coloured deep purple, and the labellum was very hairy for ¾ of its length. It was noticeably narrower than the labellum of specimens gathered in Mallorca and Menorca, and the outer perianth segments were longer and more elegant. This would appear to place it in subsp. *duriuei* (Reichenb. f.) Soó, which is recorded from Algeria and Tunisia.

From 1960 to 1977 the field had been used to grow brassicas and only inorganic fertilisers and small amounts of poultry manure were applied. There was a change of ownership in 1973, when an 'ordinary grass ley mixture' was sown. The field was grazed by a house cow for a few years, and then maintained as private grassland. No fertilisers, herbicides or pesticides were applied during the second ownership, but the grass was cut in May or June by a local farmer. In 1998 it was not mown, and the orchid was seen for the first time in mid-June.

The soil is poor and shallow, overlying New Red Devon Sandstone. As would be expected, the associated species seen in June were: *Cynosurus cristatus* (Crested Dog's-tail), *Holcus lanatus* (Yorkshire-fog), *Trifolium pratense* (Red Clover), *Ranunculus repens* (Creeping Buttercup), *Bellis perennis* (Daisy), *Cirsium arvense* (Creeping Thistle), *Geranium dissectum* (Cut-leaved Crane's-bill), *Hypochaeris radicata* (Cat's-ear) and *Dactylorhiza praetermissa* (Southern Marsh-orchid). One of us, (LMS), has explored the possibility of deliberate or accidental introduction by the current or previous owners. No one locally is known to be growing *Serapias* or any other orchid species. His conclusion is that there is no reason to suggest that the plant has arrived other than by natural means.

The site is very exposed to the SW wind and is situated in an important first British landfall area for migratory birds and insects from Africa. According to the Met. Office it is a fairly common occurrence for dust and sand deposits from North Africa to be lifted into the upper atmosphere during wind storms and carried northwards, to be washed out of the air by rain over the UK. Orchid seed is of a similar size and weight to such dust particles.

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POLYPODIUM CAMBRICUM – A CORRECTION TO *PLANT CRIB 1998*

An unfortunate error appears on page 18 of *Plant Crib 1998*. In the description of *Polypodium cambricum* the number of indurated cells in the annulus of the sporangium is incorrectly given as (4-)5-10 instead of (2-)5-10(18), as was shown in my paper in *Watsonia* (Roberts 1970). These figures were based on 28 plants of *Polypodium* which had been shown cytologically to be diploid with $n = 37$.

It is interesting to follow the steps which led to this error. *The BM Fern Crib* (July 1987) correctly gives the 'mean number of thickened cells in annulus 5-10'. This is repeated in the revised edition of *The BM Fern Crib* published in November 1987. However, in *The Illustrated Field Guide to Ferns and Allied Plants of the British Isles* (1991) the word 'mean' has been omitted from this phrase, which now reads: 'indurated cells (4-)5-10,' and is incorrect.

My experience as BSBI Referee for *Polypodium* for more than twenty-five years has served to confirm that the number of indurated cells in the annulus varies over the wide range shown in my paper of 1970. (The only exception was a plant in which the range was from 6 to 19).

No explanation is given by Jermy and Camus why this alteration in the range of the numbers of indurated cells per annulus was made, even when it now appears in their note on *Polypodium* in *Plant Crib 1998*. In a publication intended to provide guidance with the correct identification of plants, and their recording for the Atlas 2000 Project, such an error is more likely to confuse than to help.

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[NB. See page 72 for information on *Plant Crib 1998* corrigenda sheet. Ed.]

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INFECTED SHOOTS OF CYPRESS SPURGE IN BEDFORDSHIRE

This May, whilst monitoring a large long-established colony of Cypress Spurge (*Euphorbia cyparissias*), which grows on a railway bank in North Bedfordshire, and was no doubt introduced to the area via the railway, I noticed that a number of the shoots were taller than the others and had much broader leaves than normal.

The leaves appeared to be infected by a fungus and I immediately recalled an article in *BSBI News* some years ago referring to these infected shoots as being a puzzle to many alpine travellers. (Mary Briggs, 1987, 'Puzzle Plant 3' *BSBI News* **45**: 27).

I wonder whether anyone else has noticed infected shoots of Cypress Spurge in England, and whether anyone has a view on the effect this fungus might have on the survival of the colony in the long term.

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HAWTHORNS SEE RED

For four years the authors have been working on a detailed study of four 1 km squares in north-east Essex. This included a special survey of the hawthorns – *Crataegus monogyna* and *C. laevigata* – and the degree of hybridisation that exists between the two, in a 333m stretch of old hedgerow that was once the edge of a wood. All of these shrubs and trees bore the characteristic white flowers each spring, so we were astounded this year to be confronted by many whole trees and shrubs, of both species, that were covered in flowers ranging from coral pink to deep carmine red. The filaments and the sepals were also deep red, but the developing hips were green. There has been a very good fruit set, so the change in colour has not affected pollination. This phenomenon was also seen elsewhere in the area, and when mentioned to others, they too had seen this strange aberration, even in the Uckfield area of East Sussex.

We were under the impression that flower colour in hawthorns was genetically controlled, and that the garden cultivars with their pink/red flowers were as immutably fixed as the white of their wild relatives. Photographs were taken as late as June 4th, as these aberrant specimens appeared to hang onto their flowers longer than those that were unaltered. Our photographs show that the few latest flowers, borne at the tips of some shoots, have reverted to the normal white colour! Hawthorn in general started to flower early this year, by the last week of April, with a normal white blossom.

Have other members noticed this 'temporary' change in flower colour, and how can it be explained? We have conjectured that the very bright conditions in early spring, experienced this year, even before the buds opened, may somehow have triggered the anthocyanins to produce this effect.

These glycosides give the colours to flower petals, and it is known that they change colour depending upon the acidity, so could it equally be due to a change in the level of carbon dioxide in the closed flower buds? The 'light stages' of photosynthesis at this time would accumulate large amounts of energy (ADP) which in the following 'dark stages' would drive the processes of synthesis and

translocation of carbohydrates at higher levels. The consequent increase in consumption of carbon dioxide would then lower the acidity of the sap supplying the flower buds. However, we have no idea whether raising or lowering the acidity would account for the pink/red flower-colour.

It has been shown that the accumulation of sugars appears to stimulate the production of anthocyanins and that anthocyanins, as well as being altered by the degree of acidity, react to external factors – usually bright light and low temperatures – just the conditions prevailing for long periods during spring 1998. However we look at it, it doesn't explain why we have never seen this effect before.

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ALTITUDE-RELATED COLORATION

I was very interested to read the suggestion, in Mary Briggs' note on 'Multicoloured Yarrows' (*BSBI News* **78**), that the pink colour of Yarrow (*Achillea millefolium*) might be linked to altitude. This called to mind an observation I made a number of years ago on the Austrian Alps not far from Salzburg, where *Pimpinella major* (Greater Burnet-saxifrage) was an abundant component of the mountain meadows. I noted that below about 1200 m, the flowers of this species were mostly white, as they usually (always?) are in Britain, but above this level, they became first pale pink, and then at successively higher altitudes deeper pink, becoming almost wine-coloured in some places. It is tempting to conjecture that the assumption of pink-flowered forms at higher altitudes in these two species has the same underlying cause, but what might that be? Does anyone know? Are there any other examples of this phenomenon? And has it any connection with the occurrence of sometimes quite deep pink coloration, unrelated to altitude, in the flowers of Hogweed (*Heracleum sphondyleum*)?

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MORE MULTICOLOURED YARROWS

With reference to the correspondence concerning multicoloured yarrows in *BSBI News* 77 & **78**, I saw yarrows with pink flowers, white flowers and pink and white flowers on the same plant on the Isle of Wight two summers ago while on holiday there. All three types were growing in close proximity to each other alongside the footpath between The Needles and Alum Bay. I am sorry to say that although I registered mild curiosity about their occurrence, I subsequently forgot all about them until I read the correspondence in *News*. I should be very grateful if anyone could enlighten me further. I do not think that altitude could apply in the case of the Isle of Wight.

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SO YOU STILL DON'T LIKE 'MINTS'

The stimulating article by Gordon Knight (*BSBI News* **73**: 48-49) raises a number of fascinating points, but also makes a number of potentially dangerous assumptions.

I can claim 40 years experience as a veterinary surgeon in country practice, and authorship of *The complete book of British berries* (Lang 1987), which dealt, among other things, with the toxicology of all those plants native to the British Isles bearing what the layman would recognise as berries or fruits.

In the course of researching the potential toxicity of plants, many anomalies became apparent, making me highly suspicious of much received wisdom as being wholly inaccurate! *Solanum nigrum* (Black Nightshade) is frequently listed as toxic. The Central Veterinary Laboratory at Weybridge have never isolated toxic alkaloids from any sample, and I have never heard of it causing poisoning. In the

drought summer of 1976 I found a local dairy farmer feeding his cows on lucerne heavily contaminated with *S. nigrum*, to the extent that each cow was consuming 5 kg of leaves and berries daily for six weeks. They remained fit and milked well! However, cases of poisoning have been reported in goats and pigs in Sweden, so that it is possible that certain strains, under particular conditions, might be toxic.

Senecio jacobaea (Ragwort) is highly unpalatable in the green, growing state, although sheep do indeed graze it. It contains alkaloids which cause very severe liver damage, and dry ragwort in hay has caused the death of many horses. Sheep may be more tolerant, or maybe they are slaughtered too early in life for liver damage to become clinical.

Rabbits will eat *Atropa belladonna* (Deadly Nightshade) with impunity, since their digestive system secretes atropinesterase, but anyone eating the liver of such a rabbit can suffer poisoning; a neat case of 'the Biter bit!'

Apart from the edible pink aril around the seed, all parts of *Taxus baccata* (Yew) are highly toxic, containing the alkaloids taxine A and B, and a number of cardiac glycosides and irritant oils. Cattle and horses can die within five minutes of ingesting yew, rarely eating it from the growing tree, but frequently eating hedge cuttings carelessly dumped or foliage broken down by heavy snow. Yet I have witnessed New Forest ponies in the New Forest and deer in Kingley Vale browsing yew with apparent impunity. However, this would appear to be an acquired tolerance, for any new 'outsider' pony copying this behaviour will die. I wholeheartedly endorse Gordon Knight's comment on the lethal toxicity of the roots of *Oenanthe crocata* (Hemlock Water-dropwort). This is a frequent cause of poisoning in spring, when cattle are turned out into meadows where ditching operations have taken place in the previous autumn. Spoil piled up has been washed out by winter rains and the deliciously crunchy roots left exposed on top.

I suspect that toxic substances are not evenly distributed in plant tissues. The age of the foliage, its position on the plant, even the soil in which the plant is growing, may all influence the level of tissue toxins. This calls into question the safety of herbal remedies, which are becoming so popular. For example, a given quantity of *digitalis preperata* (ground leaf of *Digitalis lanata*), may contain no active alkaloids, a therapeutic dose or a toxic dose! *Caveat emptor*!

The effects of plant toxins on animals are extensively documented, but I would counsel extreme caution in assuming anything is either safe or toxic in a particular species, remembering that many invertebrate species consume noxious plant material as their especial diet.

One example of plant toxins I fail to understand, and I would welcome comment. The berries of *Daphne mezereum* (Mezereon) contain, among other things, a vesicant resin, mezerine. This acts so rapidly, that blisters will form on lips, tongue and the mucosa of the mouth within seconds, making it quite difficult for a child to swallow enough berries to cause internal damage. Yet birds, especially blackbirds, guzzle them with evident relish. The tongue of a bird is a tough, keratinised structure which cannot blister, but this is scarcely true of the rest of the gut.

We still have much to learn!

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PLANT DEFENCES VERSUS MAMMALS

My observations in 2 riverside Wiltshire fields closely match those of Gordon Knight in Dyfed (1998). Here follow some supporting and additional findings.

Sheep. Despite plentiful nutritious grasses, 9 sheep have completely cleared the following species: All ragworts and groundsels (*Senecio aquaticus*, *S. jacobaea* and *S. vulgaris*; toxins include pyrrolizidine alkaloids, jacobine, senecionine, seneciphylline, etc.): Hemlock Water-dropwort (*Oenanthe crocata*; toxic poly-ynes, especially oenanthotoxin): Yellow Iris (*Iris pseudacorus*; acrid toxic glycosides, incl. iridin): Bittersweet or Woody Nightshade (*Solanum dulcamara*); saponins & various alkaloid toxins, solanine, solacein, dulcamarin, etc.).

The same animals determinedly sought out, scattered and ate the foliage of 30 or so hefty fresh branches of these woody species: Yew (*Taxus baccata*; taxines, taxinins, taxanes, biflavonoids, cyanogenic glycosides): Wild and Garden Privets (*Ligustrum vulgare* and *L. ovalifolium*; toxic lignan glycosides, saponins and seco-iridoids): Western Red-cedar (*Thuja plicata*), Lawson's Cypress (*Chamaecyparis lawsoniana*), Leyland Cypress (×*Cupressocyparis leylandii*); toxic monoterpenes, thujone and (so far) unidentified dangerous poisons. The sheep completely stripped the yew and privet foliage, but only nibbled small quantities of the Cupressaceae, thenceforward avoiding these. Healthy lambs were born shortly afterwards.

Poisonous plants reduced from abundance to negligible quantities include Creeping Buttercup (*Ranunculus repens*), Meadow Buttercup (*R. acris*), Lesser Celandine (*R. ficaria*); cyanogenic glycosides, toxic alkaloids, cardiotoxins, irritant lactones, ranunculin, protoanemonin, etc.).

Beyond, but very close to two of the fence-lines were quantities of Greater Periwinkle (*Vinca major*; vincetoxins, vincamine, indole alkaloids) and Opium Poppy (*Papaver somniferum*; narcotics and toxins, morphine, codeine, noscapine, papaverrubines, numerous toxic alkaloids). The sheep loved these two species, pulling back the leafy runners of the periwinkle and pushing the fences back for both species: indeed so avidly and voraciously did they feed, that it was hard to shove them back to repair the fencing. When gorging on opium poppies, they seemed unwilling to give way to my Labradors, barging or even butting them aside.

Most surprising of all is the capacity of these sheep to consume spurges. *Euphorbia peplus*, *E. helioscopia* and (an ineffective protective line of) *E. wulfenii* were all wholly eliminated, the sheep nibbling a little at a time. Not only are the spurges armed with toxic diterpenes including highly toxic phorbol esters, but the sap also blisters the eyes and buccal mucosae. Even a small quantity of this milky sap, un-swallowed, causes painful lesions to the mouth or tongue of humans, with unpleasant nausea. How do the sheep manage it? (Rhinos in Namibia have tough buccal mucosae and huge livers to cope with the same toxins of the desert *Euphorbia* spp., BBC, 1998).

Sheep are extraordinarily destructive to all young trees, whether poisonous or not. I've watched one defoliating a young Spindle tree (*Euonymus europaeus*; cardiac glycosides, evonoside, evomonoside, evobioside, other toxic alkaloids and digitoxigenin). They love all Pear (*Pyrus*), Apple (*Malus*) and Plum (*Prunus*) species, especially pear, and will traverse acres of rich grass and squeeze through any barriers to reach and destroy any cherished young tree, or any unusual or rare herbaceous species one wishes to preserve – however thorny or poisonous.

Healthy sheep may carry stomach bacteria which detoxify the diverse range of plant toxins outlined above, but this does not explain how they cope with acrid plant toxins which blister the buccal mucosa. Possibly malnourished, ill animals, those with empty stomachs, or sheep treated with agents such as antibiotics which kill protective, toxin-digesting, gastroenteric bacteria are vulnerable; most of the aforementioned toxic plants have sometimes been known to kill sheep (MAFF 1988). The effects of yew especially are puzzling; some stock enjoy it, as here, but on occasion, numbers of animals can succumb (Bean 1989).

From the above account, the score for the small flock I've been watching is so far, Sheep 21; highly toxic vascular plant species 0. The species that resist them are exactly the same as Gordon Knight found:- common thistle species (mainly *Carduus* and *Cirsium*), and Common Nettle (*Urtica dioica*), which forms enlarging patches unless controlled by Glyphosate, S.B.K. or other selective weedkillers. Our sheep are also reluctant to eat Feverfew (*Tanacetum parthenium*); and chalk downland sheep in Wiltshire avoid Tor-grass (*Brachypodium pinnatum*; cyanogenic glycosides have killed stock in Czechoslovakia (Sikula & Stolfa 1978) but have not yet been found in Wiltshire

plants). Tor-grass continues to spread as a consequence of being ungrazed. Shepherds also give Ivy (*Hedera helix*, toxic triterpenoid saponins, hederosaponin-C, etc.) as a tonic to sheep!

In summary, only tor-grass, thistles and stinging nettles resist sheep, which usually defeat, or even thrive on, an amazing diversity of plant poisons which would kill most other mammals. Related ruminants (Goats? Deer?) may have comparable capacities.

Rabbits, Hares, Muntjac. All obviously harder to observe than the sheep, but also very destructive to young trees (except Cupressaceae and some other conifers), irrespective of whether the species are thorny or full of toxins. Rabbits ring-bark and defoliate, hare and muntjac chop off the tops and branch ends. For herbaceous species, again my lists correspond closely with those of Gordon Knight. White Dead-nettle (*Lamium album*), Ground-ivy (*Glechoma hederacea*), Variegated Yellow Archangel (*Lamiastrum galeobdolon* subsp. *argentatum*) and Water Mint (*Mentha aquatica*) were the common Lamiates ignored by the rabbits (but quickly polished off by sheep). Lamiates in quantity, especially ground-ivy, have killed stock in Eastern Europe and Russia (MAFF 1988), pulmonary oedema and enteritis resulting from volatile oils. Lords-and-Ladies (*Arum maculatum*) and again stinging nettles were the other two abundant species rejected by rabbits. *Arum* poisons include volatile acrid substances of unknown formulae, and aroin, aroidin, aronin, coniine-like alkaloides, a conicine gycoside or saponin: but I've yet to see an *Arum* plant where sheep regularly graze. Stinging nettles have long been associated with rabbits in Wiltshire (Grose 1957), even before they became so generally abundant in the county.

Equines. In the next field to the sheep, greater periwinkle is untouched by horses, mule and donkeys, and in general one taste of the other toxic species enjoyed by the sheep is sufficient. Equines spit out the distasteful plant. Many tree species are enjoyed, especially from the willow, poplar, lime, elm, alder, birch and ash genera (*Salix*, *Populus*, *Tilia*, *Ulmus*, *Alnus*, *Betula* and *Fraxinus*) and nearly all tree and shrub species from the Rosaceae. For all these, leaves, shoots, branchelets and bark are browsed, chopped and stripped until the trees are killed. No equine persisted with *foliage* of any of the Cupressaceae (*Chamaecyparis thyoides*, *Cupressus torulosa*, ×*Cupressocyparis leylandii*), but stripped and ate the resinous *bark* of the last, and also ate bark from logs of Lawson's Cypress (*Chamaecyparis lawsoniana*). Poisonous trees such as *Laburnum anagyroides* and Orange Bladder-senna (*Colutea* × *media*) could be mutilated but were not consumed (Toxic alkaloids, cytisines and canavanine). As in Dyfed, the horses would not eat stinging nettles, docks or thistles; however, the mule and donkeys appeared to enjoy thistles in the autumn, even when grass was plentiful.

Cattle. Our local vet remembers one cow from a herd with a perverted preferential appetite for buttercups, dying from the *Ranunculus* toxins (listed above). Two bullocks broke through the river fence and may have been poisoned by Hemlock Water-dropwort *roots*. As in Dyfed (and like the sheep, but certainly not humans), cows appear to be able to eat the oenanthotoxins in the *foliage* without ill effects. Cattle are no more effective in stopping the spread of nettle-beds in these fields than the other grazing mammals above, and also have little effect on the spread of thistles.

Humans. Nowadays humans are much more vulnerable to bacterial toxins (such as *Escherichia coli* variants) than vascular plant toxins, but the case histories in my books (Frohne & Pfander 1984, MAFF 1988, Woodward 1985) would indicate that 'hippies', health-food faddists and little children are most at risk from poisoning by vascular plants. There is much variation in human vulnerability, and some astonishing inconsistencies in health-food shops and manuals. Sometimes poisonous preparations are recommended in indefinite quantities, advice which would result in suing if given by a doctor, or sacking if written by a ministry official. Penny-royal (*Mentha pulegium*, toxic monoterpenes, pulegone) has often caused, in humans, serious poisoning and death (Frohne & Pfander 1984), but is recommended both as an edible plant and medicine (Launert 1981). As a child and adult, I have eaten Beech (*Fagus sylvatica*) nuts with others in Lancs., Northants, Kent, Sussex and Wilts. Frohne & Pfander (1984) think they might be toxic in very large quantities due to high Oxalic acid content. The MAFF book (1988) claims they make the mouth and throat sore, with symptoms of poisoning above 50 nuts. Woodward (1985) gives nausea, severe pain, diarrhoea, convulsions and death as the consequences of eating beech nuts. Launert (1981) lists them as edible

(and medicinal) and excellent for cooking and salad oil, but with a poisonous 'residue'. Perhaps the *husks* (which can make the mouth sore, containing fagin) are the cause of human and animal poisonings, the reverse of yew fruits, where it is the *seed* rather than the surrounding pink flesh which contains the toxic alkaloids. The lesson seems to be: some plants (such as hemlock water-dropwort or Monk's-hood (*Aconitum napellus*) – never try them; most plants – cautious moderation in the absence of reliable pharmacological assays, with seasoned scepticism about gathering from the wild for food or self-medication.

What plants are most successfully defended against mammalian herbivores? Despite his title, Gordon Knight's article reveals that it is not the mints, nor the noxious or poisonous species, but the common stinging nettle and thistle species, as here. Histamine, acetylcholine and 5-hydroxytryptamine are involved in the stinging reaction and concomitant immediate pain. Spicules of thistle spine probably trigger two of these pain chemicals from the tissues themselves. These species which administer an immediate sharp short shock seem to be spreading more abundantly than those carrying an arsenal of toxins causing poisoning or death after ingestion.

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LONG DISTANCE IDENTIFICATION

The note by Paul Smith in *BSBI News* **78**: 28, reminded me of the following:

- The recent *Wiltshire Flora* says of *Taxus baccata*: 'On steep chalk slopes, often associated with *Sorbus aria*.' No problem at all to identify both species from across the valley, a mile or more away.
- Flying in to Budapest in 1985, the BSBI field meeting identified plantations of *Robinia pseudacacia* (False-acacia) from 6-900 m up. In flower, it is best seen from the air. Later, on the ground, we found signs 'Beware of the Bees' – for whom it was grown.

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COLOUR VARIATION IN *RAPHANUS RAPHANISTRUM* (WILD RADISH)

With regard to colour variation within populations of *Raphanus raphanistrum*, the following observation, made in 1986, may be of interest.

During the course of the BSBI Arable Weeds Survey, I encountered dense stands of the radish growing in 8 ha of fodder beet (*Beta vulgaris* subsp. *vulgaris*). Though noting the obvious colour variation, I could not be specific about the ratio of white to yellow flower-heads. However I have a vague notion that it was roughly 6 to 4 in favour of yellow.

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THE CONCEPT OF SPECIATION BY HYBRID SEGREGATION WITHIN FACULTATIVE APOMICTIC GENERA

Few students of the apomictic genera would dismiss totally the concept of speciation by hybridisation. A most interesting case study is that of the investigation of the origins of *Rubus vestervicensis* Gustafsson, a very localised endemic discovered on the island of Södra Malmö off the eastern coast of Sweden by C.E. Gustafsson in 1915. Recent molecular studies Kraft *et al.* (1995) provide very strong evidence to support Gustafssons's suggestion (Gustafsson 1938) that *R. vestervicensis* has arisen from the hybridisation of *R. grabowskii* Weihe ex Gunther & al. and *R. pedemontanus* Pinkwart.

It would seem logical to assume that speciation by hybridisation within the facultative apomictic genera should be relatively frequent on biogeographical and evolutionary time scales and it is often the case that field workers frequently ponder over putative hybrids as Gustafsson did for *R. vestervicensis*. Wherever compatible species coexist then there is always a possibility that hybridisation could occur and repeated hybridisation between widespread compatible species may have occurred on numerous occasions at many locations. The resulting hybrid plants may clearly differ from each other in morphological characteristics (particularly if the parental species are highly heterogeneous) and therefore it follows that many unique forms which share a common ancestry could be raised to specific rank by taxonomists. This could possibly be the case for the members of a micro-specific group which although sharing many morphological characteristics are nevertheless taxonomically distinct from each other. An example that comes to mind is that of the *Rubus fuscus* complex.

If it is the case that numerous microspecies are actually hybrid plants (reproducing predominantly by the apomictic mode) then an additional factor to consider with regard to micro-speciation would be that of the occurrence of repeated self-fertilisation. This is a phenomenon that cannot be completely ruled out. We all know of Mendel's demonstration of segregation for a limited number of characters by the selfing of F1 hybrids, and that the number of potential segregates increases dramatically as the number of characters to be considered is increased. The probability of the occurrence of self-fertilisation for polyploid hybrid plants is much reduced due to severe meiotic disturbances and agamospermic seed production is assumed to predominate and therefore it would seems highly unlikely that classic Mendelian segregation could occur. On rare occasions however segregation following self-fertilisation might actually take place be it significantly delayed in time and space, and non-Mendelian in operation. Nevertheless the concept of delayed segregation could be of considerable importance to our understanding of the development of micro-specific complexes on an evolutionary time scale.

Let us suppose that for a given genus a single member of that genus arrives at a biogeographically isolated area and subsequently colonises that area predominantly by apomictic means. Now let us suppose that this taxon is of hybrid origin and that on occasions self-fertilisation occurs and distinct segregates are produced. It follows that it is not completely improbable that a localised endemic flora could evolve from a single hybrid plant.

We do know that speciation within apomictic genera such as *Hieracium* has occurred in particularly isolated geographical areas such as the Shetland Isles, and that a great many very localised undescribed brambles do exist. It would be interesting to investigate to what extent the potential processes of micro-specific evolution discussed above may have contributed to the development of the apomictic complexes that occur within the British Isles.

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BOTANY AND BOTANISTS IN LITERATURE – 13

Members might find the following item of interest. Sylvia Plath, was Ted Hughes' (poet laureate) former wife. She was primarily a poet and is much in the news recently with the publication of Hughes' recent book of poems about her (*Birthday Letters*). She is, amongst many people, something of a Goddess and, though I am not a great admirer of her poetry, she writes prose like an angel (I recommend *Letters Home*, Faber and Faber). The piece below is taken from *The Bell Jar* published by Faber and Faber in 1976.

> 'At college I had to take a required course in physics and chemistry. I had already taken a course in botany and done very well. I never answered one test question wrong the whole year, and for a while I toyed with the idea of being a botanist and studying the wild grasses in Africa or the South American rain forests, because you can win big grants to study off-beat things like that in queer areas much more easily than winning grants to study art in Italy or English in England, there's not so much competition.
>
> Botany was fine, because I loved cutting up leaves and putting them under the microscope and drawing diagrams of bread mould and the odd, heart-shaped leaf in the sex cycle of the fern, it seemed so real to me. . .
>
> Physics made me sick the whole time I learned it. What I couldn't stand was this shrinking everything into letters and numbers. Instead of leaf shapes and enlarged diagrams of the holes the leaves breathe through, and fascinating words like carotene and xanthophyll, on the blackboard, there were these hideous, cramped, scorpion-lettered formulas in Mr Manzi's special red chalk.'

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BOTANY (PLANTS) IN LITERATURE – 14

Vathek, written in 1786 by William Beckford (in *Three Gothic novels*, Penguin Classics, 1986), combines the Gothic features of the horrible and the supernatural in a setting of seemingly unsurpassable extravagance. As well as the five wings added to the main palace, one for the gratification of each of the five senses, the Caliph Vathek has three hundred dishes daily placed before him (when he is in low spirits he can only eat thirty-two). The flora which he looks upon is no less voluptuous (pp. 161-2):

> 'At the distance of a few miles from Samarah stood a high mountain, whose sides were swarded with wild thyme and basil, and its summit overspread with so delightful a plain, that it might have been taken for the Paradise destined for the faithful. Upon it grew a hundred thickets of eglantine and other fragrant shrubs; a hundred arbours of roses, entwined with jessamine and honeysuckle; as many clumps of orange trees, cedar, and citron; whose branches, interwoven with the palm, the pomegranate, and the vine, presented every luxury that could regale the eye or the taste. The ground was strewed with violets, harebells, and pansies; in the midst of which numerous tufts of jonquils, hyacinths, and carnations perfumed the air.'

The plants: a glossal note

Although Samarah is a fictional place (possibly a combination of the Samara of East Russia in East in East Europe and the Samhah of Socotra in Northwest Tropical Africa) the plants in the above catalogue are real enough.

With the exceptions of the orange (*Citrus sinensis* L.), the cedar (*Cedrus libani* or *Cedrus deodara*), the citron (*Citrus medica* L.), the [date]-palm (*Phoenix dactylifera*) and the pomegranate (*Punica granatum*), Beckford could possibly have seen either from his window at Fonthill Abbey in Wiltshire, or from walking around its grounds, the eglantine or sweetbrier (*Rosa rubiginosa*), although it is worth considering perfoliate honeysuckle (*Lonicera caprifolium*), which is also by some called

eglantine. The rose may be the dog-rose (*Rosa canina*), but by extension could be the Phoenician rose (*R. phoenicia* Boiss.) which grows in Vathek's Orient (Western Asia). In the same vein, other possibilities are the rockrose (*Cistus* spp.) the Syrian rose (*Hibiscus syriacus*), or even oleander (*Nerium oleander* L.). A type of rose found in 'Paradise' is, according to Strabo (1763) (as cited by Moldenke, 1986), the balsam or balsamodendron (*Balsamodendron* spp.), now in the genus *Commiphora* (Burseraceae), but all this is straying rather far from the Rosaceae of eighteenth century England.

Very Persian though is the jessamine (Persian *yăsmīn*; Arabian *yăsmin*, *yăsamin*). Arabian jasmine is *Jasminum sambac* (L.) Aiton, but summer jasmine (*Jasminum officinale*) is equally at home in Iran or, no doubt, in a millionaire's Wiltshire idyll. In Sheikh Netzaoui's *The perfumed garden* 'the jessamine (yasmine) is formed of *yas* signifying deception, or the happening of a thing contrary to your wish . . .': accordingly Vathek's heart is eventually consumed by fire in Eblis; Beckford, through scandal and extravagance, is forced to sell.

Perfoliate honeysuckle (*Lonicera caprifolium*), already mentioned as eglantine, also grows in England and Western Asia, but equally plausible is honeysuckle (*L. periclymenum*). The sweet violet (*Viola odorata*), the harebell (*Campanula rotundifolia*), the wild pansy (*Viola tricolor*), the jonquil (*Narcissus jonquilla*), and the carnation (*Dianthus caryophyllus*) are all well-known English garden plants, as is the common grape hyacinth (*Muscari neglectum*). The oriental hyacinth is the common hyacinth (*Hyacinthus orientalis*) which in Turkey is abundant in rocky places and has fragrant deep blue flowers.

Growing wild, but also found in English gardens, are the wild thyme (*Thymus polytrichus*) and basil (*Ocimum basilicum*), although wild basil is *O. canum* Sims. The vine, though, would obviously be the grape-vine (*Vitis vinifera*) rather than the wild vine (*V. orientalis* (Lam.) Boiss.), the fruit of which is small, black, very acid, and juiceless, and therefore 'worthless'.

If Beckford was not a botanist, then he was either well-travelled, or a keen gardener and consummate artist. Most of the flowers, with the exception of the honeysuckle, harebell, and carnation, which have their anthesis in summer, are spring-flowering. Nearly all of them also grow in the Middle East.

In conclusion, the sensuality of the piece is due to the use of the vernacular; botanising in 'Paradise' is perhaps to rob it of its beauty.

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BOTANY AND BOTANISTS IN LITERATURE (15): TRAGIC FATE OF A GERMAN BOTANIST

The following extract from *Visits to Monasteries in the Levant* by Hon. Robert Curzon (1865) illustrates vividly the dangers of botanising in 'wild' places in the last century.

'The last Frank whom I heard of as having been killed in Albania was a German who was studying botany. He rejoiced in a blue coat and brass buttons, and wandered about alone, picking up herbs and flowers on the mountains, which he put carefully into a tin box. He continued unmolested for some time, the universal opinion being that he was a powerful magician, and that the herbs he was always gathering would enable him to wither up his enemies by some dreadful charm, and also to detect every danger which menaced him. Two or three Albanians had watched him for several days, hiding themselves carefully behind the rocks whenever the philosopher turned towards them ; and at last one of the gang, commending himself to all his saints, rested his long gun upon a stone and shot the German through the body. The poor man rolled over, but the Albanian did not venture from his hiding-place until he had loaded his gun again, and then, after sundry precautions, he came out, keeping his eye upon the body, and with his friends behind him, to defend him in case of need. The botaniser, however, was dead enough, and the disappointment of the Albanians was extreme when they found that his buttons were brass and not gold, for it was the supposed value of these precious ornaments that had incited them to the deed.

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BOTANY (AND ENTOMOLOGY) IN LITERATURE – 16

Here is a more modern example, in lighter vein, from the inimitable James Thurber, *Thurber Country* (1953), Penguin, 1977, Chap. 24, 'See no weevil':

'I probably would never have known about the 'Thurberia Weevil' or the Thurberia plant, either, if Clarence R. Peterson of Brooklyn hadn't sent me a report on them taken from the pages of the Federal Register, a publication of the U.S. Department of Agriculture that deals with American plants and the pests that threaten them. If any insect is trailing the arbutus, or creeping up on the Virginia creeper, agents of the Department photograph and fingerprint it, give it a serial number, and keep it under surveillance. Otherwise vegetation would disappear from the Republic and some enormous caterpillar would take over where Senator McCarthy left off.

The report from the *Federal Register* that Mr Peterson sent me contains the glad tidings, for cotton growers and Thurberia weevils, that the 1926 quarantine on the *Anthonomus grandis thurberiae* Pierce has been lifted. It seems that my cousin, the weevil, has turned out to be a harmless insect, no more dangerous to the American cotton crop than the luna moth is to the Brazilian Air Force. I don't know who Pierce is, by the way, or how he happened to pop up in the name of the Thurber weevil, but it may be that he was the agent who kept Thurberia under surveillance for twenty-five years. If I had spent the best years of my life tailing a weevil, I would certainly expect some permanent recognition. I don't know who Thurber is, either. My own branch of the family has never been very good at entomology or botany. This Thurber may have been an entomologist who discovered the Thurberia plant, or wild cotton, while hunting for weevils, or he may have been a botanist who discovered the weevil while hunting for the wild cotton plant. It is a kind of ordinary weed found in hot, arid areas of the Southwest, and it is not actually cotton, and it isn't terribly wild. The Thurberia weevil likes to inhabit the Thurberia plant anyway, but twenty-five years of research have shown that the weevil is not really a pest at all. . . . I don't know why it took a quarter of a century to find this out, but the wheels of government move slowly.

Thurberia, to be sure, is not the only plant named after a man. Literally hundreds of flowers and weeds have been named for their discoverers: forsythia for Forsythe, zinnia for Zinn, dahlia for Dahl, fuchsia for Fuchs, and so on. There are even muehlenbeckia and puschkinia, I found in glancing through *The New Garden Encyclopedia*. This

dictionary of flora, first published in 1936, contains 1,380 pages, but Thurberia, the wild cotton, isn't mentioned in it.

I don't know what Mrs Thurber thought or said when Thurber came home one evening and told her that he had discovered a kind of scrubby desert plant and was going to have it named after him, but if he had belonged to my branch of the family the conversation would have gone something like this . . . 'If I had to do over again,' said Mrs Thurber, I wouldn't have married a desert botanist. I don't know why you have to go in for things like mesquite and toadbush, when everybody else's husband is finding such lovely flowers –' 'Forsythe and Wistar, if you mean them, are deciduous men,' Thurber cut in, 'and I happen to be xerophilous. You could have done worse – you might have married Hubbard and had that squash named after you.' 'Yes, but if I had married Wilson, the ornithologist, I could have had a thrush named after me.' 'Supposing you had married Newton,' her husband said, 'then you would have had a fig cookie named after you.' . . .'

And so it goes on, for another page or two. I see that my copy of Willis, *A dictionary of the flowering plants and ferns* (1951), gives – '*Thurberia* Benth. Gramineae. 2 Texas, Arkansas'

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BOTANY AND BOTANISTS IN LITERATURE – 17

Murray Bail's 'Eucalyptus' (1998) is surely the botanical novel par excellence. Holland is an eccentric Australian landowner who has dedicated his life to planting and growing as many species of Eucalyptus as he can get hold of, including the most unusual and the most rare, on the acres of ground around the home he shares with his beautiful daughter Ellen. Realising that Ellen's great beauty is attracting male admirers from near and far, he decides that only the man who can give the correct scientific name to each and every Eucalyptus he has planted may have her hand in marriage. Many attempt, but fail. Then it looks as if one candidate – much older than Ellen, and hardly her likely choice of partner – might succeed; but there's also an unknown stranger who keeps meeting her clandestinely, and who tells her tall tales of little apparent relevance . . . .

'Eucalpytus' is a strange confection of wit and whimsy, with a lot of good botanical description (every chapter is headed by a Latin specific) and intriguing speculations on the nature of story-telling. It has to be a true 'one-off' of a book.

Here's Holland clearly thinking about 'lumpers' and 'splitters':

'There's still learned debate over the precise number of eucalypts. It's well into the hundreds, but the figure keeps changing. At regular intervals there's a career move from an institutional dark corner somewhere to reduce the total . . . .

Some men and women have been known to devote their lives to the study of nothing but the leaves of the eucalypts and grow old without mastering the subject. In time they resemble those gentle maiden aunts who reveal on request tremendous genealogical knowledge, the Christian names and histories of the family's branches, who has been married to who and how many children, their names and illnesses, who died of what, and so forth; the history of hybrids . . . '

Maybe he ought to have called his book 'Rumpelstaceskin'?

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BOTANY IN FANTASY FICTION (18)

As an avid reader of 'Fantasy' novels, ever since Arthur Chater first introduced me to Bilbo Baggins, I rarely come across anything worthy of including in this series. However, while reading the final work in

a multi-volume series by a consummate master of fantasy fiction, David Eddings, I was reminded of something I had read years earlier but forgotten, which seems to be appropriate.

In *The Riven Codex* (HarpurCollins 1998), Belgarath, the first disciple of the god Aldur has just discovered that he has magical powers.

> 'And then, because I was very young and very proud of myself and my new-found powers, I turned to a dried and brittle bush – it was mid-winter at the time – and I spoke to it fervently. "Bloom," I said, and the bush quite suddenly produced a single flower. I plucked it and offered it to [Aldur]. . . And he took the flower and smiled . . . "And this shall be thy first lesson. I would have thee examine it most carefully and tell me all that thou canst percieve of it." And that task took me twenty years, as I recall . . . And there were many other things as well that took at least as long. I examined trees and birds, fish and beasts, insects and vermin. I devoted forty-five years to the study of grass alone.'

How well I know that feeling!

GWYNN ELLIS, Editor

BOTANY IN ENGLISH LITERATURE?

'Gosh, what on earth is that?' said Wendy. 'Stand back!' said John. 'It may be – yes it is – it's a beastly Alien!'

'Gosh' said Wendy rather fearfully. 'You don't think, do you John, that it might be planted?' 'Indeed I do' said John in a manly sort of way, grasping the plant firmly and pulling it up by its roots.

'Hurrah!' said Wendy. 'so much for Johnny foreigner! Now lets go home for tea.'

Enid Blyton

'I am quite resolved', said Elizabeth, 'to accept Mr. Ellis, for he is the handsomest of men and has fifteen hundred a year. Were I to marry him I should be transported to Parnassus!'

'I fear I do not entirely care for Mr. Ellis' said Mary. 'Handsome he indisputably is, but I am informed upon authority that many of his fifteen hundred are mere *Rubus* and I have ever maintained the prejudice that Brambles are not entirely a proper subject for a gentleman.'

Jane Austen

. . . daftodil and cucumber in the mossy sexifridge where irishes the butterworse.

James Joyce

It was bad that summer. I would wake in the early morning and listen to the BSBI going up to the front. There were wet flushes up there and many of the recorders were just kids and the species diversity was overwhelming. I would watch them going back to the front clutching their battered CTWs and they would be grey-faced and the big 10× lenses would be incongruous slung around their thin necks. And some of them had been issued with the new high-calibre Stace but they had no training worth a damn they didn't know how to use them and I knew they didn't stand a chance. And that was how it was.

So I would go out and go down to the cafe for coffee and grappa. And as I passed Dora's place the girls would lean out over the balcony and whisper and show me specimens of *Hieracium*, but I would say 'No, it is over for me the thing with the apomictic microspecies I have a wound it is a thing of the war'. It was bad that summer.

Ernest Hemingway

Dorothea trembled slightly as she touched the delicate stamens, remembering the ghostly pollen that lies behind all our lives, secretly spreading itself among our best intentions

> and bringing to fruition all those embryonic schemata which the meanest of us nourish in our calyx-enfolded bosom, urgent to burst forth into a spiritual blossoming.
>
> **George Elliot**

[Modesty almost prompted me to change the name in the 'Jane Austin' piece, but then I thought 'What the hell, if the cap fits . . .' Ed.]

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There seems to be an inexhaustible supply of notes for 'Botany and Botanists in Literature' but I fear they are beginning to take up a lot of space. So, in future only two per issue, unless of course there is insufficient copy to replace them. Please do continue to send in examples of the *genre*. Ed.

A COMMUTER'S LUNCH BOX

Jack Smith's note in *BSBI News* **78**: 27, on the vasculum prompts me to recount the following. A few months ago I was looking around an antiques shop in Lingfield, Surrey when I spotted a fairly old metal vasculum. The notice on it stated in no uncertain way 'COMMUTER'S LUNCH BOX'. I asked the owners of the shop if they knew what it really was, and they had no idea. They seemed quite impressed when I enlightened them.

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E.S. MARSHALL'S ANNOTATED LONDON CATALOGUES AT NATIONAL MUSEUM AND GALLERY, CARDIFF (NMW)

Amongst the miscellaneous scraps of E.S. Marshall's correspondence lodged at National Museum and Gallery, Cardiff (**NMW**) were twelve London Catalogues marked with his plant records from various parts of Britain and Ireland. Some lists are essentially 'tick lists' for a vice-county, whilst others have relatively localised information. Many of the more interesting records have been published in his notes in *Journal of botany*, etc. His main herbarium is at Cambridge.

Given Marshall's outstanding contribution to British botany, anyone interested in first or original records is welcome to consult the catalogues. They are listed below in date order, with details of the localities and vice-counties (V.cc. 6, 7, 8, 22, 79, 80, 89, 90, 92, 94, 95, 96, 98, 99, 100, 106, 107, 108, 109, 111, H12). My additional notes are in square brackets.

List of plants observed in sites by myself. Begun 1886.

List of plants in herb. E.S. Marshall, 1886 [superseded by 1891 list below]

List of plants in herb. E.S. Marshall, 1891

Scotch Plants, 12 July to 11 August 1892

- Faldonside neighbourhood (Selkirk & Roxburgh) [v.cc. 79-80]
- Restenneth, Roescobie & Forfar [v.c. 90]
- Blairgowrie to Ardblair and Marlee Locs [v.c. 89+?]
- Glen Shee and thereabout in East Perth [v.c. 89]
- Forfar Stations (Caenlochan, Glen Brighty, Canness) [v.c. 90]
- South Aberdeen Stations [v.c. 92]
- Beauly neighbourhood (East Inverness) [v.c. 96]
- East Ross plants worked by rail etc. from Beauly [v.c. 106]

List of plants observed about Bigbury, Kington, Kingsbridge and Toybridge, South Devon [v.c. 3], June and July 1894.

1898, 18 July. Wellington College, south-east to Blackwater and via Sandhurst to Blackwater, all in Berks [v.c. 22]

Argyle, Ben Dothiadh, July? [v.c. 98; faded pencil, ± illegible; Marshall visited this locality in 1893; another locality is illegible]
Scotch Trip, 1897, East Ross, Sutherland and Caithness (v.c. 106, 107, 108 and 109).
Plants observed in Co. Wexford [v.c. H12], 8-17 June 1897 [copied by R.Ll. Praeger, 10 August 1897]
Wexford and neighbourhood, including Wexford Haven
Rosslare harbour, coast by Greenore Point to Churchtown, on round Carnsore Point, halfway up Lady's Island Lake, and back by road to Rosslare Harbour
Rosslare
Macmine Junction (Slaney Marshes, etc.)
Gorey to Ballycanew and Killenagh, thence to the sea and up the coast past Ardamine to about a mile north of Courtown
Scotland, 1898
Kingussie to Kincraig, East Inverness, 26 July [v.c. 96]
Lossiemouth to Hopeman, also West Alves, Elgin, 1 August [v.c. 95]
Dunphail, Findhorn Glen to Forres, 4 August [v.c. 95]
Aviemore, East Inverness, 6 August [v.c. 96]
Cairngorm and Glenmore Forest, 8 August [v.c. 96]
Cairngorm in Banif; 8 August [v.c. 94]
Nairn and vicinity, East Inverness (v.c. 96)
Loch Spynie and west of Elgin, 19 August (v.c. 95)
Black Isle (v.c. 106), Kessock via Arpafeelie, Avoch and Fottrose to Rosemarkie, 23 August
Garmouth (v.c. 95) and Kingston, 24 August
About Brodie, Culbin Sands and Forres (Buckie Lake, etc.) (v.c. 95), 27 August
Scotland, 17 May to 29 August 1900 inclusive
Orkney (v.c. 111)
Caithness (v.c. 109)
W Sutherland (v.c. 108)
East Sutherland (v.c. 107)
Auchternecd and Ben Wyvis, East Ross (v.c. 106), 14 August
Arran, 25 August (v.c. 100)
Bute (v.c. 100)
Arrocher and Inveraty, Argyle (v.c. 98)
Arrocher and Tarbet, Dumbarton (v.c. 99)
List of plants, Wiltshire and Somerset 1904
Woodborough, Alton Barnes, Downs to Clifford Hill (above All Cannings to Patney Station district 7), 14 May, also about Alton Barnes 28 May, v.c. 7 & 8.
Roundway Hill to Beacon Hill (downs); Nether Street to St Edith's Marsh; footpath to above Rowde Hill and Sell's Green to Seend Station (district 2), 19 May, v.c. 7
Downs between Tinhead and Imber (district 1) (chiefly Coulston Down), 23 May, v.c. 8
Wiltshire side of Bathford Hill (Monkton Farleigh) to Inwood and [?]Coulsley, descend to canal; north of Limpley Stoke (district 2), 26 May, v.c. 7
Canal a mile above Limpley Stoke to Freshford (railway) district 1, 26 May, v.c. 8
Wishford, Ebbesbuty Hill and Copse, Downs to Groveley Castle (and woods), etc. descend to Little Langford. Road (and moist meadows) via Hanging Langford to Wylye. District 8, 31 May, v.c. 8
Patney Station and Chirton, south to Downs and back via Marden District 7, 4 June, v.c. 8
Bathford to Inwood, and about Freshford, Bathampton, v.c. 6., 26 May
List of plants observed in Argyle (Dalmally, etc.), 1910 [v.c. 98]

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THE BOTANY COLLECTIONS OF OLDHAM MUSEUM

The Nield Herbarium

In 1995, Oldham Microscopical Society formally donated a 10,000 specimen strong herbarium to Oldham Museum. Named after a nineteenth century Oldham printworker, James Nield, it contains a fascinating history of the changing face of not only Oldham's flora, but also of other areas of the British Isles.

Considerable documentary work has recently been completed on the vascular plants in the collection, and research has been undertaken on the lives of many of the collectors. This article is intended to present a summary of this work and outline future development plans.

Background

Oldham is a metropolitan borough of over 220,000 people situated to the north east of Manchester. A place of no significance 200 years ago, Oldham rapidly became one of the biggest cotton producing towns in the world during the nineteenth century, transforming a moorland, scrub and pastoral landscape into one dominated by smoking mill chimneys and dense terraced housing. It was in this climate of intense change that the study of botany in Oldham became popular amongst the working classes, a phenomenon that can also be seen in the surrounding industrial towns of south Lancashire, such as Rochdale, Bury, Bolton and Ashton under Lyne.

The seeds of growth in the study of botany in Oldham were first sown by a local handloom weaver called John Mellor, who began holding Sunday botanical meetings in pubs in the 1770's with fellow artisans such as James Crowther and the Australasian explorer George Caley. The first Oldham Botanical Society was formed in 1775, and this led to the formation of a plethora of more localised societies in the 1800s.

The originator of this herbarium, James Nield, was born in Oldham in 1825. An early advocate for nature conservation, Nield built on the botanical legacy in Oldham by being a founder member of the Oldham Microscopical Society in 1864, a society which still meets regularly today. According to transcripts from the Oldham Microscopical Society Annual report of 1882, the herbarium began with a donation by James Nield of 900 mounted British plants. This was added to with 300 British plants not represented in the Nield collection, and including a full set of 'Bloxham's Rubi', presented by John Whitehead.

Over 100 of Nield's contemporaries are represented in the Nield Herbarium, and several twentieth century botanists have since added to the collection. Nield appears to have been a reluctant signer of herbarium sheets, making it difficult to be certain precisely which specimens he collected; similar problems were faced when documenting the Nield Geological Collection, also held by Oldham Museum.

Research

The Nield collection was stored in 14 large black rectangular boxes and 37 separate plastic bags. For the sake of convenience each plastic bag was numbered, and each box was given an identity letter. They were stored in Oldham Museum's Natural History stores. Sheets were stored up to 200 deep, and many of the plastic bags were very dirty. This made access very difficult, and potentially very damaging.

The Museum was fortunate to have a small but empty wooden herbarium cabinet which had been acquired from a local society a few years ago. Although not air tight, it did allow the most extreme of overpacking of plastic bags to be addressed; up to three hundred herbarium sheets were rapidly transferred.

Most natural history curators with large collections face a similar problem: what are my documentation priorities ? These may be guided by strict adherence to documentation plans, by upcoming exhibitions or perhaps by the enthusiasm of a volunteer. My reasons for choosing to document the Nield Herbarium were three fold; that this valuable collection would seriously decay if left alone for several more years; that it was known to contain many notable specimens, but no-one knew exactly what they were or how to find them; and that I was very familiar with the subject of vascular plants, and would be able to interpret the importance of specimens in the collection.

Simon Hayhow, currently the Keeper of Natural History for Lancashire Museum Service, had already started documentation of the collection in 1989 when he worked at Oldham Museum; he had initiated a storage numbering system and had hand-written a brief synopsis of the contents of each plastic bag and black box. His notes helped enormously in my comprehending the parameters of the work involved, and provided a series of incentives for approaching each new box or bag of sheets.

Information from each sheet was entered onto a specially tailored Smartware database. Information on common and Latin names, collector, collection location, collection date, species classification number, specimen location were recorded for every specimen, as well as occasional notes on source of the specimen, UK status of species, rarity value, composition and condition of the specimen, any literature that refers to the specimen or collector biographical detail. The names and classification system used were from the 3rd edition of *The Flora of the British Isles* by Clapham, Tutin and Moore, except for the non-British species which have largely been recorded directly from the herbarium sheet without modification.

All the documentation was done in the Museum's Natural History Store onto a lap-top computer. Sheets were recorded systematically as they came out of a bag or box. Although some sheets followed a vague order,

often arranged into family groups, it was quite clear that the whole collection had never been properly ordered and that individual collections had been broken up and absorbed into the whole. This lack of order made typing in information considerably more time consuming, as precise spellings of species names were constantly having to be looked up. Details from over 4400 specimens were computerised. It is difficult to say how long this took as I was doing other work at the same time but the whole process took 4/5 months and at times felt like it would never end. This left no time to document any of the non-vascular plants, particularly the several thousand strong bryophyte collection. There are indications that this may be an even more important collection than that of the vascular plants, but no opportunity has yet arisen to undertake this huge task.

The Vascular Plants of the Nield Herbarium

There are over 4400 sheets of dried vascular plants that include data in the Nield Herbarium, of which around 600 originate from outside the British Isles. In addition, several hundred have no data whatsoever. Using the Clapham, Tutin and Moore system of classification, 132 of the 150 British vascular plant families are represented and approximately 80% of all British species. Although there is no definitive plant list for Oldham, nor for the Greater Manchester area, many of the local species that I know of are represented in the collection. The earliest recorded date is 1846, and the vast majority of the collection dates from the nineteenth century, particularly between 1870-1890. Plant specimens have been collected from all over the British Isles but Oldham, the Channel Islands, West Cornwall and the Scottish Highlands are particularly well represented. These appear to be the most popular holiday destinations for nineteenth century Lancastrian botanists, and in a paper delivered to the Manchester Botanists' Association in 1875, there is a rather hilarious account of four local botanists search for the Alpine Gentian, *Gentiana nivalis*, up Ben Cruban in the Grampians: accounts of their discoveries can be matched with specimens in the herbarium.

There are over two hundred specimens which can be considered to be real treasures. Apart from many species which are considered by Clapham, Tutin and Moore to be very rare today, there are many abnormal plant forms, geographical oddities, unusual aliens, county and British first recordings, and local, county and British extinctions. Highlights include several species lost to the Oldham area, such as *Pseudorchis albida* (Small White-orchid), *Gentiana pneumonanthe* (Marsh Gentian), *Hammarbya paludosa* (Bog Orchid) and *Phegopteris connectilis* (Beech Fern); the first record of *Rubus rhombifolius* and *Rubus spadix* (*R. podophyllus*), and of the stonewort *Chara fragifera*, in Britain; the first record of *Circaea alpina* (Alpine Enchanter's-nightshade) in Derbyshire; the first record of *Ranunculus tripartitus* (Three-lobed Crowfoot) in Cheshire, a species which may now be extinct in the county; possible Cornish extinctions such as *Filago gallica* (Narrow-leaved Cudweed) and *Oxalis stricta* (Upright Yellow-sorrel); possible Cheshire extinctions such as *Pilularia globulifera* (Pillwort); Yorkshire extinctions *Veronica triphyllos* (Fingered Speedwell) and *Phleum phleoides* (Purple-stem Cat's-tail); Dorset extinction *Orobanche caryophyllacea* (Bedstraw Broomrape); and British mainland extinction *Pinguicula alpina* (Alpine Butterwort).

In addition to these, there is already evidence that the herbarium contains valuable new site records; a chance conversation with Alan Howell at the Biological Curators Group (BCG) AGM at Bolton in 1996 led me to sending records to the botany section of Societe Jersaise, who wrote back to say they were delighted to be able to add new localities for particular species. The status of many of these specimens may also change in light of the Atlas 2000 survey run by the BSBI and I await their results with interest. However, if anybody has any comments on the species already mentioned, even if you wish to dispute some of the claims made, I would be happy to hear from you: John Edmondson of Liverpool Museum has already given his advice about the status of the *Rubus* specimens, including help with the wide disparity of spelling sub-species in the nineteenth century and the consequent mis-identifications.

Mosses, Algae, Seaweeds and Fungi in the Nield Herbarium

There are up to 5,000 specimens of mosses in the collection, but just a few examples of algae, seaweed and fungi. The collection of mosses mainly come from the collection of John Whitehead, and a ticklist of this was annotated onto a copy of *The London Catalogue of British Mosses and Hepatics* in 1881, with a handwritten list of algae and fungi in the back of the book. This indicates that it is a very comprehensive collection of British cryptogams, dating mainly from the mid-nineteenth century, and includes a large contribution from John Nowell. In 1996, a student placement from Oldham Sixth Form College documented a small collection of seaweeds, collected by Oldhamer John Waddington in the mid-nineteenth century.

The Collectors

Over 150 collectors have contributed to the Nield Herbarium of Vascular Plants. Some have only one specimen, others several hundred. The following is a short synopsis of the leading contributors, with place names referring to collection locations rather than biographical origin.

H. Adair (Cumberland), E. Armitage (Herefordshire), F. Arnold Lees (Teesdale), J. Bagnall (Warwickshire), A. Bloxham (Cheshire – *Rubus* sp. 1846), N. Buckley (pre-1857), W. Curnaw (Cornwall), M. Dawber (Guernsey – member of Watson Botanical Exchange Club 1886-87), A.E. Ellis (Sussex/Surrey), J. Entwhistle (Surrey),

H.D. Geldart (Norfolk), G. Goode (Cambridgeshire), H. Goss (Cambridgeshire), W.J. Hannan (Lancashire IDerbyshire), S.S. Haslehurst (Channel Islands), W. Heathcote (handbook of ferns from the English Midlands), W. Hind (Suffolk), G.A. Holt (Cheshire), J.H. Jenner (Sussex), L.N. Kidd (Oldham/Derbyshire 1940-60), J.C. Melville (Perthshire), J. Nowell (Co. Clare), Rev Painter (Somerset), J.T. Palmer (Manchester), J. Percival (Lancashire/Barmouth/ Scotland), J. Piquet (Jersey), J. Richen Briggs (Devon/Cornwall), C.F. Ripley (Lancaster), T. Rogers (Perthshire), R.W. Scully (Co. Kerry), Rev C. Shaw (alien flora of Oldham 1940-60), J.H.A. Stuart (Isle of Wight), J.E. Sunderland (Scotland), Dr G. Thomson (Wales), Dr Vig ers (Cornwall), M. Ward (Fleetwood), G. Webster (York), J.A. Wheldon (Yorkshire), J. Whitelegg (Cleethorpes), T. Whitelegg (Derbyshire).

Special mention must be made of three particular collectors who contributed the bulk of the collection.

Many Oldhamers consider James Nield (1825-1896) to be the founding father of natural history study in the town. Born in Oldham's Cheapside area, he was the son of a hatter who became a printer and lithographer, and town councillor. He was a founding member of the Oldham Microscopical Society, was active in the Oldham literary and Philosophy Society and became the first President of the United Field Society. Nield discovered a fossil forest on the outskirts of Oldham town centre, was involved in the highly publicised movement of a huge erratic boulder to the entrance of Oldham's first public park, campaigned to save an 'arctic peat bog' in Oldham town centre and was one of the main instigators in the formation of the first Oldham Museum. His initial collection of 900 plants formed the basis of the Nield Herbarium, and he collected specimens from Oldham, the Scottish Highlands, and from around Tal-y-bont in north Wales, where he took up temporary residency. Oldham Museum also houses the Nield Geological Collection, a 1500+ collection of fossils, rocks and minerals.

John Whitehead (1832-1896) was a working class man who gained a national reputation for his knowledge of mosses. Born in Dukinfield, Manchester he spent most of his life living around the Oldham area and wrote *The Flora Ashton-under-Lyne* in 1888. Although he has over 100 specimens from around the British Isles in the vascular plant herbarium, it is for his collection of mosses that he is best known. When he donated his whole herbarium to the Oldham Microscopical Society and Field Club in 1892, the society's president, Mr Pullinger, declared it to be without rival in the north of England. Whitehead made many muscological discoveries including new British and European records, and three taxa new to science; *Dicranella schreheri* var. *elata*, *Bryum rufum* and the liverwort *Jungermannia nevicensis* which he found on Ben Nevis in 1875.

John Byrom (dates unknown) contributed at least 720 specimens to the Nield Herbarium. A member of the Oldham Microscopical and Ashton Biological Societies, Byron travelled extensively in search of botanical treasures. Apart from various Lancastrian localities, Byron collected from Derbyshire, Cheshire, Cornwall, North Wales, the Grampians, Channel Islands, Norway, Switzerland and the prairies and Rocky Mountains of North America, mostly between 1870 and 1884. He gave a fascinating account of his North American travels in a paper given to Oldham Microscopical Society in 1884.

Herbarium Development

Two of the major problems with the herbarium is storage and the need for remounting. As much as 20% of the collection is composed of loose specimens, due in part to inadequate storage conditions. The Herbarium Handbook recommends that herbarium sheets are stored at the maximum six deep: some of these are stored over 200 deep. The excellent 'Herbarium For Beginners' training day organised by the BCG at Liverpool Museum in 1996 provided excellent advice on how to progress the conservation of the collection but the main barrier is, of course, finance. Several new herbarium cabinets, professional remounting, sheet numbering and systematic sorting must all be aimed for, whilst photographic documentation would be desirable.

To help contextualise the collections with particular regard to local records, detailed study of the herbaria held by Rochdale and Tameside Museum Services would be invaluable, as they are anecdotally known to contain specimens collected by local naturalists from in and around the Oldham area.

It would be desirable to have a representative of all the British vascular plant families. Irresponsible acquisition of wild plants is quite rightly frowned upon today, so a considered, responsible strategy will be needed, and members of the Oldham Microscopical Society have already expressed interest in helping, particularly with some surprising local gaps. If anybody knows of an unwanted collection that contains any of the following family groups, could you please let me know: Paeoniaceae, Aizoaceae, Amaranthaceae, Phytolaccaceae, Simaroubaceae, Vitaceae, Hydrangeaceae, Escalloniaceae, Pittosporaceae, Sarraceniaceae, Moraceae, Juglandaceae, Diapensiaceae, Buddlejaceae, Scheuchzeriaceae, Aponogetonaceae, Pontederiaceae and Typhaceae.

Finally, there is considerable work to be done on assessing the importance and potential use of the 500-600 foreign specimens, which mainly come from Switzerland, Norway and the prairies and Rocky Mountains of North America.

Uses of the Nield Herbarium

One of the major criticisms that I have heard of herbaria is that they are not very interesting to the general public. Having seen how creatively Liverpool Museum displays its herbarium specimens, I have been able to use the Nield Herbarium for a range of uses. In an exhibition about collecting and collectors called the 'People's Show',

we used herbarium specimens collected by John Byrom in the prairies of Canada in 1881, alongside an account he gave of his trip there; we displayed a range of orchid species that have disappeared from Oldham to illustrate a section on biodiversity for an exhibition on sustainable development called 'The Rise And Fall Of Billy Small'; plant specimens from the five major wildlife habitats in Oldham were used for the exhibition 'Walk On The Wildside'; photographs and lists taken from the Nield Herbarium were used for '*The Wild Flowers of Oldham*' book published last year, and the records proved valuable for researching the book; and plant specimens have also been used for a range of Museum based talks.

Squire Ashton Herbarium

Oldham Museum also possesses a moderately sized herbarium collected by a nineteenth century Oldhamer and timber yard owner called Squire Ashton. Comprising of 491 species of vascular plants and 528 species of mosses, it is stored in 14 wooden boxes and dates from 1836-1897. It is made up of British species, with a particularly good collection of local specimens. Although the large majority of sheets are unsigned, it does include examples from James Nield, John Whitehead, James Percival and John Nowell, all of whom can be found represented in the Nield Herbarium. The vascular plants were documented shortly after the Nield Herbarium documentation was completed, but the mosses have yet to be studied in any detail.

Conclusion

This project has allowed the Nield Herbarium to grow in importance as it became more accessible and used. Indeed, there has been a definite correlation between the variety of uses that the herbarium can be put to and the level of documentation achieved. Also, the amount of conservation work needed to improve the collection, and the storage requirements, have both become much clearer. Although time consuming, this level of documentation has been necessary to ensure the herbarium's future survival and development.

If you would like to see the collection, have a full list of the collection, require information to supplement their botanical records or would even like to offer advice, I would be delighted to hear from you. I can be contacted at the address below. .

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THE SMITH HERBARIUM DOCUMENTATION PROJECT

The herbarium of Sir J.E. Smith, founder of the Linnean Society of London, consists of more than 20,000 specimens from throughout the world. A significant part of this historic collection consists of specimens collected from Britain and Ireland, partly by Smith himself and also by a network of botanists who exchanged material and received advice on identifications from Smith.

A project has now been launched by the Linnean Society, in collaboration with the National Museums & Galleries on Merseyside, to document, conserve and photograph the collection to modern standards. At the end of the project, all specimens from the Smith Herbarium at **LINN** will have been cleaned, repaired and rehoused using acid-free materials, and images will also be available to researchers.

A computerised database has been established at Liverpool Museum that will eventually contain details of the estimated 23,000 sheets at **LINN** and **LIV**. It will become possible to access this information in a variety of ways: making lists of specimens from particular localities, compiling details of particular collectors, and identifying taxonomically important specimens such as those cited by Smith in his various publications. The herbarium is rich in type specimens; Smith described many new taxa from home and abroad as well as writing three of the most popular Floras published at the turn of the 19th century: his *English Botany*, illustrated by James Sowerby (1790-1814), *Flora Britannica* (1800-1804) and *The English Flora* (1824-1828).

Although the database is at an early stage of development, it already contains details of the specimens sent by Sir James Smith to his friend William Roscoe, founder of the Liverpool Botanic Garden herbarium, and to Rev. John Harriman of Eggleston, Co. Durham. These sources, together with the manuscript catalogue of the Linnean Society's Smith herbarium compiled by Spencer Savage, reveal that Smith acquired plants from at least 160 different collectors in Britain, Ireland and the Channel Isles (whence Joshua Gosselin was the sole contributor). There are significant numbers of collections from East Anglia (Smith lived for most of his life in Norwich), Scotland (he studied botany at the University of Edinburgh) and Yorkshire (his father was in the woollen trade and had extensive contacts there).

Collectors from particular regions include:

WALES: Rev. William Bingley, John Eddowes Bowman, Rev. Hugh Davies, John Wynne Griffith, Miss Marianne Johnes.

SCOTLAND: William Borrer, James Brodie, Arthur Bruce, David Don, George Don snr., George Don jnr., Thomas Drummond, John Fleming, Robert Greville, Dr Johannes Groschke, Thomas Hope, Rev. John Lightfoot, John Mackay, Edward James Maughan, Patrick Neill, Rev. John Stuart, Smithson Tennant, Dr John Walker.

IRELAND: Robert Brown, James Dickson, James Drummond, Thomas Drummond, Miss Ellen Hutchins, Aylmer Bourke Lambert, James Mackay, Dr Whitley Stokes, Thomas Taylor, John Templeton, John Underwood, Walter Wade.

EAST ANGLIA: William Backhouse, Rev. John Brand, Charles Bryant, Rev. Henry Bryant, James Crowe, Sir Thomas Cullum, Rev. John Davies, Dr Nicholas Gwyn, Rev. George Leaves, Rev. Richard Relhan, Frances Smith, Robert Stone.

DEVON & CORNWALL: Rev. Henry Beeke, Francisco Borone, Rev. William Drake, Rev. Charles Holbech.

YORKSHIRE: William Brunton, Samuel Hailstone, Roberts Leyland, W. Middleton, Stephen Robson, Jonathan Salt, Robert Teesdale, Rev. William Wood.

For further information on the contents of the Smith herbarium, see the article by William T. Stearn in *Botanical Journal of the Linnean Society* **96**: 199-216 (1988).

During the project, botanists wishing to consult particular specimens in the Smith herbarium at **LINN** should apply to the Linnean Society of London, specifying which groups are required. If the material is scheduled to be in Liverpool, they will be notified accordingly. General enquiries should be directed to the Project office at Liverpool Museum. The herbarium and catalogue are also available on a set of microfiches, which will be available for consultation at **LINN** and **LIV**.

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A STUDY OF THE BLUEING PHENOMENON IN DOG'S MERCURY

We were engaged in a long-term study of an area occupying four 1 km squares in north-east Essex (v.c. 19). While looking at the distribution of spring-showing plants in 1995, we noticed that scattered shoots of dog's mercury (*Mercurialis perennis*) were gradually turning indigo blue, and then blackening as they wilted and died. This coloration was not consistently at any particular point on the plant, but always entire leaves became blue. At first, we attributed this to over-spray from adjacent arable land,

and a full description of the symptoms was sent to Writtle Agricultural College – near Chelmsford. As far as they could ascertain, this condition could not be associated with any known agricultural products, and was entirely new in their experience.

By now it was too late in the growing season to pursue this interesting phenomenon and it was dropped until the following spring (1996). This time, there were more plants affected, including several at the south-east corner of a small wood that was the centre of our studies. As members of the BSBI, we wrote a description of our observations, which appeared in *BSBI News* **73**: 20 (September 1996), asking for help. As a result we had a letter from Oliver Rackham (January 9th 1997) to say that in his opinion, the condition was caused by waterlogging damage, the blue colour being caused by a polyphenolase, or similar reaction on damaged tissue. If so, it could have more than one cause. He also said that drought or heat damage in summer, rarely caused the blue effect. He enclosed a copy of p.37 from his book 'Ancient Woodland' which suggested that the damage involved a poisonous reduction of soil iron compounds, from ferric to ferrous states.

A letter from another BSBI member, P.W. Wilberforce, requested samples of the affected plants. His first examination showed that the blue areas were filled with small, rod-like, gram-negative bacteria, but that the material then became infected with a phycomycete (?secondary infection). He suggested that we macerate a sample in alcohol and carry out a simple chromatography experiment. We did this using chromatography paper, and found that while the chlorophylls separated out, the blue colour remained in the initial spot. Running the experiment again using water, the separated chlorophylls were left behind by a strong pink streak. The colours appeared to be fairly stable, as they were still present in the extract, a month or more after maceration.

In spring 1997 we dug up two stems from the same clone, and by the time we returned to the car some twenty minutes later, the root hairs and root caps had turned blue. We prepared some material for microscopical examination, finding that sections were better than squashes. The central tissues of roots and rhizomes did not turn blue, but the sub-epidermal ones did, and so did those of a green stem. A section of leaf showed blue along the cut edge, and the main vein blued in the outer parts. The reaction occurred in under thirty seconds.

At Peter Wilberforce's suggestion, specimens were also sent to Paul Cannon of the International Mycological Institute, Egham, Surrey. He replied that he was reasonably confident that the blue symptom was not of fungal origin He had consulted a bacteriologist colleague (John Bradbury), who could not recall similar symptoms caused by bacteria either.

Through the Internet we found a 'Short Communication' in *Experientia* **40** (1984), entitled 'Hermidin, a Chromogen from *Mercurialis perennis* L.' by G.A. Swan. The body of the text is almost unintelligible to other than a chemistry graduate, but the 'summary' says 'Aqueous extracts of *Mercurialis perennis* L. contain a chromogen (hermidin) shown to be 3,6-dihydroxy-methoxy-1-methyl-2-pyridinone(2). The transient blue colour formed by atmospheric oxidation of these extracts is due to a radical-anion and the final yellow-brown colour is due to dimeric oxidation products.' Apparently, this chromogen, which is a powerful reducing agent, is most abundant in the young and vigorously-growing plant. If the underground stems are cut or bruised, they develop a transient blue to yellow colour. The plant is poisonous and is said to have diuretic properties. Animals fed on it produce red urine and excreta, and Prof. Swan, in a letter to us, says that there is a record of a family suffering an unpleasant death after eating the boiled plant.

He enclosed a copy of his paper on hermidin from the *Journal of the Chemistry Society 1985*, pp. 1757-66, entitled 'Isolation, Structure, and Synthesis of Hermidin, a chromogen from *Mercurialis perennis* L' Again it reads like one of the Dead Sea Scrolls to a non-chemist, but the phenomenon has been mentioned in papers from as early as Molisch 1893, Haas and Hill 1925, and Cannan 1926 (listed in the bibliography in Swan's paper).

Extracts had been made under nitrogen, because the compounds were very quickly oxidised. When they were exposed to oxygen, a blue colour appeared momentarily, followed by a yellow-brown colour. The active compound was extracted as colourless crystals and later this was shown to be hermidin, $C_7H_9NO_4$, and its structure established. The underground stems were found to be a good source of the compound.

Prof. Swan, in his letter, says that the production of the blue or red colour is a product of oxidation and that these compounds are relatively stable. However, he could offer no explanation as to the origin of the oxidising compound. We have wondered whether, if a cell is damaged by, for example, bright sunlight, the hermidin may be oxidised directly by photosynthetic oxygen.

Alternatively, high rates of photosynthesis during sunny days, followed by increased growth, and therefore respiration, during the relatively long spring nights, may lower the pH due to the raised level of dissolved carbon dioxide. Hermidin is reduced to coloured forms in more acidic conditions. Whatever the cause, we have never found it to affect all the plants in a clonal group, although individual stems die. Neither does it occur later in the year, when active growth has ceased and hermidin levels are lower. This suggests strongly that blueing has an environmental origin, associated with spring growth, rather than a systemic one.

We asked ourselves what advantage there might be to the plant to contain such a compound. Newly-picked plants certainly smell rather unpleasant, but there is no evidence that hermidin itself has any taste. If this were so, it could have developed as a protective measure. Vernal plants are particularly susceptible to grazing, providing, as they do, the first really nutritional food after the winter. Some form of anti-feedant would have value, especially to a plant making dense carpets and also producing early flowers, that are wind-pollinated and visible as soon as the tips of the shoots unfurl. The clone would survive the loss of a few damaged shoots, better than the loss of many to grazing. Perhaps it is similar to the sort of self-limiting lysis which damaged cells undergo in our own bodies.

Further observations during March 1998 revealed many blued plants, with some clones showing between 5% and 20% affected shoots. These plants always have one or more of the upper, completely unfurled, leaves affected. Affected leaves are shrivelled, blistered and more coarsely haired on the lower surface, and so bright a blue as to appear to be flowers, at a casual glance. Later, the inflorescences can go blue, often from the tip downward, affecting even the stamens. The central, youngest, tip leaves are rarely the first to be affected, and we suggest that this is because any dew formation will tend to coalesce and run down these leaves with their more vertical surfaces. We think that the damage is probably caused by sunlight, focused through dew drops, which are small and highly convex. Rain drops, on the other hand, are larger, heavier and splash off, so that even if the sun comes out quickly after a shower, there remains only a wetted surface rather than beads of water.

From two or three weeks before the spring equinox and for some time afterwards, the nights can be cold enough for dew or even light frost to form. The mornings may be cloudless, and the rising sun very bright. Before the ambient temperature has risen enough to dry the air, a critical time occurs, between about eight and ten o'clock, during which the tiny droplets on the leaves act as lenses, focusing the sun onto the surface. The droplets are too small to act as heat sinks, and the concentrated heat causes changes within the cells of the palisade layer. Hermidin could then be released, and, as the leaf was already photosynthesising vigorously, it would be oxidised to the blue form. This compound may then further disrupt the biochemical activities in the leaf so seriously that the leaf, then the stem and finally the whole shoot, is affected. This implies that limited translocation can occur, but perhaps not through the underground rhizomes, which are in the dark.

The distribution of affected shoots seems to support these speculations, as they are almost always on east-facing slopes, which, even if near a hedge, are open to shafts of sunlight through the bare winter twigs and through gaps. In another wood close by, the long axis of which lies east-west, there is a carpet of dog's mercury, much of it growing right down to the brook edge, among *Carex pendula* (Pendulous Sedge), *Allium ursinum* (Ramsons), and *Adoxa moschatellina* (Moschatel). The only stand which had an affected shoot was right on the south-east corner, exposed to the morning sun. Here, the cold air would run down at night, allowing dew to form: otherwise, no blue specimens were seen. In the body of a wood, the temperature gradients are less extreme, and any dew takes longer to disappear in the higher humidity. The sun does not penetrate through the trees and understorey for sufficient time in any one spot to affect the plants. Alan Showler, another BSBI member who wrote to us, had found blued plants in woodland on the Chilterns. These might well have been growing in areas with open canopy where the conditions for blueing may occur.

There seem to be two other factors contributing to the susceptibility to blueing. Firstly, the time of emergence of shoots, which can appear as early as late January. Secondly, the growth habit of the plants is lusher and greener, with bigger leaves in more shaded conditions, while those in the open tend to have smaller, narrower, more bronze-green and coarser leaves. These latter may have developed thicker cuticles or epidermal cells which would protect the active layers. Of all those found growing in sites open to sunshine for most of the time, there were only one or two shoots slightly affected. The male plants seem to be more affected than female, but then, there are many more male than female clones.

We can summarise the criteria that we consider to be essential contributors to the blueing phenomenon as follows:

- A time of year when the new growth is vigorous (a few weeks either side of the spring equinox).
- Cool, cloudless nights following unusually warm days (dew formation).
- Dew that is light enough to form tiny, globular droplets that do not coalesce and run away.
- Cloudless mornings, at least until a couple of hours before noon, with bright un-interrupted sunshine.
- Positions temporarily unprotected by canopy or understorey and exposed to the south-east.
- Growth on south to south-east-facing ditch banks where the morning sun can strike almost at right angles to the slope.

In the last two criteria, the plants are never in continuous sunshine, especially from the time the hedges and trees come into leaf.

During the critical period in 1998, all of the above climatic and environmental criteria were observed, and more blued plants were seen than in any of the previous years of observation.

As retired botanists, we feel that we have reached the limit of our investigation, as we have only got the limited equipment of general naturalists, and cannot carry out further laboratory work and experiments which are needed for a full explanation. We hope that someone will be able to take it further, especially as we know of no extensive work that has been published, and is generally available, on the defences employed by native plants to counteract herbivores.

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MADDENING MIMICS

— Of *Lycopodium clavatum*, up a steep hillside in driving drizzle: young shoots of *Erica tetralix* or *Empetrum nigrum*.

— Of *Sibthorpia europaea*, trying to read the denizens of a dark recess while keeping the overhanging *Salix cinerea* out of your eyes: *Chrysosplenium oppositifolium* and, above all, *Cardamine* spp., usually probably *C. flexuosa* (almost the same green).

— Of *Scirpus* (*Isolepis*) *setaceus* in the rain: fine grasses (probably *Agrostis canina* in the situations concerned) with a raindrop hanging a quarter of an inch below the tips of their blades.

Others will doubtless have their own bugbears! *Prunella vulgaris* seems to me to be able to look like almost anything. More seriously: small non-flowering immature plants of *Montia fontana* / *Stellaria uliginosa* have seemed to me impossible to determine one way or the other with any confidence. Does anyone have any tips?

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VIGOROUS VARIANTS OF *BRACHYPODIUM PINNATUM* IN N. WILTS. AND GLOUCS.

In parts of Somerford Common, and to the west of Swindon (N. Wilts., v.c. 7), and the Half Moon Plantation (E. Gloucs., v.c. 33) there occur three substantial populations of *Brachypodium pinnatum* (Tor-grass) which are so different from the characteristic chalk down-land plants that they look like a separate species. Indeed, they do not even key out to the *Brachypodium* genus in any of my Floras. All, most, or some of the following features are found in the aberrant plants.

1. 2-5 (rather than 1) spikelets per node in the lower and/or central part of the inflorescences (see figs 1-3, pages 46-48).
2. Stalked spikelets (stalks 2-11 mm) occasional in parts of the inflorescence, almost creating panicles (rather than simple racemes or spikes (see figs 1b & 1c, page 46).
3. Large tussocks (see photo page 49).
4. Tall inflorescences, to shoulder-height (1.5 m) in uncollapsed plants (see Table, page 45).
5. Swirled, cristate, spiral, or congested inflorescences, sometimes with '*Carex flacca*-like' bracts with some twin, triplet and long-stalked spikelets (figs 2-3, pages 47-48).
6. Broad leathery leaves 1 cm or more across.
7. Sometimes double-flowering, the May-June inflorescences tending to be more normal than the ensuing July-August (more complex) flower heads. The latter also produce much more seed.

The table details these differences between the variant plants at two main sites, and the 'normal' tor-grass. There are other sites in N. Wilts. (and I'm told, in Kent) where *Brachypodium pinnatum* forms big leathery tussocks (see preceding points 3, 4 & 6). Some of these plants in other parts of N. Wilts. may occasionally have complex flowerheads also. They are not *Brachypodium sylvaticum*, nor the hybrid between the two species *B.* × *cugnacii*. Their sites tend to be damp and semi-shaded rather than the characteristic chalk downland. These large-tussock variants of *B. pinnatum* can be cropped by deer, whereas herbivores usually reject chalk downland *B. pinnatum*.

Members of the Wiltshire Botanical Society (WBS) have been growing seed from the Somerford Common variant, at the suggestion of Dr Tom Cope of Kew, to get some ides of the flexibility of the complex inflorescence character on different soils, and in different growing conditions. The complexities usually reappear in the second and third generations in most situations, mostly paired or triadic spikelets, occasionally stalked, at the bases and middles of inflorescences of the more vigorous tussocks. It seems improbable that virus disease or infestation could account for these inflorescence aberrations in the second generation grown in different parts of Wiltshire. Also the aberrant plants are larger, more vigorous, and produce more fertile seed than those plants closer to the standard flora type of tor-grass. The tussock shown in the photo, second generation from the Somerford Common seed, measured 4.1 m in circumference only 18 months after three seedlings were planted in a triangle with 30 cm sides.

There would therefore seem to be great genetic diversity and potential in these aberrant plants, the stalked spikelets (figs 1b & 1c) hinting at affinities between the *Brachypodium* and *Glyceria* genera (Dr Tom Cope pers. com.). I had assumed that these deviant forms might have evolved from or mutated from the usual chalk downland tor-grass, but Rob Randall suggested the opposite: tor-grass, unpopular with herbivores might have once derived from the woodland forms here described, and spread on chalk downlands increasingly.

Acknowledgements

Experts have kindly commented, or are currently carrying out investigations on these (and other) puzzling *Brachypodiums*. Thanks are due to Eric Clement (Hants.). Tom Cope (Kew), Stephen Jury (Reading), Fernando Lucchese (Rome), Bruno Ryves (Surrey), Uwe Schippman (Frankfurt & Bonn), Clive Stace (Leicester).

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The European experts listed in the acknowledgements suggested that these plants could be isolated aberrant populations of *B. pinnatum*; to be separated from *B. rupestre*.

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	Hubbard (1980) (1)	**Chalk downland, Wilts** (2)	**Somerford Common, Wilts.** (3)	**Half-Moon Plantation, Gloucs.** (4)
Growth	'Loose to compact tufts'	Broad stands, loose rhizomatous networks	Large tussocks (see photo)	Compact tufts
Leaf width & colour	2-6 (rarely to 10) mm; Green or yellow-green	2-7 mm; Yellow-green	9-12 mm; Yellow-green when young, blue-green & leathery when older	8-11 mm; Green
Height	30-120 cm	30-70 cm	70-130 cm	100-150 cm
Flowering	Once. June→Aug.	Once. June→Aug.	Often twice. June & Aug./Sept.	Often twice. June/July & Aug./Sept.
Inflorescences	Straight or nodding, 4-25 cm	Straight or nodding. 4-12 cm	Very variable. Often cristate and/or spirally swirled (figs 1b &3), 10-25 cm. Occasional semipaniculate inflorescences.	Very variable. Often cristate, sometimes swirled, sometimes with leafy bracts like *Carex flacca* (fig. 2). 5-25 cm
Arrangements of spikelets & per node, and spikelet sizes	Single; 'very rarely' paired or triadic. 20-40 mm, straight or curved	Always single. 20-30 mm, straight or curved	Usually pairs or triads in lower & middle parts of inflorescence during main flowering. Spikelets 10-70 mm, straight to almost semicircular, the pairs & triads or quads & quins usually straighter & smaller than singles	Often pairs or triads, the triads sometimes with a 1-4 mm common stalk & the central triplet itself sometimes with a 2-11 mm stalk, almost creating a paniculate inflorescence. Spikelets 22-44 mm, straight or curved.
Habitats	Open grassland on chalk or limestone, reluctantly grazed or ungrazed	Open grassland on chalk, scarcely grazed; spreading stands	Woodland fringes, ditch & marshy edges, Oxford Clay. *2nd & 3rd generations grown in various (mostly open) habitats including on chalk grassland	Woodland fringes with brambles. Oolitic limestone.

Table 1. Comparison between standard *Brachypodium pinnatum* descriptions (Hubbard 1980), 'normal' chalk grassland tor-grass, and the very different types of the same species found in other parts of Wilts. and Gloucs.

Fig. 1(a)

Fig. 1(b)

Fig. 1(c)

Fig. 1. *Brachypodium pinnatum* inflorescences. 1a & 1b both 2nd generation, originating from Somerford Common seed. 1c directly from the wild, Somerford Common. Two spikelet clumps have been drawn opened up to show the stalk architecture, as 'peduncles' (sometimes) and spikelet 'pedicels' (always) are concealed by the large spikelets. Del. Katy J. Oliver © 1998.

Fig. 2. Photocopy of riotously variable *B. pinnatum* inflorescences from the Half-Moon plantation, (which also included inflorescences like fig. 1(b), which are not revealed in photocopies, and/or clumping or crowding of large spikelets).

Fig. 3. Photocopy of complex *B. pinnatum* inflorescences, partly broken up (late August) from a large spreading population in West Swindon.

Brachypodium pinnatum tussock (behind Labrador), from 3 original seedlings. Tussock 4.1 m in circumference after 18 months. Photo J. Oliver © 1998

SPIRANTHES ROMANZOFFIANA AND THE GREENLAND WHITE-FRONTED GOOSE

In the mid 1980s I read the theory of John Heslop-Harrison FRS (1920-1998) (1953) that the Greenland white-fronted goose (*Anser albifrons flavirostris* (Dalgety and Scott 1948)) introduced the Irish lady's tresses orchid, *Spiranthes romanzoffiana*, into the British Isles from the north-eastern seaboard of America via western Greenland. Shortly after, I became aware of the goose frequenting *S. romanzoffiana* sites in Ardnamurchan in Scotland. This sparked my interest. The goose breeds in western Greenland and spends the winter in the western part of the British Isles. However, a few of these geese spend the winter on the north-eastern seaboard of America where *S. romanzoffiana* is widespread. The world distribution of S. romanzoffiana is confined to the western part of the British Isles, and north America, including the Aleutian Islands. It is not recorded from Greenland. However, I am not aware that the areas in western Greenland where the goose breeds have been worked for *S. romanzoffiana*, **at the right time of year**, that is, when it is in flower. Because the plant has grass-like leaves it is impossible to find unless it is in flower, or, to the experienced eye, in bud. I am fascinated by this possible example of the long distance dispersal of a plant by a bird. Orchid seed is like dust. Further, the over-wintering basal buds of *S. romanzoffiana* may provide food for the goose, both in America and here in the British Isles. I decided to examine personally all the sites for *S. romanzoffiana* in Scotland to see if there is any statistically valid correlation between these sites and the over-wintering feeding and roosting sites, and

the stopping off sites of the geese on migration. To interpret my observations it has been necessary to learn something of the behaviour of this goose.

This quest commenced in 1985 and has taken me to the Outer and Inner Hebrides, and various parts of the western mainland of Scotland, several times each. This fieldwork was confined to my annual holidays. All known Scottish sites for *S. romanzoffiana* have now been visited. In the process, new sites were discovered, such that the plant is no longer a *Red Data Book* species, having been relegated to the status of being a 'scarce plant'!

Did I discover any apparent correlations? This short article is by way of an interim report as my data has not yet been subjected to a statistical analysis. I hope to publish my results. *S. romanzoffiana* is recorded from the islands of Benbecula, South Uist, Barra and Vatersay in the Outer Hebrides. There are correlations with particular flocks on Benbecula, and South Uist (two flocks). Flocks are known to stop off on Barra on migration, which might also be the case with Vatersay. However, knowledge of the goose on Barra and Vatersay is very incomplete because of their remoteness and the absence of resident ornithologists. In the Inner Hebrides *S. romanzoffiana* is recorded from the islands of Coll, Mull, Colonsay and Islay. Coll holds internationally important numbers of this goose and it is one of the most important wintering areas in Britain (Stroud, 1989). John William Heslop-Harrison FRS (1881-1967), John's father, in Heslop-Harrison *et al.* (1941), correctly anticipated that the plant would be widespread on Coll. Correlations exist on Colonsay and Islay. Islay is a site of outstanding international importance for this goose, being one of the two most important wintering resorts in the British Isles (Fox *et al.*, 1994). On the mainland the plant has been recorded from Ardnamurchan, Morvern, Moidart and Kintyre. As already mentioned, there is a correlation for Ardnamurchan. The Morvern and Moidart sites can, I believe, be accounted for by the ownership of the sites from the sixteenth century until the early nineteenth century (Gaskell, 1980). Nothing is known about the goose and the Mull and Kintyre sites. However, both are very near the sea. Further, the Mull site is near Coll and the Kintyre site near Islay.

What about the site for *S. romanzoffiana* in Devon? I have not yet visited it. However, it is interesting to note that the Hebridean spotted orchid, *Dactylorchis fuchsii* (Druce) Vermeulen subsp. *hebridensis* (Wilm.) **J. Heslop-Harrison** (now *Dactylorhiza fuchsii* (Druce) Soó subsp. *hebridensis* (Wilmott) Soó) has been recorded from Cornwall, also the only record for England. Further, there are records for the goose from the Isles of Scilly. However, further examination of this site is necessary. A visit to western Greenland would be even more welcome!

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CARDAMINE PRATENSIS IN URBAN LAWNS IN DUBLIN

Each season over a period of some ten years I have observed *Cardamine pratensis* (Cuckooflower) in a lawn fronting a house at the junction of Upper Leeson Street and Waterloo Road – a residential area on the south side of Dublin city. The lawn is untended but is scythed in late July each year. The Victorian period dwelling is the end house of four, three-story over basement and let in flats. The grassed area or lawn covers 25 × 7.5 m bounded on one side by iron railings and on the other by a thick privet hedge. The underlying rock is of carboniferous limestone.

As the season progressed one noted other species, as *Bellis perennis* (Daisy), *Taraxacum* spp. (dandelions), *Senecio jacobaea* (Common Ragwort), *Trifolium pratense* (Red Clover), *Ranunculus* sp. (buttercups), *Galium aparine* (Cleavers), *Plantago lanceolata* (Ribwort Plantain), *Dactylis glomerata* (Cock's-foot), *Holcus lanatus* (Yorkshire-fog), *Festuca pratensis* (Meadow Fescue), *Festuca rubra* (Red Fescue), *Poa trivialis* (Rough Meadow-grass), *Arrhenatherum elatius* (False Oat-grass), and *Trisetum flavescens* (Yellow Oat-grass). *Cardamine pratensis* made a great show on the 3rd April 1998 when 300 plants were counted in flower. Fruits formed but did not mature.

C. pratensis has been noted in other south Dublin (city) lawns but never in such abundance and seldom in succeeding years due probably to lawn management which is of a very high standard in the area. The sightings in Dublin have been reported in the *Irish Naturalists' Journal* **25**: 385-386 (1997).

Has the cuckooflower been found in lawns in Britain?

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SPERGULARIA MARINA ON INLAND ROADSIDES

It was the hottest weekend of the summer – Saturday, August 8th – and certainly not the best day to be setting off on our family trip to Norfolk, then Derbyshire. It seemed to us like the whole world was on the move, heading in the same direction and getting in our way. But every cloud has a silver lining and – though Vicki and the children didn't much appreciate it – the silver lining of this particular cloud was that it gave me an opportunity to spend time examining vegetation that normally I would have had to peruse at upwards of 60 mph.

Cochlearia danica (Danish Scurvygrass) is just about invisible in August, so I decided to turn my attention to the diminutive *Spergularia marina* (Lesser Sea-spurrey) – which, as a roadside species, has so far attracted very little attention in the botanical press. In the 1980s there were indications that – just like *Puccinellia distans* (Reflexed Saltmarsh-grass) and *C. danica* – *S. marina* was beginning to spread along roadsides, particularly in parts of north-eastern England, and in Kent and Norfolk (Scott 1985). Yet since that time there's been very little mention of it. Why? Have roadside halophytes become 'old hat' (everyone's seeing *S. marina*, but it's just not felt to be newsworthy any more)? Or is it because most of us – me included – find it a particularly tricky species to spot from a moving vehicle?

We need to start looking for *S. marina* in earnest, if the map in *Atlas 2000* is to adequately reflect its distribution along inland roadsides. What is needed, I have decided, is a bit of good publicity. To get things started, I list below my own records which, unless otherwise stated, were made in August 1998. Most records were from roadsides where *S. marina* was abundant, carpets of it being seen from the car and, wherever possible, subsequently confirmed 'on foot'. A few were of scattered or isolated plants, noted while sitting in traffic jams, but which would certainly have been missed had we been driving at normal speeds. This suggests that searching 'on foot' in many areas would be worthwhile – indeed, one record (53/9.3) was of a single plant amongst *P. distans*, found while carefully searching on all-fours along a roadside near our campsite. My impression is that *S. marina* has a strong preference for round-abouts and slip-roads, and along verges kept short by frequent mowing (the A45 in Birmingham is a good example of this) – although possibly these just happen to be the places where the plant is most visible.

V.c. 3, S. Devon: 20/7.6 (A38); 20/8.7 (A380) [1992 onwards]; 20/8.8 (A38); 20/9.8 (A38, A30, M5) [1993 onwards]; 20/9.9 (M5, roundabout to Exeter Services) [1996]; 31/0.0 (M5); 31/0.1 (M5-A361 junction, on roundabout).

V.c. 5, S. Somerset: 31/2.2 (car-park, English Nature offices, Taunton) [1997].

V.c. 6, N. Somerset: 31/4.7 (link road between M5 & B3133, on roundabout and outer verge).

V.c. 7, N. Wilts.: 41/0.8 (M4); 41/1.8 (M4-A419 junction).

V.c. 12, N. Hants.: 41/4.4 (A303, A34) [1997 onwards]; 41/4.5 (A34) [1997 onwards].

V.c. 22, Berks.: 41/4.7 (M4-A34 junction) [1997 onwards].

V.c. 27, E. Norfolk: 53/9.1 (A47); 63/0.1 (A47); 63/0.3 (A148); 63/0.4 (A149, coast road); 63/1.0 (A1074); 63/1.1 (A1074, A74); 63/2.1 (A140).
V.c. 28, W. Norfolk: 53/8.1 (A1065); 53/9.3 (A148-B1354 junction).
V.c. 32, Northants.: 42/9.7 (A14); 52/0.7 (near A14-A605 junction).
V.c. 33, E. Gloucs.: 32/9.3 (M5).
V.c. 37, Worcs: 32/9.3 (M5, just north of J9); 32/9.7 (M5-A38, on roundabout); 42/0.7 (M42, A38); 42/1.8 (A45).
V.c. 38, Warks.: 42/1.7 (M42-M40 intersection); 42/1.8 (A45, M42); 42/2.8 (M6); 42/5.7 (M6).
V.c. 56, Notts.: 43/5.6 (A617).
V.c. 57, Derbys.: 43/4.6 (A617-M1 junction, on roundabout).

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HORDEUM MARINUM ALONG THE M5 IN SOMERSET, V.C. 6

On the 6th June 1998 I was driving along the M5 heading north, just as I passed junction 23 I noticed several large patches of a *Hordeum* which looked as if it could be *H. marinum* (Sea Barley) growing in the central reservation. On the way back I stopped and walked across a foot bridge over the M5 just north of junction 23, there below was the *Hordeum*. I also noticed from the foot bridge a large stand on the north bound slip road, I waited until there was no traffic then dashed across the slip road and grabbed a specimen. It was indeed *H. marinum*, the first record for this coastal grass along the M5 in Somerset. It will be interesting to see if it will spread all along this motorway. I would also be interested to hear if anyone else has noticed this grass along any other motorways.

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ROAD VERGE *COCHLEARIA DANICA* – SALT & SULFUR*?

One of the most notable rapid distributions of a new plant across Britain was that of *Senecio squalidus* (Oxford Ragwort) whose airborne seeds were pulled along in the slipstream of trains. This plant originated on the sulfurous slopes of Mediterranean volcanoes and its persistence is probably due to the sulfur content of railway cinder.

Some members of the Brassicaceae are tolerant of sulfur in soil, and actually need a rich source of the element as a basis for the production of the mustard oils, isothiocyanates, thioglucosides and sulfides which account for the flavours and aromas characteristic of the mustards, cresses and rockets. Examples of such plants seen on railway cinder are *Arabidopsis thaliana* (Thale Cress), *Descurainia sophia* (Flixweed), *Erysimum cheiranthoides* (Treacle Mustard), *Lepidium ruderale* (Narrow-leaved Pepperwort), *Lepidium draba* (Hoary Cress), *Sisymbrium altissimum* (Tall Rocket) and *S. orientale* (Eastern Rocket). Some coastal species, e.g., *Cochlearia danica* (Danish Scurvygrass) have also appeared on railway cinder suggesting a liking for sulfur-containing substrates. It is notable that *C. danica* does not appear to persist on the verges of minor roads whereas species such as *Puccinellia distans* (Reflexed Saltmarsh-grass) and *Spergularia marina* (Lesser Sea-spurrey) do. This suggests that in *C. danica*'s case, something more than salt is required to ensure its persistence. I suggest that this 'something' is sulfur. On recent travels in the south of England I noticed Oxford Ragwort and Hoary Cress growing on the central reservations of dual carriageways. Hoary Cress occurs here in S.E. Yorkshire as a plant of dual carriageway central reservations in addition to its more usual haunts. Other notable members of the Brassicaceae seen along busier roads here are *Sinapis arvensis* (Charlock), *Brassica napus* subsp. *oleifera* (Oil-seed Rape) and, of course, *C. danica*. Oil-seed Rape appears to

persist for longer on road verges than on other substrates, although in this intensive Oil-seed Rape growing area, there may be a degree of re-seeding by spillage from lorries. Plants such as *Capsella bursa-pastoris* (Shepherd's-purse), *Sisymbrium orientale*, *S. officinale* (Hedge Mustard), *Sinapis arvensis*, *Alliaria petiolata* (Garlic Mustard) and *Senecio squalidus* also occur on waste ground around busy car parks in towns and cities, and *C. danica* has persisted along the curb of a busy car park in Hull for three years. On our road network, sulfur is likely to be a major pollutant. The road surface is a vast catchment area for rainwater containing dissolved sulfur oxides (SO_x) and leaching of sulfate from concrete structures is likely; diesel engine exhaust fumes contain high levels of SO_x; particulates from diesel engines carry sulfate moieties and tyre rubber contains numerous sulfur compounds which will eventually finish up on the salt-stripped road verge. On car parks, sulfur pollution is likely to be highest where exhaust tail pipes overhang the curb and discharge cold-burn, high-particulate diesel engine exhaust gases. I therefore offer the hypothesis that the success of *C. danica* distribution and persistence on our major road network is due to the combined effects of salt-stripping competitive flora, the resulting high salinity ***and the presence of sulfur***.

* Changes of nomenclature have not been exclusive to botany! – sulphur is now sulfur!

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RUBUS LISTS FOR DEVON AND CORNWALL

It seems that the *Atlas 2000* project is likely to spawn new Floras for many counties in the British Isles. *Rubus* lists included in such Floras should use the resource of the Database described by Alan Newton in 'Progress in British *Rubus* studies' *Watsonia* **13**: 35-40 (1980) and currently being updated. The lists will then be based on accepted and authoritative records.

As regards Devon and Cornwall, the most recent lists with this authority have been compiled by Len Margetts but are published in possibly obscure journals with limited circulation. By quoting these lists in *BSBI News*, their existence will hopefully be made aware to a wider readership, both now and in the future. Without access to these lists, the lonely south-west batologist would find study very difficult.

Devon 'Devon Brambles – a review and checklist' by L.J. Margetts in *Report and Transactions of the Devonshire Association* **121**: 43-51 (1989).

Cornwall 'Brambles of Cornwall' by L.J. Margetts with maps by R.J. Murphy in *Botanical Cornwall Newsletter* **4**: 19-48, March 1990, edited by R.J. Murphy.

These two lists must be the basis for any further work on *Rubus* in the two counties.

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THISTLE BROOMRAPE APPARENTLY BEHAVING AS A SAPROPHYTE

I have long known the population of Thistle Broomrape (*Orobanche reticulata*) occurring on Jurassic limestone near North Grimston (GR SE/8.6, S.E. Yorks. (v.c. 61)). In most years it has mainly been parasitic on Woolly Thistle (*Cirsium eriophorum*). However when I monitored the population on July 15th, 1967, of 47 broomrape plants, 31 were apparently parasitic on Creeping Thistle (*Cirsium arvense*). In the case of 11 broomrape shoots of these 51, the nearest thistle was dead, the parasite usually being immediately adjacent to a dead thistle or in three cases up to 38 cm away. Three broomrape shoots were next to one dead thistle and two others next to another. One broomrape spike was 23 cm away from a dead Woolly Thistle. In the case of two broomrape shoots, the nearest Creeping Thistle was sickly with yellow leaves.

The broomrape shoots were all in a healthy condition and it would seem that those near to dead thistles were living saprophytically. Has anyone else observed plants of *Orobanche* species apparently thriving after the host plant had died?

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GUTTA PERCHA

I have had a message passed to me from a young friend about the article by Margaret Soucher. It goes as follows:

'Deer Mr Elice,

With all dew rispekt to Mz SOucher, she is litrelly barking up the wrong tre. As every skuleboy know, Gutta Percha is the Latin naim of the house sparrow.

Yrs,

NM'

Hope that makes sense to you.

Regards,

ROGER WHITEHEAD, Director, Office Futures, 14 Amy Road, Oxted, Surrey RH8 0PX, England (Tel +44 (0)1883 713074; fax +44 (0)1883 716793)

MORE ON HYBRID SLOES

Prunus × *fruticans* (*P. spinosa* × *P. domestica*) is recorded in the *Wiltshire Flora* (Gillam 1993) although not as common, perhaps, in Wilts. as reportedly in Surrey, as suggested by Noreen and Roy Sherlock (1998). The *P.* × *fruticans* plants around Marlborough (v.c. 7) are much more impressive than the scrubby blackthorn thickets common in rural Wiltshire or Cornwall, with their (usually) sparse fruiting, globose stones, and features detailed by Sell (1991).

Firstly the *stones* of our *P.* × *fruticans* are as described by the Sherlocks: part way between the edged and (at one end) V-shaped and flattened plum-stone (*P. domestica*) and the globose sloe-stone (*P.* ×*spinosa*). The *fruits* are blue-black and taste rather like Damsons (*P. domestica* subsp. *insititia* var. *damascena*) but are almost globose like Black Bullace (*P. domestica* subsp. *insititia* var. *nigra*), and somewhat larger than those of *P. spinosa* var. *macrocarpa* (Stace 1991): this hybrid seems to be fertile. Secondly, the flowers are bigger than those of blackthorn and fruiting is much more profuse and regular than seen in most plum or damson trees or any sloe thickets, with branches weighed down every September. Thirdly, these plants form spiny thickets, but on a much larger scale than sloe thickets, suckering further and faster. At 30 years, one sucker has (at 1.5 m up) a circumference of more than 1 m, with a height of just under 10 m, now a substantial tree. Surrounding blackthorn thickets have been totally or almost completely suppressed by the vigour of the *P.* × *fruticans* wherever they grow together.

The fourth feature is troublesome, and some landowners have been trying to eliminate this hybrid which is known to the two Marlborough tyre centres. The thorns are as sharp as those of sloe, but at 10-70 mm, longer, and *far harder*: they do not reliably snap under tyre treads, puncturing tractor lawn-mower, car, lorry and even tractor tyres. I have the scar from an operation where a thorn from a sprung-back branch was driven under the periosteum and along a bone in my hand. At a BSBI meeting, Jane Croft heard me puzzling over *Prunus* and kindly sent me photocopies of the enlightening articles on the plum series from *Nature in Cambridgeshire* by Peter Sell (1991, 1992). This Marlborough *P.* × *fruticans* would appear to bridge the Great-sloe (*P. spinosa* var. *macrocarpa*) to Damson, or Black Bullace (*P. domestica* subsp. *insititia* var. *nigra*) link in Gina Murrell's 16 taxon, Y-shaped chain from red Cherry-plum, yellow Cherry-plum (both *P. cerasifera*), Wild Plum (*P. domestica*) through to Sloe (Sell 1991).

Paralleling the cross-pollinations between the different *Prunus* species, subspecies and varieties, have been the exchanges of ideas and observations between amateur and professional botanists. Leaving aside the procession of Norman, French and English gardeners and aristocrats touched on in Sell's two articles, this short article plus the short one by the Sherlocks, on one hybrid in the plum series, has mentioned about 10 amateur and professional BSBI members from at least 5 counties.

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ARUM ITALICUM (ITALIAN LORDS-AND-LADIES) IN SUSSEX V.C. 13 & V.C. 14

An historical review and current status

Introduction

In 1995 the County Recorder Mary Briggs noticed the lack of recent records for *Arum italicum* subsp. *neglectum*, the rarer of the two native Lords-and-Ladies, and at the autumn meeting, the time of leaf appearance, asked members of The Sussex Botanical Recording Society to search for the plant; they took up the challenge and the results of their efforts form the basis of this paper.

Arum italicum was first recorded in Britain at Rew in the Isle of Wight in 1854, and in Sussex at Offington, now part of Worthing, in 1858. Early botanists did not recognise the two subspecies causing inconsistencies in recording and some difficulty in interpreting historical records. In 1883 Townsend separated *neglectum* as a variety and in 1938 Ridley re-described it as a separate species. Subsequently Prime recognised the two extremes as subsp. *italicum* and subsp. *neglectum*, the rank currently used.

Historical records

Historical records from Arnold (1907) and Wolley-Dod (1937) are incomplete but additional pre 1937 records from the British Museum and Kew were published by Prime, Buckle & Lovis in 1955.

A compilation of all pre 1937 records and notices, together with known or reasonably inferred current taxonomic status is as follows.

Offington	1858		W.W. Saunders	as ssp. *italicum*
Offington	1859		hb. Borrer	as ssp. *italicum*
Goring	1858		W.W. Saunders	as ssp. *neglectum*
Arundel	1858		W.W. Saunders	as ssp. *neglectum*
Broadwater to Sompting	1858		Searched by Saunders but not found.	
Near Broadwater	1875	*	W.W. Saunders	as ssp. *neglectum*
Offington Lane	1875	*	W.W. Saunders	as ssp. *italicum*
Sompting	1881		C. Oakeshott	as ssp. *neglectum*
Near Arundel	1920		Miss D. Powell teste CES	as ssp. *neglectum*
Goring	1921		C.E. Salmon	as ssp. *neglectum*
Broadwater to Sompting	1923	+	HGG	
Offington Lane	1923	+	HGG	as ssp. *italicum*
Near Southwick	1931		E. Payne, teste Druce	as ssp. *neglectum*
Cocking	1933		Rev. W.A. Shaw	
Swanbourne Lake & road to Black Rabbit	1935		Mrs German	as ssp. *neglectum*
Goring	undated		HGG	as ssp. *neglectum*
Park Bottom	undated		KP	as ssp. *neglectum*

\+ Believed by Wolley-Dod to have been lost to road widening by 1937.

* A note attributed to Saunders, with Hemsley's papers at The Booth Museum of Natural History, Brighton notes that at Offington Lane 'the plant occurs with white veins to the leaves – the green leaved variety is abundant in the Broadwater locality'

***Arum italicum* subsp. *neglectum* (F. Towns.) Prime**

Prime, Buckle & Lovis (1955) in *Proceedings of the BSBI* give 43 stations for this plant, all but one of which (Southwick, 1931) had been seen recently.

The Sussex Plant Atlas (1978) and *Supplement* (1988) shows 49 tetrad records for West Sussex (v.c. 13) and three for East Sussex (v.c. 14). The East Sussex records, none of which has been refound, were presumed to be introductions as West Sussex was considered to be the easternmost limit of the plant in Britain.

The present survey has produced records for 113 colonies in 46 tetrads in West Sussex and only one record, in a garden at Hailsham, for East Sussex. In Sussex the plant is usually found on the chalk, but on the coastal plain is found on brick-earth and gravels. Only one colony was found on Weald clay, well away from the plant's normal distribution in Sussex and the location of this colony on a roadside at Balls Cross suggests that it was introduced. On the coastal plain sites have been lost to land development and road widening but small colonies can still be found in the hedgerows and on the sides of lanes and roads in urban or semi-urban areas. Additional records on the Downs are almost certainly due to diligent searching rather than an increase in frequency of the plant.

The plant seems to favour damp shady locations often at the base of steep slopes and this is the usual habitat for colonies on the Downs. These colonies are generally quite luxuriant and in their natural environment uninfluenced by man. On the coastal plain, on the other hand, many colonies are very much exposed and apparently quite dry. It is likely that these colonies are managing to survive on sites that, in the past, were more sheltered and damper. This is obviously the case at the Holt Farm colony which in the 1970s was in a small copse. The copse has been removed but the colony persists on a dry west facing bank under *Rubus* spp.

Prior to 1955 the easternmost limit of the plant in Britain was at Lancing Manor, said by Prime, Buckle & Lovis to have been lost to road widening. The site has since been developed as a Sports Centre and in 1995 a single clump was found alongside the car park. Subsequently a few more clumps were found a few metres to the west illustrating the ability of the tubers to survive quite severe disturbance. A more easterly and earlier record from Wolley-Dod, 'near Southwick 1931', by Edward Payne has never been refound in spite of thorough searching by O. Buckle in the 1950s & 1980s and other botanists since. A small colony at Coombes, north of Lancing was discovered in 1995 and as this is approximately 1 km further east than Lancing Manor, it is now the easternmost limit of the plant in Britain.

The hybrid between *Arum italicum* subsp. *neglectum* and *Arum maculatum* was reported at Arundel by Lovis and Prime in Stace (1975) but this site has been lost due to the construction of a car park. The overlap in the flowering periods of the two species suggests that hybrids may be more common than is supposed but no obvious or suspected hybrids were found during this survey.

Plants with leaf shape and veining intermediate between the two subspecies of *Arum italicum* are sometimes found. Of our 113 colonies of subsp. *neglectum*, nine include plants with some of the characteristics of subsp. *italicum*. especially the light veining. This character is very variable and alone is not enough to determine the subspecies. Garden throw-outs of subsp. *italicum* on their own are often quite obvious, but there can be a problem with apparently mixed colonies.

Plants of *Arum italicum* subsp. *neglectum* with spotted leaves are uncommon in Sussex and provide scope for further study. Only a few colonies were noted on the Downs and only the Park Bottom, Arundel site to the south of the Downs. At the latter site approximately 20% of the plants have leaf spotting and it was noticed that on many plants the spots appear only on the third and subsequent leaves.

Arum italicum* subsp. *italicum

In Sussex this plant as a garden throw-out, is capable of surviving or becoming established on a variety of soils (as probably would subsp. *neglectum*) but with a preference for the chalk and gravels of the coastal plain.

Table 1 *Arum italicum* subsp. *italicum*, historical and current records by locality.

	Prime, Buckle & Lovis 1955	Sussex Plant Atlas & Supplement 1986-1988	This Survey 1995 -98
West Sussex v.c. 13	5	11	43
East Sussex v.c. 14	0	2	9
Total	5	13	52

All Sussex records are presumed to be of garden origin and many are small colonies of one or more clumps on roadsides. Some very large colonies exist, e.g. in the Wildlife Sanctuary at Worthing Crematorium on the site of Muntham House, and at Greatham the latter, although in the wild, possibly planted.

The original Sussex record, 'Offington 1858 W.W. Saunders', was at Offington Hall and Offington Lane and was probably planted by the owners who were known to be keen gardeners. Houses were built in the grounds of the Hall in 1952 and the Hall was demolished in 1983, but the plant survives in some of the gardens of the houses built on the site and at the north end of Offington Lane. Wolley-Dod believed that the stations had been lost to road widening by 1937, another example of the plants ability to survive disturbance.

Results of survey

Figure 1. shows the current distribution of *Arum italcum* subsp. *neglectum* in West Sussex to be generally as described by Prime, Buckle & Lovis (1955), *The Sussex Plant Atlas* (1978) and the *Atlas Supplement* (1988) with stations on the north scarp of the Downs from the Hampshire border to the River Arun in the west of the county. The plant is, strangely, absent from similar habitats in the east of the county except in the Steyning area. In the east of the county the plant is found on the lower south facing ground reaching almost to the sea in some places.

Figure 2 shows the current distribution of *A. italicum* subsp. *italicum* which occurs in both vice-counties as a garden escape or throw-out, with a concentration in the south-east of v.c. 13 which is similar to that for subsp. *neglectum*. Table 1 shows a steady increase in records since 1955.

Conclusions

Generally *Arum italicum* subsp. *neglectum* in Sussex is not under threat. Some roadside colonies are at risk from habitat deterioration, future road widening schemes and land development, but it's habitat on or at the base of the steep tree covered slopes of the north scarp of the Downs should offer protection from building and current farming practices. The plant is capable of hanging on, in changing habitats even in urban areas, the deep tubers offering protection against all but the most drastic disturbance.

Prime (1960) discusses in detail the spread of *Arum* and concludes that this is mostly by vegetative reproduction of the tubers and that the dispersal of seed over large distances by birds is perhaps uncommon. It seems unlikely that any significant spread of the plant in Sussex will occur in the future.

Arum italicum subsp. *italicum* is likely to increase as more garden throw-outs appear, and where these arrive in suitable habitats, could become well established.

Acknowledgements

Many thanks to the members of the Sussex Botanical Recording Society especially to Elizabeth & Nick Sturt for their winter work on the north scarp of the Downs and to David Donovan for his work in urban areas. Also to Dr Legg of The Booth Museum of Natural History, Brighton for access to their botanical records. The maps have been produced using Dmap.

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RON CLOUGH, 29 Roman Crescent, Southwick, Brighton, BN42 4TY

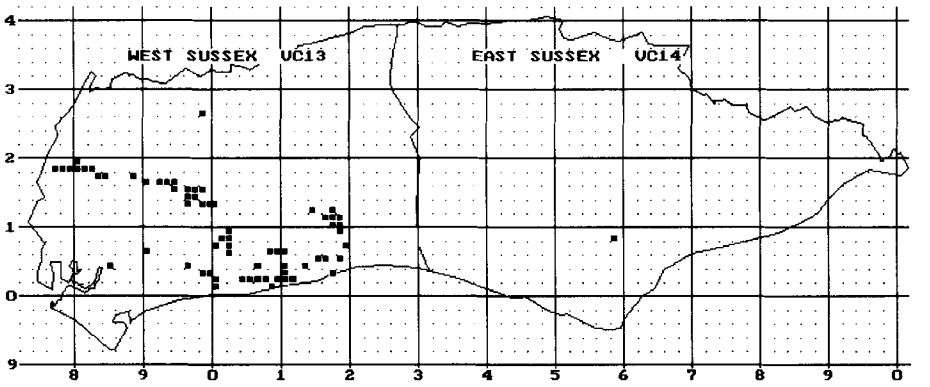

FIGURE 1 ***Arum italicum ssp. neglectum* in Sussex** All records 1995 - 1998 x 1km. square

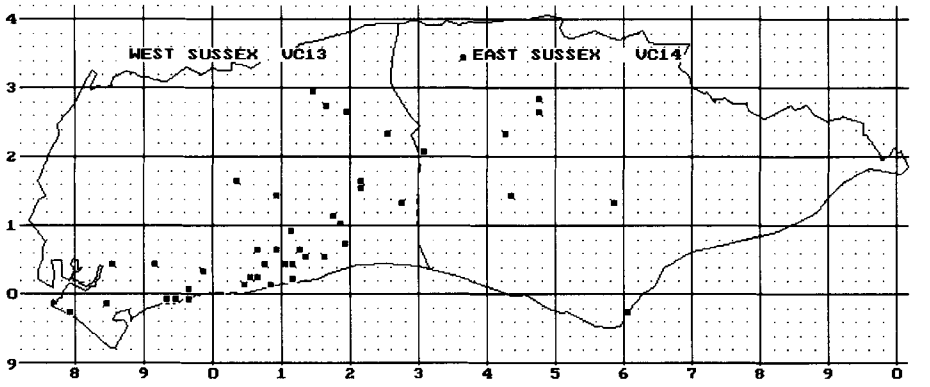

FIGURE 2 ***Arum italicum ssp. italicum* in Sussex** All records 1995 - 1998 x 1km. square

CONSERVATION NEWS & VIEWS

WILD PLANTS AND THE LAW

The following vascular plants have been accepted for addition to Schedule 8 of the Wildlife and Countryside Act, 1981.

Fully protected	
Dianthus armeria	Deptford pink
Eleocharis parvula	Dwarf spike-rush
Leersia oryzoides	Cut-grass
Tephroseris integrifolia subsp. *maritima*	South Stack fleawort
Protected against sale	
Hyacinthoides non-scripta	Bluebell

There is a set fine which applies in the event of successful prosecutions under the Wildlife and Countryside Act:

> Offences under section 13 of the Act, in so far as they relate to plants listed on Schedule 8 – on summary conviction, a 'level 4' fine not exceeding £2,500.

These species, together with those from other groups of plants, have been added to the lists in the new edition of the *Code of Conduct* which we hope will be published this autumn

EDITOR

NATIVE SEEDS AND SILLY EURO LAW: PLEASE HELP
Proposal for a Seeds Directive

This is an urgent request that you assist *Flora locale* in our attempt to ensure that the provisions of the proposed Seeds Directive do not conflict with the need to sell and market the seed of native species, rather than cultivated varieties. As the proposal currently stands it will continue to prohibit the sale and marketing of wild seed of many native wildflowers including vetches, sainfoin, bird's-foot trefoil, black medick, red clover as well as many grasses.

The text of the proposal **MUST** be amended

- to allow for the marketing and sale of wild and indigenous plant seed that is being used to restore or create indigenous biotopes (especially grasslands) typical to local regions
- to allow for extensive agricultural use of such grasslands once they are established (i.e. by hay cutting and extensive grazing).

Please stress that wild species are not Distinct, Uniform and Stable, so cannot be registered as identifiable varieties under either the current Fodder Plant Seeds Directive or its proposed replacement, the Seeds Directive. In addition, we have so little information on the genetics of many of the species concerned that even to attempt to do this will be impossible.

The Ministry of Agriculture (Plant Varieties Branch and Seeds Division) has been trying very hard (for a number of years) to persuade the European Commission and other Member States to accept an appropriate amendment. Although a little progress has been made, the draft proposal is still unsatisfactory (it does not include the amendment) and the UK still faces opposition from certain member states, and from the European Commission itself, over the proposed amendment which it has put forward.

Please:

- write to your MEP
- write directly to the European Commission:
  Mr Cerasimos Apostolatos European Commission DGVI.B.II.1 130 Rue de la Loi Bruxelles Belgium.

Please send copies of any letters you write to me at the address below, or write to me if you want further information.

SUE EVERETT, Flora locale, 36 Kingfisher Court, Hambridge Road, Newbury RG14 5SJ Tel: 01635 550380 Fax: 01635 550230

EXTINCTION OR SURVIVAL OF RARE PLANTS

Academic botany traditionally taught that uncommon species were not to be transplanted or the seed sown elsewhere. This was to let the distribution remain 'natural' so that future botanists could draw inferences from each species' distribution. Presumably if a plant became extinct then that was just another fact to be recorded in field note books.

More recently conservation interests, both publicly and privately funded, have devoted much time, energy and money into modifying habitats to secure the survival of species, gathered seed, grown it on at Kew and reintroduced plants. In the case of animals that have become extinct those agencies have even reintroduced them from abroad.

Roadside wildflower planting had used imported seed until an awareness arose of the 'desirability' for using seed of local provenance. Though in the interest of increasing biodiversity it might be argued that varieties from further afield could, by cross breeding, facilitate the evolution of new forms better able to survive the predicted global warming.

What are the views of BSBI members on this issue?

CHRISTOPHER J. PERRATON, 178A Woodrow Road, Melksham, Wilts., SN12 7RG

FLORAL DIVERSITY ON ESSEX VERGES

As information about the Biodiversity Plans spread across the County last year we realised that the E.C.C. Verges Scheme was an example of a biodiversity exercise which had already established long term arrangements for floral diversity on the verges in general and on selected sites which have incidentally become habitats for species unlikely to survive elsewhere.

These areas, *Special Verges*, are subject to influence from three main sources: highway engineers, farmers and reports on research on grass cutting on roadside verges by Michael Way and Terry Parr at Monk's Wood. All three have have different priorities, they have no particular reason to communicate with each other, and floral diversity on such small scattered vulnerable areas is at the bottom of their lists.

The Highway Managers who safeguard human priorities of safety and resources, are in overall control of the verges and rely on eight volunteer Verge Representatives, working with local highway engineers, for information about the status of the special sites and any conflicting local interests. Grass cutting on verges is of lowest priority and funds do not extend to a regular annual cut to the boundary on all sites. Uttlesford in the north west with nearly half the total 'Special Verges' is the trial area and the West Essex Highway Manager holds an annual meeting in November devoted to the reports from the Verge Representatives.

The Scientists Terry Parr from Monk's Wood and Derek Wells from E.N., aiming between them to identify general principles based on a mathematical representation of ecological relationships, warned that soil science has some way to go. Two well-spaced cuts would provide optimum economical floral diversity but it is dangerous to generalise from research results that apply to limited conditions. The verges are made up of diverse individual habitats, each need management based on on-the-spot observation.

Farmers are professional ecologists concerned with human requirements and maintaining the quality of the land. In Uttlesford they agreed to be responsible for managing the more important sites on traditional lines related to harvest routines, thus demonstrating on-the-spot evidence of the advantages of cutting while the vegetation is senescent, i.e. between September and April. Moreover cutting early on some sites encourages diverse autumn regrowth which restricts the winter growth of *Anthriscus sylvestris* (Cow Parsley) and so lessens interference with sight lines the following spring. On other sites a late cut in March or April clears the way for early spring flowers with minimum interference in insect hibernation.

Management An informal meeting between these three interests in Uttlesford led the Council to test and eventually adopt, a successful regular cutting programme between September and April covering all verges in two years and with only a slight increase in cost. The single marginal cut on all sites in the summer provides the zoning necessary for maintaining floral diversity (and, incidentally, *Trifolium ochroleucon* (Sulphur Clover)), while the more precise traditional harvest-linked cut carried out by the farmer alternating with the Council is sufficient to secure the more important species. A grant for this extra management is available from the Landscape Improvement Fund. It is paid through the County Trust as an independent body on recommendation from the County Planning Officer and the Verge Representative. The Trust pays the VAT.

The Verge Representatives use a simplified version of Oliver Rackham's woodland methods for a linear estimate of results.

Status and Natural History Curators

As co-operation increases the Highway Managers need a common source of information to enable them to estimate how much effort is justified in saving a threatened site. The local museum curator has the answers, available during office hours, with official access to records and regular exchanges with colleagues at County level.

Uttlesford has already carried streamlining communications one step further and the Curator is also the Verge Representative. The important contacts with farmers are still with individuals at local level but in Uttlesford 'Agenda 21' looks promising.

Records The success of the management routine has increased mutual confidence so that although commitment is reduced to a minimum and communications are continually being streamlined, the overriding need is to give all the time necessary to listen to each other and ensure that everyone is aware of the consequences of any changes suggested. Mistakes take a long time to put right but valuable individual efforts are being made to initiate promotion of conservation aims in their own sectors, confident that they are not interfering with anyone else's efforts.

One result is that *Melampyrum cristatum* (Crested Cow-wheat) is spreading beyond the highways into privately owned property among a number of landowners. Again, when we heard the disastrous news that contracted work on roadsides was to be privatised and taken out of the Highway Engineer's control it was the West Essex Highway Manager, who made the efforts necessary, assisted by the Uttlesford Controller of Contracts, to ensure continuation of the basic cutting routines in the County.

It must be recorded however, that had the farmers' traditional role been identified earlier the County Council could have been saved ten years of public complaint about 'flailing flowers' and the public would not have been temporarily misled into believing that conservation consisted of leaving things alone.

JOAN MUMMERY, 60 South Road, Saffron Walden, Essex CB11 3DN

ENDANGERED IRELAND – A JOINT NGO INITIATIVE OF HABITAT PROTECTION

The Irish Peatland Conservation Council, BirdWatch Ireland, An Taisce, Coastwatch Europe, Crann and the Irish Wildlife Trust – Ireland's six leading environmental NGOs (non governmental organisation's) have called on four specific Ministers to stop the continuing damage to some of Ireland's prime ecological sites. 23 sites that the organisations claim are either damaged or face immediate development include sand dune systems, uplands, bogs and estuaries. The thirteen counties named include Clare, Cork, Donegal, Dublin, Longford, Meath, Tipperary, Offaly, Wexford, Wicklow, Waterford, West Meath and Kerry.

Damage listed varies from wetland reclamation, commercial peat extraction (extended this year in spite of designation for nature protection) through roads, fish factories, wind turbines, golf courses and leisure centres. The six NGOs demanded that the relevant Ministers act now to protect Ireland's natural heritage. At a press conference in Dublin the NGOs claimed that of Ireland's 800 proposed Natural Heritage Areas none have legal protection because of successive Government delays in amending the 1976 Wildlife Act. A further 400 sites required as Special Areas of Conservation under the Habitats Directive have yet to be notified to the European Commission, although the deadline for this was June 1995. The 100+ sites so far designated as SPA's continue to be damaged and threatened. Further, the boundaries of 'protected' sites originally surveyed with European Commission funding are being re-drawn to exclude areas planned for development. And SPAs and SACs which have been damaged by unauthorised developments are not being restored in spite of the fact that 75% funding is available from the European Commission. The Six environmental NGOs are seeking Governmental commitment to seven fundamental actions:

- Publication of the much delayed Wildlife Bill to update the 1976 Amendment Act.
- Restoration of 'protected' sites which have been damaged by unauthorised activities.
- Submission of list of Special Areas of Conservation to the European Commission.
- Open and transparent appeals process for the designation of SAC's to be established.
- Clarification of legislation and Ministerial responsibilities relating to habitat protection.
- Allocation of further essential resources to the National Parks and Wildlife Service, by the Department of Finance.
- Adequate and independent assessment of negative developments proposed for 'protected' sites.

The following bogs are already damaged or threatened by development:

- All Saints Bog, Co. Offaly – Moss peat extraction
- Clara Bog – Turbary Rights and private peat extraction
- Clonfinane, Co. Tipperary – Moss peat extraction
- Ballykenny, Co. Longford – Drainage and moss peat extraction
- Barnesmore, Co. Donegal – Wind turbines and road
- Pollardstown Fen, Co. Kildare – Road development
- Scragh, Co. Donegal – Dam and road development

The Irish Peatland Conservation Council is an independent conservation charity dedicated to protecting Ireland's precious peatlands. We want to keep you up to date with our programme of site purchase, lobbying, education and public awareness. If you wish to be added to our mailing list please let us know.

Irish Peatland Conservation Council, 119 Capel Street Dublin 1 Ireland Tel.: +353-1-8722384
Fax: +353-1-8722397 Telephone E-mail: ipcc@indigo.ie Web site: http://indigo.ie/~ipcc

MORE TOOTHWORT MANAGEMENT

Further to recent correspondence concerning management of *Lathraea squamaria* (Toothwort) in *BSBI News* 77 & **78**, I offer the following observation and query. Some 15 years or so ago, I photographed Toothwort in woodland near Downe in Kent where it grew at the base of not only hazel but also lime. I noted that limes with the greatest toothwort populations seemed to exhibit extremely dense 'sucker' stems around the base of their trunks – almost to the extent of having the appearance of a 'bonfire' having been stacked around the base of the tree. I have always wondered which came first – toothwort or suckering? Are these factors linked in any way? I should be intrigued and interested to know if any observations have been made on the subject.

DAVID MANNERS, Leat Cottage, Longaller, Bishops Hull, Taunton TA4 1AD

ALIENS

ALIEN RECORDS

Arrangement is alphabetical; no authority is given if the taxon is mentioned in Stace's *New Flora of the British Isles*, Clement & Foster's *Alien Plants of the British Isles* or Ryves, Clement & Foster's *Alien Grasses of the British Isles*, but is given if the taxon is new to either of the latter two works.

I would be delighted to receive any alien records for inclusion in future issues. In general all taxa not included in Kent's *List of Vascular Plants of the British Isles* (1992) are eligible for inclusion but other more widespread aliens listed in that work may be included at the discretion of the v.c. recorder and the editor. Please ensure that all records include the details as set out below, especially a map reference, even if only to a hectad (10 km square). NCR following the record indicates a New Record for that vice-county.

My thanks to John Palmer and Ron Payne for supplying the records.

Members are reminded that first records of all taxa included in Kent's *List* are eligible for publication in Plant Records in *Watsonia*.

Acer saccharinum (Silver Maple). A large planted tree has given rise to a copse of 20 or so seedlings up to 6 m high, on marshes between Rivers Cray and Stanham, Dartford, TQ/53.75, W. Kent (v.c. 16), 19/10/97, J.R. Palmer. The parent tree (at any rate) is f. *laciniatum*.

Calceolaria petiolaris Cav. (Winged Slipperwort). Weed in pavement cracks, (not cultivated nearby), Avery Hill, TQ/44.74, W. Kent (v.c. 16), 23/9/87, J.R. Palmer.

Cerinthe major 'Purpurascens' (Greater Honeywort). Rough ground off Norwich Street, East Dereham, TF/993.132, W. Norfolk (v.c. 28), 15/5/98, A.L. Bull, conf. K.A. Beckett. The species, but not the cultivar, is included in Clement & Foster's *Alien Plants*, but with 'no modern records'.

× *Crataemespilus grandiflora* (*M. germanica* × *C. laevigata*) (Haw-medlar). By the river below Box Hill, TQ/01.50, Surrey (v.c. 17), 1965, J.R. Palmer and E.J. Clement.

Epimedium pinnatum (Caucasian Barrenwort). Large mass out of control, Henley Park, TQ/41.95, Surrey (v.c.17), 11/4/66, J.R. Palmer.

Erysimum arkansanum Nuttall (Texan Wallflower). Rubbish tip, Longfield, TQ/5.6, W. Kent, (v.c. 16) 26/9/65, J.R. Palmer. (*European Gdn Flora*, **IV**: 136).

Euphorbia oblongata (Balkan Spurge). Wall-sides and footways, Eynsford, TQ/54.65, W. Kent (v.c. 16), 19/6/98, J.R. Palmer. *BSBI News* **71** contains an article on this species with an excellent drawing, but one minor inaccuracy on p. 48 should be mentioned, that Fishers Green is in Essex not W. Kent. **Hb.JRP**.

Hibiscus trionum (Bladder Ketmia or Flower of an hour). A quantity in fruit on roadside of industrial estate where nothing planted, Dartford, TQ/53.75, W. Kent (v.c. 16), 5/10/97, J.R. Palmer.

Hordeum lechleri. Fields manured with wool shoddy, Barming, TQ/7.5, W. Kent (v.c. 16), 1966, J.R. Palmer, det. J.E. Lousley.

Malus × *purpurea* (*M. niedzwetzkyana* × *M. atrosanguinea*) (Purple Crab). Several seedlings noticed in the squares of Belgravia, TQ/2.7, Middlesex (v.c. 21), 3/7/97, J.R. Palmer. Sandpit, Horns Cross, TQ/57.74, W. Kent (v.c. 16), 2/9/73, J.R. Palmer.

Myosotis sylvatica subsp. *cyanea* (Boiss. & Heldr.) Vestergren (Wood Forget-me-not). Clearing in thick scrub but near where greenhouses were more than 25 years ago before the oil crisis, near New Barn, TQ/51.69, W. Kent (v.c. 16), 8/4/98, J.R. Palmer.

Passiflora caerulea (Blue Passion-flower). Two specimens, climbing on wire of ruined factory, track-side near Dartford, TQ/53.75, W. Kent (v.c. 16) 12/10/97, J.R.Palmer & G.D. Kitchener.

Prunus × *fruticans* (*P. spinosa* × *P. domestica*) (a hybrid bullace). By the Cray Riverway, Bexley, TQ/50.74, W. Kent (v.c. 16), 29/6/97, J.R. Palmer. Fruits like *P. spinosa*, but leaves much larger, rather pubescent beneath. Has a few spines only. An addition to the vice-counties given in *BSBI News* **78**: 39.

Ranunculus monophyllus Ovcz. Abundant in long grass by footpath under trees, not near habitation, Hextable, TQ/51.69, W. Kent (v.c. 16), 8/4/98, J.R. Palmer. **Hb.JRP**. Many of the trees in question are among the first European Limes imported to Britain and planted before 1650.

Rosa × *alba* (*R. gallica* × *R. arvensis* and/or *R. canina*) (White Rose (of York)). Relic for at least 30 years in chalk scrub near Darenth, TQ/56.71, W. Kent (v.c. 16), 23/7/97, J.R. Palmer.

Rosa setigera (Prairie Rose). Relic for at least 30 years in chalk scrub near Darenth, TQ/56.71, W. Kent (v.c. 16), 25/7/97, J.R. Palmer.

Sigesbeckia serrata (Western St Paul's-wort). Garden weed, Sutton-at-Hone, TQ/5.6, W. Kent (v.c. 16), J.R. Palmer, 1996 & 97. Probably introduced by flocks of sparrows.

Smilacina racemosa Desf. (False Spikenard). Patch naturalised in natural vegetation near Queen's Cottage, Kew, TQ/177.764, Surrey (v.c. 17), 26/5/69, J.R. Palmer.

Solanum chenopodioides (Tall Nightshade). One large bush 1.25 m high 2 m across, on rough pasture land, remote from any habitation, between Barnes Cray and Dartford, TQ/52.75 W. Kent (v.c. 16), 5/10/97. J.R. Palmer.

Tulipa didieri Jord. Country lane, 11/4/88, and wild bank of M2 motorway, 2/4/98, both near Wilmington, TQ/5.7, & 53.72, W. Kent, (v.c. 16), J.R. Palmer. After continuing field work, I conclude that this species and *T. elegans* Baker (both on field bank, Hawley, TQ/54.72, W. Kent (v.c. 16), 1998) are the only species 'properly' naturalised, with the possible addition of *T. greigii* (copse near Swanley Village, TQ/52.69, W. Kent (v.c. 16) 21/4/98). *T. elegans* also occurs (unplanted) in hedgerows near Wilmington, TQ/53.72, W. Kent, (v.c. 16), 10/4/98, J.R. Palmer.

EDITOR

FERULA – COMMUNIS AND BEYOND

The dramatic increase in foreign travel during recent decades has brought to our notice numerous exotic plants, not least Giant Fennel (*Ferula communis*) – a commanding presence beside many Mediterranean roads and tracks. Since the appearance of plants near Newmarket, and with the availability of the species from a few nurseries, we are probably preparing to regard it as British.

Ferula communis can vary considerably in overall form but only two subspecies are generally recognised – subsp. *communis* and subsp. *glauca* (L) Rouy & Camus. The former has linear leaf-lobes *c.*1 mm wide, green on both surfaces, the latter has lobes up to 3 mm wide, green above and glaucous beneath (see illustration page 65).

Ferula tingitana L. is the species next most likely to be noticed (see front cover). The leaves have distinctly shorter and broader lobes – see illustrations page 66. The two forms shown are from Antalya, Turkey and Gibraltar. They illustrate the variation that can occur over the length of a continent. This disconcerting spread is by no means confined to *Ferula*, *Seseli libanotis* (Moon Carrot) becomes

Ferula: photocopies of leaf segments; top – *F. communis* subsp. *glauca*; bottom left – *F. tingitana* from Turkey; bottom right – *F. tingitana* from Gibraltar. All to same scale.

Libanotis transcaucasica Schischk. by the time you reach Bulgaria and *Oenanthe fistulosa* (Tubular Water-dropwort) is deceptively like *Oenanthe silaifolia* (Narrow-leaved Water-dropwort) when encountered in Turkey.

The above *Ferula* species are large and very noticeable. Moving toward the generic centre of distribution in Central Asia there are other giants, such as *F. ghorana* Rech. f. of Afghanistan at 4 m! But also some diminutives like *F. caspica* Bieb., 25-50 cm, of Turkish and Russian steppes. There are an estimated 130+ species worldwide (all Old World and northern hemisphere), though *Flora USSR* **17** alone claims 96, based on Korovin's monograph of 1947. A revision is now needed, to reassess the status of those species and to take account of numerous further taxa named in recent decades, mainly from SW and Central Asia.

Of the 17 species listed in *Flora of Turkey* **4**, about half have very few cited occurrences, or are known only from the type gathering. One can travel for many miles there without seeing a *Ferula*, but when a plant is sighted it pays to stop as there is a fair chance of finding two or more species. I saw *F. rigidula* DC. and *F. orientalis* L. at Goreme, Cappadocica, and *F. elaeochrytis* Korovin and *F. amanicola* Hub.-Mor. & Pesmen at Demirkazik, SE Taurus. These four species are all of moderate height, c.130 cm with finely divided leaves. For a botanist with interest, time and facilities, there is scope for much further work on the *Ferula* spp. of Turkey, with a likelihood further discoveries new to science.

Flora Europaea lists six species besides *F. communis and F. tingitana*. These are from western USSR but with a toehold in the Balkans in some cases. Other outliers occur southwards to Arabia and in North Africa westwards to Morocco and the Canaries. Three FontQuer specimens from the 1920's in Northern Morocco were recently shown to be new to science at **RNG** and became *F. fontqueri* Jury. Stephen tells me that this plant may now be extinct but, from experience with other 'lost' species, I expect to hear of it again.

The thought of revising this genus of mighty plants appeals greatly to me, though it seems to call for another lifetime and the use of helicopters. But it's amazing what Boissier & Co. achieved using just a mule!

MERVYN SOUTHAM, 72 Fareham Road, Gosport, Hants. PO13 0AG

DECREASING ALIENS

Much is written about increasing alien species, e.g., *Hydrocotyle ranunculoides* (Floating Pennywort), *Elodea nuttallii* (Nuttall's Waterweed), etc., but little is reported on the apparent decrease of such entities.

A case in point is *Calystegia pulchra* (Hairy Bindweed). In West London the species has vanished from most of its formerly well-known locations. Dick Brummitt, the co-author of the species name tells me that he has noticed its disappearance from some Surrey habitats. I should be interested to hear if this has happened in other parts of the country.

To a lesser extent, another species which has declined in Middlesex is *Veronica filiformis* (Slender Speedwell). It is still present in Thames side meadows and on lawns but not in the quantity that existed 30-40 years ago.

DUGGIE KENT, 75 Adelaide Road, West Ealing, London W13 9ED

LAVATERA OLBIA × *L. THURINGIACA* IN GARDENS

In *BSBI News* **78**: 59-60 (1998), Eric Clement mentions that the hybrid between *Lavateria olbia* and *L. thuringiaca* (Garden Tree-mallow) does occur in the wild in Britain.

The RHS has been running a trial of perennial *Lavatera* which has included most of the commercially available cultivars. The question of species attribution was of interest from the start (D.M. Miller in *European Garden Flora* **V**: 215-217 (1997)) and wild-collected species were included for comparison and some deliberate hybrids between *L. olbia* and *L. thuringiaca* were raised. As well as studying the morphology of all the plants involved, we have even conducted some randomly amplified polymorphic DNA (RAPD) analysis on them in conjunction with Dr Alastair Culham, Dept of Plant Sciences, University of Reading. Our conclusions so far are that the majority of cultivars including the popular ones such as 'Barnsley', 'Burgundy Wine', 'Kew Rose' and 'Rosea', are of hybrid origin and most are fertile.

L. olbia is generally shrubby in habit (Eric Clement misquotes *Flora Europaea*) with pedicel length less than 1 cm and hairy mericarps. *L. thuringiaca* is usually herbaceous in cultivation in the UK with pedicel length up to 8 cm in fruit and glabrous mericarps. Hybrids are usually shrubby in habit but with intermediate pedicel length and, if they set fruit, intermediate mericarp hairiness. 'Saxtead', for instance, exhibits the longer pedicel of *L. thuringiaca* but the hairy mericarps of *L. olbia*.

The readiness with which many of these cultivars set fertile seed is apparent in the rash of seedlings that often appear in cultivation and many of the currently available cultivars were deliberately selected from such seedlings. Presumably it is seedlings from the widely grown cultivars that are also appearing in wild situations. Because winter damage can often hasten the demise of these short-lived shrubs, it is not uncommon in gardens to see a prized cultivar replaced by an inferior seedling within two or three seasons! However, the strange tendency of 'Barnsley' (flowers white with a pink eye) to throw up root suckers with pink flowers is not due to rogue seedling establishment or even grafting. Dr Martin Cheek (*The Garden* **114**: 23-27, Jan. 1989) has suggested that it is a periclinal chimera consisting of a white-flowered epidermal sheath surrounding a pink-flowered core.

We are not aware of an epithet for this increasingly recorded hybrid and we hope to publish one when our studies are complete.

MIKE GRANT & DIANA MILLER, Botany Dept, RHS Garden, Wisley, Woking, Surrey GU23 6QB

AETHEORHIZA COMES WITH STRAWBERRY FARE

Every spring numerous packets of Strawberries originating in Spain fill shops and market stalls through out Britain and presumably most of northern Europe. Occasionally, the packs contain fruits of *Aetheorhiza bulbosa* (*Crepis bulbosa*, Tuberous Hawk's-beard). For several years now, one or two *Aetheorhiza* achenes turn up each spring in my strawberries. Based on my experience, perhaps one in twenty packs might contain an achene. The characteristic glistening white pappus is usually entangled with a strawberry calyx. Probably this means that *Aetheorhiza* has considerable potential for alien introduction all over northern Europe. *Alien Plants of the British Isles* (p. 309) reports *Aetheorhiza* as a garden weed from eastern Ireland. It does not appear to be recorded from mainland Britain, but there is surely potential.

Aetheorhiza bulbosa is widespread and common around the Mediterranean. Good descriptions and illustrations can be found in several Floras, particularly the following: Feinbrun-Dothan, *Flora Palaestina* **3**: 441, t.746 (1977-8); Meikle, *Flora of Cyprus* **2**: 1014 (1985); Viney, *Illustrated Flora of North Cyprus* 410-411 (1994). A colour illustration can be found in Becket, *Illustrated Flora of Mallorca* pl. 73, fig. 4 & 5 (1993). Useful spot characters include the small tubers, black stalked glands on the scape below the capitulum and the glistening white pappus.

Unfortunately most floras do not describe or illustrate the achene and pappus, but the best description is given by Meikle as follows, 'Achenes cylindric-fusiform, bluntly 4-ribbed, brown, minutely scabridulous, about 34 mm long, 0.4 mm wide, apex truncate, scarcely attenuate; pappus-hairs straight, shining white, to about 8 mm long'.

Most authors use the name *Aetheorhiza*, but Meikle uses an orthographic variant '*Aethiorhiza*', without comment. I have not seen Cassini's original publication.

JULIAN M. H. SHAW, 4 Albert Street, Stapleford, Nottingham NG9 8DB

LAURUS AND *BACCHARIS* IN S. HANTS (v.c. 11)

Some of our best local Floras selectively exclude alien records, giving little or no explanation. The recent *Flora of Hampshire* (1996) is no exception: I was very surprised to find no entry for *Laurus* or *Baccharis*.

The shrubby composite *Baccharis halimiifolia* L. (Tree Groundsel) has been known from Little Haven, Mudeford (SZ/184.918) since 1924 – see *B.E.C. Report for 1925* **7(5)**: 774 – and the record is repeated in *B.E.C. Report for 1945* **13(1)**: 59, where it is described as 'well-established'. Stace's *New Flora*, ed 2: 729 gives the date wrongly (as 1942) and queries its continued existence there.

On 3 September 1997 R.P. Bowman explored the site and located the shrubs, which reached up to 4 m in height, in *c.*8 large clumps (plus a further 7 dead ones). Some stems were decumbent, but there was no clear sign of suckering or of any self-sown bushes. The shrubs were spread out over *c.*30 m in front of a tall belt of trees of *Quercus ilex* (Evergreen Oak) (plus a few *Pinus nigra* (Black Pine)) on the east side of the road to the beach through the car park. All were clearly planted, perhaps at the same time, and there was clearly no evidence of genuine naturalisation over the last 75 years, just mere persistence. Its true status is simply 'Planted', although others may disagree.

Laurus nobilis L. (Bay) is a complete contrast. Here is a small tree that self-sows readily (with avian or mammalian help) in the milder parts of the British Isles into (semi-) natural vegetation but is usually not recognised or is ignored as a mere garden waif. It is well-known on the Isle of Wight, and is, for example, reported in Ireland as 'Naturalizing themselves here and there, mainly in the carboniferous area [of Killarney] woods' in the staid *Journal of ecology* **69**: 470 (1981).

In Alverstoke, nowadays merged with Gosport within a continuum of houses, public spaces are very few, but gardeners all know about the surprisingly high frequency of seedlings of *Laurus* appearing uninvited in flower beds. Yes, four have appeared in my own garden over the last 8 years! I would not expect these to appear in a *Flora* (genuine as they are), but those appearing along a cycle track (a disused railway line since long before 1960) stretching for a half mile north from SZ/607.987 warrant a description of naturalisation. On 6 May 1998, I walked this double length of hawthorn and ivy hedgerow, and was amazed to count 36 self-sown bushes (or 32, if one excludes the four trees reaching 5 m or more in height which were, conceivably, once planted). Only 5 were between 2 and 5 m tall; all the remaining 27 saplings ranged from 25 cm to 2 m (most seedlings were close to their parent tree). It suggests either that recent hot summers have encouraged germination of this Mediterranean plant, and/or that severe winters kill off the younger plants.

Many of the bushes were in full flower, even on plants as small as 2 m. Noteworthy, too, was the fact that only 9 bushes were in the southern half of the trackway, and 27 in the northern half – this correlates with the increase in gardens and houses going northwards. It is very tempting to suggest that the Collared Dove, a non-native bird which rarely flies far from suburbia, is the major vector, but I have no direct evidence that they even eat the large (10-15 mm) ovoid black 1-seeded drupe or (berry?). Too large for blackbirds to swallow? (Help, please, from our ornithologists!). The doves are very common in Alverstoke, but wood pigeons are nearly as frequent.

More 'self-sown' bushes (spread by birds or maybe the non-native Grey Squirrels?) appear appropriately outside Bay House School (Stokes Bay), 1.6 km to the west. And, 17.5 km further to the NW,

Paul Stanley tells me of naturalised plants in West Wood, Netley where in 1986 there were 3 saplings up to *c.*3 m tall, growing on acidic gravel soil, beneath *Acer pseudoplatanus*.

Naturalisation away from the Hants coastline is much less likely, but it may occur in warmer pockets of land. Many more records for *Laurus* must surely await publication. And do watch the squirrels; apparently, dispersal of Lauraceae fruits by them has never been proven anywhere in the world.

ERIC CLEMENT, 54 Anglesey Road, Alverstoke, Gosport, Hants. PO12 2EQ

NOTICES (BSBI)

FIELD TRIP TO IBIZA, MAY 1999

There will be a BSBI Field Meeting in Ibiza from Tuesday 4 to Saturday 8 May 1999 inclusive. Our base will be Santa Eulalia. Any number from 2 to 12 can come. Everyone makes their own bookings in singles, pairs or more. The only fixed requirements are place and time. See the brochures Thomson Summer Sun and Panorama. Fly out Sunday 2nd or Monday 3rd May from a variety of airports and stay at whichever hotel you prefer. Cars will be hired as needed at a cost of about £125 a week for 4 seats. We will rendezvous daily in Santa Eulalia at about 10.00 a.m. Stay 10 days or a second week if you wish. If your other half is a non-botanist you both might enjoy a longer holiday.

The typical Mediterranean island *flora* of Ibiza is over a thousand species. The last week in April is when the flora usually peaks but every year is different depending largely on when and how much it rains. You will always be too late for some species and too early for others. The first week in May provides better package tour options and value.

John Topp led our 1990 Field Meeting in the East Pyrenees and as nobody actually died we have asked him to lead the meeting in Ibiza where he has had a home for 38 years. He will conduct 5 botanical days. The sixth day will be **free** unless there are signs of bad behaviour. **When** you have looked at the small print in the Thomson Summer Sun and Panorama brochures and decided you want to go, please tell John Topp, 20 Lupus Street, London SW1V 3DZ Tel: 0171-834-3079. He is away often and it is better to write.

MARGARET LINDOP, Hon. Field Meetings Secretary

DRUCE LECTURE 1999

Following the lack of publicity for the previous meeting, Max Walters has very kindly agreed to give again his lecture – *The Changing Flora of Cambridgeshire* – on the afternoon of Saturday February 6th 1999 at the Cambridge University Botanic Gardens.

A flyer will be included in the Christmas mailing.

AILSA BURNS, Hon. Secretary Meetings Committee

COTONEASTER COLLECTION OPEN DAY - OCTOBER 11th 1998

The International Cotoneaster collection (TROBI and NCCPG) of around 350 taxa is having an open day on October 11th 1998 from 11 a.m. to 5 p.m. The collection is held at Rumsey Gardens Nursery, Drift Road, Clanfield, Hampshire.

JEANETTE FRYER, Cornhill Cottage, Honeycritch Lane, Froxfield, Petersfield, Hampshire GU32 1BE. Tel. 01730 827202

NOTICES (NON BSBI)

JOHN RAY AND HIS SUCCESSORS – CONFERENCE 18-21 MARCH, 1999

This conference on John Ray and his Successors: the clergyman as biologist will be held at Braintree, Essex, on March 18-21 1999. Organised by the John Ray Trust, the Institute of Biology's History Committee, and the Society for the History of Natural History.

Keynote speakers: John Brooke 'Wise men nowadays think otherwise', Michael Reiss 'On being a biologist and a cleric', plus others including Profs Paul Foster, Chris Smith, Sandy Baker, David Knight, Mark Seaward, Edward Larson, Peter Bowler.

Registration before Jan. 1 is £90 (full time students £30), accommodation, etc., extra. Bookings and details from Janet Turner, John Ray Trust, Town Hall Centre, Braintree, Essex, CM7 3YG. Tel.: 01376-557776; Fax 01376 344345.

NIGEL COOPER, Rector of Rivenhall, 40 Church Road, Rivenhall, Witham, Essex CM8 3PQ
Tel: 01376 511161; email: cooperns@email.msn.com

BIOSYSTEMATIST WANTED BY RBG KEW

There is going to be a new post for a biosystematist to work in the Molecular Systematics Section at the Jodrell Laboratory, Royal Botanic Gardens, Kew. The candidate – preferably a botanist – will spend about 80% of the time developing bioinformatic software and supporting the computing facilities in the Section (mainly with Macintosh machines), and the rest of the time working on research.

This post will be advertised soon in the *New Scientist*. Anyone interested is also welcome to contact the Head of Molecular Systematics, Professor M. Chase, at the address below for further information.

Prof. M. CHASE, Jodrell Laboratory, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AB
(email: m.chase@rbgkew.org.uk)

COMPUTER BYTES

MORE WEB SITE ADDRESSES

Members with access to the World Wide Web may be interested in the following sites:

- Sue Daly's beautiful marine flora and fauna photos from Jersey at www.mermaid1.demon.co.uk/links.htm
- Babel, an enormous bibliography of botanical references in umpteen languages, separated into alphabetically arranged countries and still under construction (look at the Welsh section !!); www.gagg.mcmail.com/Babel.htm
- There is a large page listing available photographs of a very large part of the British & European flora and some habitat photos, from the same source at; www.gagg.mcmail.com/photoflora.htm

BRIAN BONNARD, The Twins, Le Petit Val, Alderney, Channel Islands

BRIAN BONNARD'S WEB SITE ADDRESS

My apologies to Brian for getting this wrong in the last issue. The correct address is http://members.aol.com/Bjbonnard/alderney.html

EDITOR

THE PLANT FINDER REFERENCE LIBRARY ON CD-ROM

This annually updated CD-ROM delivers a wealth of information at your fingertips. It combines an electronic version of *The RHS Plant Finder* with other gardening and horticultural databases and information. The standard edition includes:

- **The RHS Plant Finder**: lists over 70,000 taxa and where to buy them
- **The Seed Search 1998**: lists over 33,000 seeds of flowers, trees and shrubs
- **The Fruit and Veg Finder 1998**: lists over 1,500 fruits and 3,000 vegetables
- **Arboreta and Gardens Guide**: lists sites for over 15,000 plants cross-referenced to *The RHS Plant Finder*
- **National Plant Collections Directory 1998**: up to date contact details for NCCPG collections
- **Dictionary of Common Names**: over 40,000 entries with flexible searching
- **Lexicon of Latin Names**: a guide to botanical Latin
- **Kew Authors & Genera**: The authoritative reference based on publications from the Royal Botanic Gardens, Kew
- **UK and International Garden Societies**: Contact and summary information for over 400 organisations
- **National Trust & NT for Scotland Gardens**: Details of properties and gardens in the UK of botanical interest
- **Flora-for-Fauna**: Hypertext guide to gardening to promote native species and wildlife
- **Internet Directory for Botany**: Superb guide to botanical and related web sites

This is superb value for only £25 and can be found in many major bookstores or from: The Plant Finder, FREEPOST, Lewes BN7 2ZZ. Tel: 01273 476151. Web site: http://www.plantfinder.co.uk

EDITOR

REQUESTS

BRITISH AND EUROPEAN *CALLITRICHE* SPECIMENS

As I am now working on a BSBI Guide to the European *Callitriche*, I am interested in obtaining material from throughout the British Isles and other European countries. Although I have contacts for some of these countries, I would appreciate suggestions for any possible contacts in any country in Europe.

Only fruiting material will be of use to me for biometric and descriptive data. I am reluctant to referee non-fruiting material of British plants, as there appears to be more ambiguity than I previously suspected.

In the light of some of the variation which I have found in British *Callitriche*, I am reluctant to accept records of British *Callitriche* unless I have an opportunity to assess the likelihood of accuracy. I feel that the best way to achieve this is for recorders to submit a voucher specimen for each taxon that

they record. As soon as I am happy with determinations, I will accept records – I still make mistakes in the field which I only recognise through microscopy.

Ideally I would like to receive fresh material, however recorders must telephone me before sending material, to ensure that I am around to look at it. I am becoming accustomed to returning home after fieldwork to find bags of indeterminate black slime on the doormat. Alternatively, I will referee dried material, however I tend to work on herbarium specimens only in the winter and so the reply may take a little longer.

I have moved and my new contact details are as follows (the house name is not my choice!):

RICHARD LANSDOWN, Floral Cottage, Upper Springfield Road, Stroud, Glos. GL5 1TF
Tel./fax: 01453 763348 E-mail: rlansdown@ardeola.demon.co.uk

OPEN COUNTRY ON BBC RADIO 4

From 11th April 1998, the Saturday edition of *Farming Today* on BBC Radio Four changed its name, and its style. *Open Country* not only looks at farming issues but at areas like recreation, transport, wildlife, entertainment, environmental issues, etc. Basically, if it happens in the Countryside, it will be reflected in *Open Country*. Each week the Programme will be based at a different location, and as well as covering news stories and current issues, it will feature local characters who may have a certain interest, passion or perhaps an unusual job. If any members have any news releases, or events diaries that would be of interest to *Open Country*, or even any suggestions about interesting locations to visit, or if you know of a real character who holds court in a village pub, I'd love to hear from you.

KAREN GREGOR, Producer Open Country, BBC Radio 4, Birmingham B5 7QQ. Tel: 0121 432 9710; Fax: 0121 432 9714; e-mail: Karen.Gregor@bbc.co.uk

SALIX CUTTINGS WANTED

The Kindrogan Field Centre, is planting within the Centre grounds, as long as space is available, species and hybrids of *Salix*, especially of species not easily seen within the Centre area. The material will be used by students on various botanical Courses including those given jointly with the BSBI. It will compliment the sedge collection planted there in memory of Dick David and used extensively on the Sedges and Rushes Course.

Rooted cuttings of willows would be the best way to send material, although fresh second year branch material which may root will be acceptable. Please wrap in moist newspaper, seal in plastic bag and post to the address below. The request will remain open throughout 1999.

ALISON GIMINGHAM, The Director, KFC, Enochdhu, Blairgowrie, Perthshire PH10 7PG.

BOOK NOTES

CORRIGENDA FOR *PLANT CRIB 1998*

Please send any further corrections to *Plant Crib 1998* to Tim Rich as soon as possible. A corrigenda sheet is being produced and will be available during October (s.a.e. to Tim Rich please)

TIM RICH, BioSyB, National Museum of Wales, Cathays Park, Cardiff CF1 3NP

BSBI JOURNALS WANTED AND AVAILABLE

The following are available:

Most parts of *Watsonia* from Volume 6 part 4 to volume 18 part 1; *BSBI Abstracts* Parts 2 to 21; *Proc. BSBI* Volume 7; all for the cost of postage only.

Wanted:

BEC Reports Volumes 1, 2, 3 (part 1 only), 4 (part 5 only), 5 (part 1 only). Reasonable price paid.

CLIVE STACE, Dept of Biology, University of Leicester, Leicester LE1 7RH email: CAS7@le.ac.uk

THE BLUE(BELL) BOOK

I am sure I share with all others who possess the *Plant Crib 1998* the pleasure of its innovative and striking blue(bell) cover. For me there was an additional pleasure in its unconscious reminder of the first of the Society's publications of this kind: *Hints on the Determination of some of the Critical Species, Microspecies, Sub-species, Varieties and Hybrids in the British Flora* which I compiled for the Society for almost exactly the same reasons as Tim Rich and Clive Jermy have produced the new *Plant Crib 1998* – to help recorders identify taxa to be included in the *Critical Supplement*. It was published in *Proceedings of the BSBI* in September 1962 but was then run on as a slim 27 page pamphlet (which could be taken in the field!) and bound in a dark-blue cover and became known, I hope affectionately, as the 'blue book'. So I welcome the new 'blue(bell) book' as a really splendid successor to the humble start made 36 years ago.

The other happy link between the two publications is the cartoon which appears on page 384 of the *Plant Crib 1998* without explanation. However Cambridge botanists of a certain age will recognise that it was first published in *The Tea Phytologist*, **TW**^{3}, 1964: 9. When I was collecting records for the *Critical Supplement* I spent many weeks in herbaria round the country determining specimens using the 'blue book'. One of these herbaria was the Fielding-Druce in Oxford. There, early in 1964, I worked alongside and took tea with a student of 'Heff' Warburg's, one Roy Perry. Those who have worked with Druce's herbarium sheets will appreciate the inspiration of the cartoon. The year was also significant – the International Botanical Congress in Edinburgh was nigh and several Cambridge botanists were feeling the need for a special edition of that periodical *The Tea Phytologist*. Satire was very much in the air with weekly fixes of 'That Was The Week That Was' – hence the Volume number **TW**^{3}. So Roy and I happily put together a 'fake' herbarium sheet which he so cleverly drew. I just think that the legend in the blue(bell) book should have been 'F.H. Perring & A.R. Perry fecit' and 'A.R.P. del.'.

FRANKLYN PERRING, Green Acre, Wood Lane, Oundle, Peterborough PE8 5TP

OBITUARY NOTES

With regret we report the deaths of two eminent botanists – Professor John 'Jack' Heslop-Harrison, and Dr Lewis C. Frost, and very recently Olga Stewart who was known to very many members and will be sadly missed by all who knew her. There will be Obituaries in *Watsonia*.

Also Dr C.A. Thorold of Twickenham, Middlesex, who had been a member since 1962, and Mrs Dorothy Paish of Machynlleth, Powys, who was an active member of the *Flora of Montgomery* recording group and whose family bequeathed a donation to the BSBI.

MARY BRIGGS, Obituaries editor

OBITUARY OF EDGAR MILNE-REDHEAD; AN ADDITIONAL PAPER

The following paper (one of his more interesting) was inadvertently omitted from the list of papers given in the obituary of E.B.W.H Milne-Redhead in *Watsonia* **22(1)**: 128-137.

Heywoodia hicens Sim. A tree new to tropical Africa. *Bulletin du Jardin botanique de l'État, Bruxelles* **27**: 327-333, t.10 (1957).

BERNARD VERDCOURT, Royal Botanic Gardens, Kew

REPORTS OF FIELD MEETINGS — 1997 & 1998

Reports of Field Meetings (with the exception of Atlas 2000 reports written by Trevor Dines and Reports of Irish meetings written by Alan Hill) are edited by, and should be sent to: Dr Alan Showler, 12 Wedgwood Drive, Hughenden Valley, High Wycombe, Bucks, HP14 4PA, Tel.: 01494 562082.

1997

NORTH EAST GALWAY 12th & 13th JULY

In a previous field meeting report (*BSBI News* September 1996) I bewailed the uniformity of habitats in the eastern part of v.c. H17 (NE Galway). This uniformity is in sharp contrast to the diversity of the Burren-like flora that occurs on the limestone outcrops and lake shore of Loch Coirib which forms the western boundary of the vice-county. This difference in flora poses the question of how far east into the Irish midlands the typical western limestone flora extends. On 12th and 13th July 1997 a group of BSBI members and other botanists from both Ireland and Britain met to pursue this question by examining some little known sites in the middle of the vice-county.

On Saturday the group met at Headford Co. Galway, and then travelled 8 km further east to an area of unenclosed pasture and limestone heath in the townland of Laurclavagh. Here in a flat landscape typical of the Irish central plain we found large mats of Mountain Avens (*Dryas octopetala*) accompanied by Blue Gentian (*Gentiana verna*), Blue Moor-grass (*Sesleria caerulea*), Irish Eyebright (*Euphrasia salisburgensis*), Juniper (*Juniperus communis*), Sea Plantain (*Plantago maritima*), Creeping Willow (*Salix repens*) and a variety of Orchids such as Frog Orchid (*Coeloglossum viride*) and Fragrant Orchid (*Gymnadenia conopsea*). Time did not permit us to cover the entire site which exceeds a mile in width, so we did not see some other species I had previously noted such as Wood Bitter-vetch (*Vicia orobus*) and Fly Orchid (*Ophrys insectifera*). This site is, I suspect, the most isolated lowland site for *Dryas octopetala* in Ireland and perhaps the British Isles (I would be interested to hear of other similar sites from BSBI members). Unfortunately it has not yet been designated as a National Heritage Area by the Irish Government. We finished the day by examining a wet calcareous fen at Ballycurrin just across the East Mayo (H26) border. Here amongst shallow marl filled pools and tussocks of Black Bog-rush (*Schoenus nigricans*) and Saw Sedge (*Cladium mariscus*) we found Grass-of-Parnassus (*Parnassia palustris*), Fen Pondweed (*Potomageton coloratus*), and Butterwort (*Pinguicula vulgaris*).

On Sunday July 13th, we met at Tuam and travelled eastwards to an area of calcareous eiskirs and fens around Cartron. On one eiskir, *Plantago maritima*, *Sesleria caerulea* and *Cystopteris fragilis* (Brittle Bladder-fern) were a final reminder of the limestone flora. A nearby fen at Hazelwood house, which we noticed on our way to Levally Loch, proved to contain a rich wetland flora. *Schoenus nigricans* and *Cirsium dissectum* (Meadow Thistle) were everywhere along with *Selaginella selaginoides* (Lesser Clubmoss), *Osmunda regalis* (Royal Fern), *Eriophorum latifolium* (Broad-leaved Cottongrass), *Drosera rotundifolia* (Round-leaved Sundew), *D. intermedia* (Oblong-leaved Sundew), *Utricularia minor* (Lesser Bladderwort) and *Parnassia palustris* (Grass-of-Parnassus). Orchids included a large population of *Epipactis palustris* (Marsh Helleborine) as well as *Dactylorhiza incarnata* (Early Marsh-orchid), *D. maculata* (Heath Spotted-orchid), *Platanthera bifolia* (Lesser Butterfly-orchid), *Gymnadenia conopsea* (Fragrant Orchid) and *Listera ovata* (Twayblade).

Levally Loch is a turlough or summer drying lake with a restricted flora. A walk across the dry lake floor produced some unexpected plants in abundance such as *Samolus valerandi* (Brookweed), *Veronica catenata* (Pink Water-speedwell), *Carex elata* (Tufted-sedge) and *C. lasiocarpa* (Slender Sedge). A final stop at Summerville Loch allowed us to inspect *Cicuta virosa* (Cowbane) at the south western edge of its range in Ireland. So within a distance of no more than twenty miles we had seen both an outpost of the western limestone flora and plants typical of the centre and east of the island. Happy with the weekend's botany the party dispersed.

CILIAN RODEN

1998

GUERNSEY, CHANNEL ISLANDS (V.C. 113). 13th-20th MAY

18 members gathered on Wednesday evening to meet the leader of the party Miss Rachel Rabey. She introduced David McClintock – past President of the Society and the author of *The Wild Flowers of Guernsey* who was to accompany us on the first two days. Rachel then presented a slide show of some of the Guernsey plants that we would hopefully see. We had already been given the itinerary for the week and it was obvious to all that detailed planning and research had been done and that we were in line for a botanical treat. Only the weather was in doubt. We need not have worried as we were to experience 6 days of glorious weather with unbroken sunshine!

On Thursday the walk was along the North coast of the Island starting at Fort Doyle and ending at Chouet. Low cliffs with occasional damp areas at first, and then the vast sandy area of L'Ancresse Common were examined. *Lampranthus roseus* (Rosy Dewplant), *Ornithopus pinnatus* (Orange Bird's-foot) and *Gnaphalium undulatum* (Cape Cudweed) were soon seen, and later *Artemisia verlotiorum* (Chinese Mugwort) and *Carpobrotus glaucescens* (Angular Sea-fig) were recorded. The Common provided many more – *Eryngium campestre* (Field Eryngo), *Silene conica* (Sand Catchfly), *Trifolium occidentale* (Western Clover), *Viola kitaibeliana* (Dwarf Pansy), *Lagurus ovatus* (Hare's-tail) were just a sample. A pond on the Common was covered in *Ranunculus baudotii* (Brackish Water-crowfoot) and *Silene gallica* (Small-flowered Catchfly) was seen in all three colour forms. Near Pembroke Bay were *Asparagus officinalis* subsp. *prostratus* (Wild Asparagus), *Milium vernale* subsp. *sarniense* (Early Millet) and *Poa infirma* (Early Meadow-grass). Finally on a roadside near Chouet was *Geranium submolle* (Alderney Crane's-bill). Stops on both journeys were made to see *Amaranthus deflexus* (Perenial Pigweed), *Tragopogon porrifolius* (Salsify), *Solanum chenopodioides* (Tall Night-shade), *Salpichroa origanifolia* (Cock's-eggs) and *Nothoscordum borbonicum* (Honeybells).

On Friday we were at L'Eree Bay for a morning walk around Fort Saumarez. A bank roadside yielded the *Vicias* – *V. lutea* (Yellow Vetch) and *V. bithynica* (Bithynian Vetch) with *Anisantha madritensis* (Compact Brome) close-by. Further on were *Lavatera cretica* (Smaller Tree-mallow) and *Fumaria bastardii* (Tall Ramping-fumitory). Near the Fort itself were fine examples of *Erodium maritimum* (Sea Stork's-bill) in full flower complete with petals. Returning to the car park for lunch, David McClintock pointed unerringly to a somewhat bedraggled specimen growing in rough trodden ground and declared it to be *Spergularia bocconei* (Greek Sea-spurrey). The afternoon was spent visiting the Orchid Fields and how splendid were the stands of *Orchis laxiflora* (Loose-flowered Orchid)! Cars were then needed to visit a site of *Asplenium* × *sarniense* (Guernsey Spleenwort) before travelling to Pleinmont Headland. Here the party were encouraged to help Rachel in her work for the Kew seed bank by gathering seeds of *Mibora minima* (Early Sand-grass) which was abundant on the dry slopes. A further stop on the return journey was to see ×*Asplenophyllitis microdon* (Guernsey Fern). In the evening Mr Griff Caldwell past president of La Société Guernesiaise gave a talk entitled 'Guernsey. Why we are different'.

Early Saturday we were on the boat to Herm. The extensive common proved to be of great interest providing *Ranunculus parviflorus* (Small-flowered Buttercup), *Juncus acutus* (Sharp Rush), *Clinopodiuni calamintha* (Lesser Calamint) and especially *Bupleurum baldense* (Small Hare's-ear). By Shell Beach were *Crambe maritima* (Sea-kale), *Polygonum maritimum* (Sea Knotgrass) and *Rumex rupestris*

(Shore Dock). *Silene nutans* (Nottingham Catchfly) was well established above the coastal path and a final walk up the centre of the island revealed *Allium neapolitanum* (Neapolitan Garlic), *Allium subhirsutum* (Hairy Garlic) and *Arum italicum* subsp. *neglectum* (Italian Lords-and-Ladies). In the evening Mr John McCormack gave us an illustrated talk on 'Guernsey Houses'.

Sunday was spent on a glorious cliff walk around the southern coast above Moulin Huet Bay and encompassing Jerbourg Point. Much *Asplenium obovatum* (Lanceolate Spleenwort) was seen, and other plants not recorded previously included *Orobanche hederae* (Ivy Broomrape) and *Briza maxima* (Greater Quaking-grass). *Pilosella peleteriana* (Shaggy Mouse-ear-hawkweed) was on a dry bank just above the sea. *Silybum marianum* (Milk Thistle) was at the Point and *Isolepis cernua* (Slender Club-rush) was seen along the final stretch. The group had been invited to a barbecue in the evening at the home of Bridget & Terry Ozanne. This proved to be an excellent evening where we had the opportunity to eat and drink well and talk to other members of La Société.

On Monday we were at the quay even earlier to go to Sark. This day was led by Roger Veall, the Island's Recorder. Roger concentrated on showing the party some of the trees that had been planted on the island. These included *Crataegus persimilis* (Broad-leaved Cockspurthorn), *Betula papyrifera* (Paper Birch) and *Mespilus germanica* (Medlar). A steep path down to a small cove revealed *Carex laevigata* (Smooth-stalked Sedge) and *Asplenium marinum* (Sea Spleenwort).

The final day of the Meeting had arrived all too quickly. 3 members flew to Alderney to meet Brian Bonnard the island's recorder. They had an excellent day and were pleased to see *Orobanche rapum-genistae* (Greater Broomrape) and *Tuberaria guttata* (Spotted Rock-rose). The indefatigable Rachel took the rest of us to Vazon Bay in the North-West. A damp area behind the sea wall revealed *Carex distans* (Distant Sedge) and on the Common was a fine example of *Ficus carica* (Fig). Walking towards Fort Hommet we were delighted to see a group of *Isoetes histrix* (Land Quillwort) still in reasonable fettle, and close by was *Juncus capitatus* (Dwarf Rush). On the return we were shown the site of *Ophioglossum lusitanicum* (Least Adder's-tongue) and were amazed when close examination revealed not only the shrivelled sterile blade but also the once fertile blade still attached. *Gnaphalium luteoalbum* (Jersey Cudweed) was in a local garden. After lunch we found that our leader was mortal! She couldn't find ×*Asplenophyllitis jacksonii* (Jackson's Fern) at its known site so suggested moving on for *Calendula arvensis* (Field Marigold). This had already proved elusive earlier in the week when a garden known to have it as a weed had been given the treatment! However, there was a field full of it hereabouts. Imagine her displeasure when we turned the corner to find a freshly ploughed field. All was not lost however, as a little patch at the top had been left and there were a few of the plants remaining. Time allowed only 2 more stops. *Arenaria montana* (Mountain Sandwort) was well naturalised at Le Gouffre and near Petit Bot bay was the hybrid fern *Polystichum* × *bicknellii*.

After dinner, John Ounsted, our most senior member gave a vote of thanks. He thanked the guest speakers and other locals including Hazel Hill who had been a part time leader and Bridget and Terry Ozanne for the fine barbecue He also especially thanked Norma Guppy who had acted as co-leader throughout the week and was so knowledgeable about the island. But, of course, his main thanks were to Rachel. We all agreed we had had a wonderful time and were so grateful for all the time and effort she had put in.

D.M THOMAS

MILLER'S DALE, DERBYSHIRE (v.c. 57). 6th JUNE

The party of fourteen started the day with a short walk along a disused railway line forming part of a walking route known as the Monsal Trail. Remains of the previous season's *Monotropa hypopitys* (Yellow Bird's-nest) were immediately seen in adjacent scrub. Permission had been obtained from the Derbyshire Wildlife Trust and the voluntary wardens to visit two nearby reserves, The first of these, Miller's Dale Quarry, supports fine colonies of *Daphne mezereum* (Mezereon), some specimens of which were seen in fruit. In spite of intensive cutting and winching out, this series of quarries, large spoil heaps, ash woodland and remnant grassland is suffering from considerable hazel scrub invasion. A moderate number of sheep have been introduced for a couple of years, with the intention of reducing

their number as the situation improves. The grazing had temporarily decreased the interest of the site and, as planned, the group did not linger long, but climbed steeply to their second objective, Priestcliffe Lees Reserve. This constitutes about 60 hectares of grassland, limestone scrub, ash woodland and lead spoil heaps, supporting a very rich flora including *Sorbus rupicola* (Rock Whitebeam) and *Epipactis atrorubens* (Dark-red Helleborine).

A steep descent regained the Monsal Trail where an extensive stand of *Hieracium prenanthoides* (a hawkweed) was in evidence. After pausing to admire *Carex ornithopoda* (Bird's-foot Sedge), the return route was along a minor road skirting Ravenstor. The dull wet weather resulted in the large colony of *Silene nutans* (Nottingham Catchfly) fully opening its flowers and further on, *Ribes alpinum* (Mountain Currant) was hanging over cliffs like a curtain.

The particularly footsore and rain-sodden then retired to their cars and home, but seven continued to Wye Dale, where a further section of ex-railway line and a riverside path were explored. Rewards included young plants of *Draba incana* (Hoary Whitlowgrass) and late flowering *Hornungia petraea* (Hutchinsia).

J.E. HAWKSFORD

KNOWL HILL, BERKSHIRE (v.c. 22). 6th & 7th JUNE

Few people think of east Berkshire as prime botanising country. They tend to imagine either Betjaminesque scenes of Slough or Maidenhead ('Come friendly bombs . . .' and all that), or the sprawl of appalling new towns like Bracknell or Earley. The reality is somewhat different. It is true that few places escape the incessant traffic hum of the M4 motorway, or the din of aeroplanes in the stack approaching Heathrow, but the variety of habitats is actually very good. The river Thames forms the northern border of the area, with majestic views of Cliveden and Henley. Chalk hills stretch along the southern bank from Cookham to Bisham, and support species-rich grasslands and woodland. South of the chalk, a belt of clay soils stretches from Windsor Great Park westward to the River Loddon, much of which is still under arable farming. South of the clay, are the acid sands of the Bagshot beds, stretching from the military ranges at Sandhurst to the edge of Chobham Common.

On the chalk, the magnificent woods around Park Place provided some treats including *Helleborus foetidus* (Stinking Hellebore) growing in clearings amongst dense *Buxus sempervirens* (Box), while the chalk grasslands above Cock Marsh had *Ophrys apifera* (Bee Orchid) and *Euphrasia pseudokerneri* (Eyebright). It was too early in the year to have any realistic chance of finding the local rarity *Cyperus fuscus* (Brown Galingale), but plenty of good plants were found in the wetlands at the foot of the chalk slope, including *Hottonia palustris* (Water-violet), *Oenanthe aquatica* (Fine-leaved Water-dropwort), and *Stellaria palustris* (Marsh Stitchwort). Aliens found at Hurley included *Ceratochloa cathartica* (Rescue Brome) and a *Euphorbia* species (probably *E. oblongata* (Balkan Spurge)). The uncommon native *Torilis nodosa* (Knotted Hedge-parsley) turned up in short turf by roadsides.

Hedgerows on the clays had abundant *Tamus communis* (Black Bryony) and *Sison amomum* (Stone Parsley) and the delightful *Lathyrus nissolia* (Grass Vetchling) was found in dry, sunny grasslands. In several places statuesque populations of the alien *Rumex cristatus* (Greek Dock), standing 2 m tall graced the roadside verges. Brickwork on a few of the river- and railway-bridges produced *Asplenum ruta-muraria* (Wall-rue) and, *A. adiantum-nigrum* (Black Spleenwort) both of which are uncommon ferns in eastern Berks. The River Loddon provided some good aquatics, including *Butomus umbellatus* (Flowering-rush), *Alisma lanceolatum* (Narrow-leaved Water-plantain), *Potamogeton nodosus* (Loddon Pondweed), and a full set of *Lemna* spp. (*L. gibba* (Fat Duckweed), *L. minor* (Common Duckweed), *L. minuta* (Least Duckweed) and *L. trisulca* (Ivy-leaved Duckweed)). Sadly, the Loddon lilies *Leucojum aestivum* at Lodge Wood and Sandford Mill were long past their best, despite their English name of Summer Snowflake.

Eastwards from Finchampstead Ridges and Wellington College stretch the acid heathlands of the Bagshot Sands. The fragments that have survived housing development or blanket-planting with Scots Pine (*Pinus sylvestris*) have an interesting flora which produced *Myrica gale* (Bog-myrtle) and *Pyrola minor* (Common Wintergreen), both of which are rare in Berkshire, and fine colonies of deep purple

Dactylorhiza maculata (Heath Spotted-orchid) in the wetter places. To our delight, we discovered that the great Surrey rarity *Dryopteris cristata* (Crested Buckler-fern) has colonised the county by leaping across the border stream, and is now an official Berkshire resident. The Surrey plants grow in a bizarre setting, surrounded by a dense stand of *D. carthusiana* (Narrow Buckler-fern), in full sun in a *Molinia* swamp!

On Sunday, a party ventured south into the northern extremities of Hampshire (v.c. 12), but could not resist the temptation, en route, of visiting Berkshire's famous fritillary site at Stanford End. Other members investigated the urban flora of Reading, where extensive monocultures of *Impatiens glandulifera* (Indian Balsam) grow in the open, and the bizarre *Dracunculus vulgaris* (Dragon Arum) survives in a number of places as a garden throw-out. The verges of the M4 motorway were interesting, with salt adventives like *Puccinellia distans* (Reflexed Saltmarsh-grass), *Cochlearia danica* (Danish Scurvy-grass) *Spergularia marina* (Lesser Sea-spurrey) and all sorts of out-of-place-looking, wildflower-mix species like *Anthyllis vulneraria* (Kidney Vetch), *Onobrychis viciifolia* (Sainfoin) and *Sanguisorba minor* subsp. *muricata* (Fodder Burnet). The 19 members who attended the meeting had a thoroughly enjoyable weekend and contributed several hundred new records for Atlas 2000.

MICK CRAWLEY

TIDDESLEY WOOD, PERSHORE, WORCS. (v.c. 37). 13th JUNE

A party of eight members met at the entrance to this Worcestershire Wildlife Trust reserve on a very wet morning. Tiddesley Wood is an ancient woodland mainly on Lias clays with some areas of River Avon terrace soils and is bounded to the south-east by the River Avon and to the west by Bow Brook. The area has a rich flora contrasting with the mainly arable surroundings. The party walked into the wood and soon found a wide range of the typical woody plants including *Sorbus torminalis* (Wild Service-tree), *Viburnum lantana* (Wayfaring-tree), *Pyrus pyraster* (Wild Pear) and *Euonymus europaeus* (Spindle). The willows were closely examined and several bushes of *Salix* × *reichardtii* (*S. caprea* × *S. cinerea*) (a hybrid willow) were compared with the two parents. Some fine robust bushes of *Rosa* × *verticillacantha* (*R. arvensis* × *R. canina*) that had been determined earlier were in full flower along the main ride. The hybrid theme was continued with a full range of *Crataegus* × *media* (*C. monogyna* × *C. laevigata*) together with both parents.

The ground flora is rich in locally rarities and we admired a number of flowering spikes of *Platanthera chlorantha* (Greater Butterfly-orchid). *Paris quadrifolia* (Herb-Paris) is quite common in the wood and often grows with *Listera ovata* (Common Twayblade). A muddy patch in the ride produced a few tiny plants of *Lythrum portula* (Water-purslane). *Lathyrus sylvestris* (Narrow-leaved Everlasting-pea) was scrambling over the ride-side shrubs and good quantities of *Agrimonia procera* (Fragrant Agrimony) were found in its only site in the hectad.

Lunch was taken in the car park by some very wet botanists and a reduced party of four carried on in the afternoon. The rain stopped and a walk to the southern corner of the wood brought us to *Carex strigosa* (Thin-spiked Wood-sedge). At the corner of the wood there is a steep bank down to the roadside and here we found a lot more *Lathyrus sylvestris* and a good colony of *Ophrys apifera* (Bee Orchid). A quick look at the River Avon showed many of its characteristic plants but we were probably too early in the year for the *Cuscuta europaea* (Greater Dodder) which is known on the nettles here. The party finally returned through the wood and along part of Bow Brook, in which *Ranunculus penicillatus* subsp. *pseudofluitans* (Stream Water-crowfoot), *Potamogeton berchtoldii* (Small Pondweed) and *Sagittaria sagittifolia* (Arrowhead) were growing.

A.W. REID

LINCOLNSHIRE, (v.c. 53), 27th JUNE.

A joint meeting of the Lincolnshire Naturalists' Union and BSBI; three localities were visited and eight BSBI members were present.

1. **Thurlby Fen Slipe N.R.**, Grid. ref. TF/118.164. Lincs. Trust Reserve. Voluntary Reserve Wardens Mr & Mrs R. Heath led the party through a 2 km corridor of old flooded borrow pits with a gravelly bed, associated reed beds, scrub and grassland, nobly having mown an access path along the whole length of the reserve the day before. The pools especially had a rich flora including *Potamogeton coloratus* (Fen Pondweed) in profusion, *Berula erecta* (Lesser Water-parsnip) in flower, *Ranunculus lingua* (Greater Spearwort) a fine stand, *Baldellia ranunculoides* (Lesser Water-plantain) in dense masses and remnants of a good colony of *Hottonia palustris* (Water-violet). *Carex paniculata* (Greater Tussock-sedge) was restricted to one end of the reserve and a few plants of *Sium latifolium* (Greater Water-parsnip) not yet in flower, were seen.

2. **Pinchbeck Fen Slipe N.R.**, Grid Ref. TF/184.229, Lincs. Trust Reserve. Mr J. Redshaw, BSBI member and Voluntary Reserve Warden, led the next stage of the meeting in this newly acquired Nature Reserve. Quite a contrast to the last site, though similarly a series of Borrow Pits alongside the River Glen. These pools were notable for the enormous stands of *Typha angustifolia* (Lesser Bulrush). There were a few smaller stands of *Typha latifolia* (Bulrush) and hybrid plants *Typha* × *glauca* (*T. latifolia* × *T. angustifolia*) were commented on.

3. **Fosdyke Bank**, Grid Ref. TF/318.322. This bank on the S side of the River Welland, owned and managed by the Environmental Agency, has been remarkable over a number of years for the fantastic display of *Anacamptis pyramidalis* (Pyramidal Orchid). In 1997 and again in 1998, c.4,000 spikes were estimated – very dark purplish-pink and some very large plants. The orchids were in groups with *Galium verum* (Lady's Bedstraw), *Briza media* (Quaking-grass) and *Agrimonia eupatoria* (Agrimony) and the whole bank was a blaze of colour from common mallow, poppy, oil-seed rape, white campion, musk thistle and carrot. This meeting was led by Rene Weston, (Recorder for v.c. 53) and all sites were selected to show how important and outstanding these habitats and reserves are in the intensely agricultural farmed fenland of S Lincolnshire.

RENE WESTON

MARCHWIEL, DENBIGHSHIRE (v.c. 50) 4th JULY

Seven members met to visit a 20 hectare site on the Wrexham Industrial Estate. There had been a munitions factory on the site during the second world war, then a chemical works but the area has been derelict since the 1950s. Part of it has been levelled but there are still potential hazards, e.g. old buildings, concrete kerbs, deep holes, toxic waste and finally the risk of getting lost; for these reasons we stayed as a group and recorded together.

Much of the site is mature grassland with many flower species. Dominant were *Leucanthemum vulgare* (Oxeye Daisy), *Dipsacus fullonum* (Wild Teasel), *Hypericum maculatum*, *H. perforatum*, *H. hirsutum* and *H. tetrapterum* (Imperforate, Perforate, Hairy and Square-stalked St John's-worts). More unusual grassland species were *Lathyrus nissolia* (Grass Vetchling), *Silaum silaus* (Pepper-saxifrage), *Malva moschata* (Musk-mallow) and plentiful *Genista tinctoria* (Dyer's Greenweed).

The flora is well established and there were few casuals but we did see *Lactuca serriola* (Prickly Lettuce) which has become common in the Wrexham area and *Crepis biennis* (Rough Hawk's-beard). We found the hybrid thistle *Carduus* × *stangii* (*C. crispus* × *C. nutans*) with the height and prickles of *C. crispus* (Welted Thistle) but with the larger nodding flower and bare flower-stalk of *C. nutans* (Musk Thistle). There were few ferns but *Dryopteris filix-mas* (Male Fern) and *D. dilatata* (Broad Buckler-fern) were in the woodland edge bordering the river Clywedog, and on the brick walls *Phyllitis scolopendrium* (Hart's-tongue), *Asplenium ruta-muraria* (Wall-rue) and *A. trichomanes* (Maidenhair Spleenwort) were growing. Wet ditches had *Alisma plantago-aquatica* (Water-plantain) and *Sparganium erectum* (Branched Bur-reed). Other notable plants were *Festuca pratensis* (Meadow Fescue), *Leontodon saxatilis* (Lesser Hawkbit), *Blackstonia perfoliata* (Yellow-wort) and *Ballota nigra* (Black Horehound).

One reason for the visit was to survey the site prior to industrial development. We felt it was a very valuable wildlife area with at least 197 plant species, also rich with birds and butterflies, and worthy of protection, possibly with an archaeological trail if the site can be made safe.

Our second site was a recently levelled 46 hectare area of grassland. This had a much less well established flora but we found *Melilotus albus* (White Melilot), *Melilotus officinalis* (Ribbed Melilot), *Anthyllis vulneraria* (Kidney Vetch), *Trifolium striatum* (Knotted Clover) and *Hordeum secalinum* (Meadow Barley). Additionally a pair of Lapwings and several Skylarks made this another valuable wildlife area.

Our findings emphasise the importance of 'brown' sites in our local flora. It may be difficult to protect them in the middle of an industrial estate earmarked for development.

JEAN A. GREEN

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GRID-MAPPING IN BOTANY GOES BACK 230 YEARS!

A talk at the BSBI meeting in Bailleul (July 1998) touched upon the history of floristic grid-mapping. In the discussion I mentioned that the earliest example of the grid-method in botany known to me was an autobiographic text by the great philosopher and author Jean-Jaques Rousseau. Because I was not able to recall *ad hoc* the historic details, I was asked to look them up and write a short note for *BSBI News*.

This is the original passage:

> 'I set out to compose a *Flora Petrinsularis* and to describe every single plant on the island in enough detail to keep me busy for the rest of my days. . . . In accordance with this noble plan, every morning after breakfast, which we all took together, I would set out with a magnifying glass in my hand and my *Systema Naturae* under my arm **to study one particular section of the island, which I had divided for this purpose into small squares, intending to visit them all one after another** in every season . . .' [My emphasis].

From: Jean-Jaques Rousseau, *Les Rêveries du promeneur solitaire*, 1782, translated by Peter France, and published as *Reveries of the solitary walker*, 1979.

Needless to say, no product of this work (grid-maps or any other result) has ever been published; Rousseau probably did not really aim at writing a scientific flora but regarded botany merely as an easy way to pass time. The year was 1765, after having published *Émile* and *The Social Contract* in 1762, Rousseau had left France to avoid arrest. He was even driven from his home at Môtiers (near Neuchâtel, Switzerland) and took refuge on the Island of Saint-Pierre in the Lake of Bienne. Here he enjoyed the beauty of nature feeling 'the first flush of enthusiasm for botany, a taste soon to become a passion'.

GÜNTER MATZKE-HAJEK, University of Vechta, Driverstr. 22, D-49377 Vechta, Germany

BSBI AIMS AND NAMES

The Aims as passed by Council on 26/3/1998 and printed on the back cover of the Annual Report make clear that we should not be called the Botanical Society of the British Isles but the Society for the Botany of the British Isles. SBBI not BSBI!

JOHN TOPP, 20 Lupus Street, London, SW1V 3DZ

SQINANCYWORT

My thanks to Stanley Marvin for sending in this lovely poem by Edward Carpenter and my apologies to Stanley for having 'lost' it for a year or two. I'm afraid there is no room for the whole poem so only two stanzas appear below.

What have I done? —
I am a little flower,
Out of many a one
That twinkles forth after each passing shower.
White, with a blissful glow,
Or innocent over the hilltops sport and run —
What have I done?

What have I done? *Man* came,
Evolutional upstart one!
With the gift of giving a name
To everything under the sun.
What have I done? Man came
(They say nothing sticks like dirt).
Looked at me with eyes of blame
And called me 'Squinancy-wort'.

EDITOR

BSBI POSTCARDS

A reminder that these are still available – 16 superb different postcards of plants from Britain and Ireland produced on high quality card, and promoting the Society.

Please send £2.50 plus 50p p&p for a set, or £4.75 for 2 sets to (and cheque payable to):

ANITA PEARMAN, The Old Rectory, Frome St Quintin, Dorchester, Dorset, DT2 0HF

BSBI LOGO ON JEWELLERY

As mentioned previously, Gwyn Lee, Alisa Burns' son, will produce to order Stirling Silver jewellery embellished with the BSBI logo as follows:

Tie Tack / Lapel Pin	£20
Pendant (without chain)	£25
Tie Slide	£25

I have purchased a Lapel Pin for myself and a Pendant for Maria and very nice they are too. Any member interested in purchasing any item should contact Gwyn at 3 Rosliston Road, Stapenhill, Burton upon Trent, Staffs DE15 9RJ.

EDITOR

Contacting the Hon. General Secretary or Editor by phone: If you need to contact me by phone, there is a 24 hour answering/fax machine in my BSBI office, just leave a message (including your phone number – most important, don't assume I have it, **and please speak slowly**) and I will get back to you. The number of times I get a message to phone someone back with a rushed, unintelligible phone number is anyone's guess. You may be able to rattle off your number at top speed, but don't expect anyone else to decipher it!

Bearing in mind that, according to Mary Briggs' classification, I am an owl, the best times to catch me in my office are between 10 a.m. and 12 noon and 2 p.m. to 5.30 p.m. on weekdays but be warned, I do not spend all my time in the office. If you fail to find me in I do apologise, but just leave a message and I will get back to you as soon as I can. I do have another (home) phone number which, in an emergency, can be obtained from Directory Enquiries, but **please**, only use it as a last resort.

Guide to contributors. A full guide to authors of papers and artists appeared in *BSBI News* 75: 72-73 (1997). Copies are available from the Editor on receipt of an s.a.e. Please follow these guidelines as far as possible

EDITOR

The Editor Gwynn Ellis can be contacted by phone or fax on 01222-496042 or e-mail: bsbihgs@aol.com

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