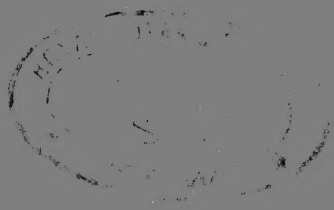
YEAR BOOK OF THE HEATHER SOCIETY



1985

THE HEATHER SOCIETY

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Gesellschaft der Heidefreunde
North American Heather Society

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Editorial

It has recently been suggested that heathers may suffer from a "replant disease" which causes young plants to fail to establish if they are used to replace old ones in an existing bed. I first heard of this in a conversation at Ness in September 1982. Later I saw it hinted at in a magazine article, but I canot now say who wrote it or even where it appeared. Then, in *The Garden* for October 1984 (p. 394), Joy Larkcom mentioned it in her article on the new winter garden at Cambridge.

Some heather species remain attractive for many years if properly cared for. Others begin to deteriorate after ten or twelve years and require replacing. The heather garden at Wisley is now some sixty years old and several other large "public" heather gardens have been in existence for more than twenty five years. Areas of these gardens are regularly replanted in rotation, and in some cases the interval between replanting is as little as five years. In addition to this, private gardeners will have replanted heathers.

While considering replanting it is worth recalling that it used to be standard nursery practice to produce heathers in open ground. As recently as the early 1970s I bought excellent plants that had been grown in that way. Once all the plants from a nursery bed had been sold, the soil was renovated and the next group of rooted cuttings was lined out to grow on in it. Season after season, most of the cuttings survived to make healthy, saleable plants. Why then in the last two and a half years have references to *"Erica* replant disease" started to appear?

A replant disease affecting some members of the Rosaceae, roses and fruit trees for example, has been known for some time. This is caused, I believe, by the presence of certain fungi in the soil where these plants have been grown for long periods. It is possible that a new organism has recently evolved, or been introduced, which attacks some members of the Ericaceae. If that is so, to my knowledge, it has not been isolated or described. It is equally possible that isolated instances of larger scale failure in replanted heather beds may have been due to a known, but unrecognised pathogen, or even to bad cultural practice. In connection with

this last point, it is interesting to note that *"Erica* replant disease" has made its faltering appearance during a period when we have had a number of dry summers. It is unlikely that pot-bound container-grown plants will establish themselves readily in near-dry soil.

I realise that such a dismissal of the existence of *"Erica* replant disease" may be over-sanguine, and I would be interested to hear the experiences and opinions of others on this topic.

From the Chairman

Maj.-Gen. P. G Turpin, C.B., O.B.E.
West Clandon, Surrey.

I suppose that the great majority of the named varieties of heathers are generally recognised by the colour of their flowers. Few of us would presume to identify most of them, unless we had seen them in flower. And it would have to be a fresh flower, because a herbarium specimen cannot usually give even an approximation of the true colour of a flower. When the colour of two cultivars is very similar, recognition becomes more difficult. Who can judge with certainty the identity of *E. cinerea* 'Alba Minor,' 'Alba Major', 'Hookstone White' or 'White Dale' from a single stem or even a vase of cut stems? Or who would have any confidence in distinguishing between *Calluna* 'Hammondii', 'Mair's Variety', 'Alba Elegans' or 'Drum-Ra'?

Flower-colour is, perhaps, the least variable characteristic of a cultivar. Habit, size (height and spread), time of flowering, even the colour of the foliage, are all affected to some extent by climate, weather and the nature of the soil. The presence of other plants, a sheltered or exposed position, the depth of the water table, the lie of the land and the existence of frost pockets are all factors which influence the behaviour of plants.

There is, of course, some variation in colour during the flowering period, from the time when the bud first opens until the flower begins to wither. For example, *E. carnea* 'December Red' belies its name in December and only begins to appear red in January. The flowers of *Calluna* 'Peter Sparkes' in October are usually several shades darker than those which open at the end of August. Allowances

must also be made for the quality of the light (daylight or artificial light) and the variability of human eyesight. Above all, coloured photographs can be most misleading. But, as a rule, we judge our heathers by their colours and the average gardener makes his choice in a garden centre by the appearance of the flowers or the illustration and description on the label.

Before the invention of the term "cultivar" by L. H. Bailey in 1923 (from "*culti*vated *var*iety" — a telescopic word, many of the names of heather varieties referred directly to their colours — alba, atropurpurea, atrorubens, pallida, rubra — and many of these have survived as cultivar names. But it must not be assumed that all the plants labelled, for example, 'Pallida' necessarily came from the same clone. Var.*Pallida* would be applied to all the different examples of that particular colour form.

In *E. cinerea* pale pink is one of the commoner forms of colour variation and occurs regularly in Surrey, the New Forest, Dorset and Cornwall and, no doubt, elsewhere. Miss Gertrude Waterer, who named 'Janet' after a friend of hers, declared that she had found the plant in three separate places, twice in Devon and once in Cornwall. As far as heathers are concerned we tend now to regard the term "cultivar" as relating to plants of a single clone. But this is not the definition laid down in the *International Code of Nomenclature for Cultivated Plants* (1980 — pp. 12-14, Articles 10, 11 and 12), and it is permissible to use a single cultivar name to describe plants of different clones, which have identical characteristics. This has, no doubt, been the practice of some nurserymen for some time, without too much regard for the meaning of "identical", which explains the slight differences which occur from time to time in specimens sold under the same name. *E. vagans* 'Mrs D. F. Maxwell' is a good example Although this colour form (a deep cerise) is comparatively uncommon in the wild, cultivated plants of 'Mrs. D. F. Maxwell' regularly produce seedlings of a similar colour in gardens and nurseries. Plants raised from these seedlings have been labelled and sold in the name of their parent.

One of the earliest of the named varieties of *Calluna* was 'Alportii', a heather with dark red flowers. For many years this was the only named variety of this colour form. It is most

likely that any dark red *Calluna*, which was similar in colour to 'Alportii' would have been called by the same name. Similarly, any double-flowered *Calluna* would have been called 'Flore Pleno', wherever it may have been found. Such a system had many advantages over our present practice. How much simpler would it be, if the finder of a pale pink *E. cinerea* merely announced "I have found another plant of 'Janet' instead of saying "I have found a new heather; I shall call it 'Aunt Agatha'." Almost every possible colour form of *E. cinerea* from white to mid-night purple has been given a cultivar name (in some cases several names for the same identical colour). It is most unlikely that anyone will find a new colour form which has not been already named. It would be a great help to everyone if, instead of adding to the bewilderingly long list of named heathers, we could find some way of reducing the number of names which have already been given.

Annual Conference, Cartrefle College, Wrexham , September 1984

D. J. Small, Creeting St Mary, Suffolk.

On Friday 7th September, around 50 people converged on Wrexham for this year's Conference. They came from far and wide. Mrs Petterssen loves the Conference so much, that she regularly travels from Norway for the event; the McCrindles travelled from Perth.

Over dinner, many old aquaintances were re-united and many members attending for the first time were made welcome.

After the opening address our Chairman, Maj.-Gen. Turpin introduced John Dale from the Institute of Terrestrial Ecology, Bangor, who entitled his talk "Arctic-Alpine Flora in North Wales". As has become traditional in the opening talk at the Conference, John Dale gave an introduction to the area, indicating the areas where wild heathers can be seen in abundance. Heather is not dominant in Snowdonia due to the heavy grazing by sheep, rather than being managed for grouse. Mr Dale then gave an account of the types of plants that would be seen if one walked to the top of some of the peaks in Snowdonia. The volcanic rocks of the region weather in different ways. The hard volcanic rocks provide a poor soil and it is on these soils that heathers can be found.

The soft pumice tuffs as they are sometimes called, weather to a good rich soil which contains earthworms even at high altitude. 26 alpine species are to be found in Snowdonia, pride of place going to the Snowdon Lily, *Lloydia serotina*, which has grass-like leaves, serving as camouflage, except when in flower. Another plant that raised some interest, was *Juniperus communis* ssp. *nana*, a prostrate and very slow growing juniper, which retains this habit when transferred to the garden.

On Saturday morning, Bert Jones caught many of us asleep with his first slide, saying "Of course you all know which species this is, don't you?" A stunned silence ensued. Bert had, in fact, shown a close-up of the umbel of *Erica tetralix.* It became obvious as Bert's talk unfolded, that the stunned silence was more due to his superb photomicrography and seeing heathers from an unusual angle than to the deep technical content of his talk.

He outlined various aspects of heather flowers, umbels, racemes, style, anthers, calyx etc. in order that he could explain the differences between *E. tetralix* and its hybrids. For the record, *E.* x *watsonii* has tiny tails on its anthers, whereas *E. tetralix* has large tails and *E. ciliaris,* no tails, *E.* x *stuartii* has a few hairs on its capsule, whereas *E. tetralix* has many and *E. mackiana* has none. *E.* x *williamsii* has a few hairs on its calyx and divided anther lobes, also a slightly hairy capsule, whereas *E. tetralix* has a very hairy calyx and *E. vagans* has a smooth capsule and divided anther lobes.

Bert then outlined some of the work he has done on pollen fertility, using Alexander's stain. This stain colours fertile pollen purple, leaving unfertile pollen with a faint green colour. He has found all hybrids to be almost totally male sterile, i.e. pollen sterile, and that *E.* x *watsonii* is probably female sterile too.

Mr. Ruane of Brynhyfryd Nursery near Oswestry, then gave an illustrated account of how he created, 10 years ago, a heather garden and nursery on a Welsh hillside at 1000 feet on gravelly clay. Mr. Ruane made several observations on which cultivars did well with him; worthy of mention are the Callunas 'Multicolor', 'Peter Sparkes', 'Sunset' and 'Wickwar Flame', *E. cinerea* 'Stephen Davis', *E. carnea* 'Adrienne Duncan' and the old favourite *E.* x *darleyensis* 'Arthur Johnson'. There were a few that he was not so keen

on; among them were the cinereas 'Eden Valley' and 'Duncan Fraser', *Calluna* 'Firefly' and, rather surprisingly, *E. vagans* 'Valerie Proudley'.

After coffee, we all lined up for the Conference photograph on the steps of Cartrefle College and then dashed off to catch the coach for Bodnant. We travelled via the coast road and notwithstanding traffic delays, arrived on time at Bodnant. The weather was kind to us and we were able to have a leisurely picnic lunch on the grassy slopes outside the gardens. The garden, developed since 1875, is now superintended for the National Trust by the present Lord Aberconway and managed by Martin Puddle, who met us on the lawn just below the house. He gave us a brief history of the gardens and then left us to roam around, soaking up the delights of the beautiful gardens. One of the main features of Bodnant is a series of large terraces leading down the hill from the house. One large terraced lawn holds two great cedars and a formal pool, below there is a paved rose-walk and below again, a formal garden containing Pin Mill, built in 1730? and moved to Bodnant some 200 years later. The other major feature is the Dell, a magnificent defile with rushing water and many superb specimen trees planted from 1876 onwards. These include *Abies grandis, Picea brewerana, Sequoiadendron giganteum, S. sempervirens* and many species from the Southern hemisphere.

After an exhausting day, we boarded the coach, which travelled back to Wrexham via the Horseshoe Pass where we were rewarded by really magnificent displays of wild *Calluna* in the low afternoon sun.

That evening, we had an open forum, covering a wide range of topics from composts for growing-on rooted cuttings to a suggestion that we should have a simple botanical article in the *Year Book* (I knew we had not heard the last of Bert's talk!).

After the A.G.M. on Sunday morning, it was time to board the coach for a delightful trip through the Welsh border countryside to Mr. Ruane's nursery. We approached it down a very narrow lane, just wide enough for the coach. On rounding a bend in the road, we were greeted by a splash of gold and yellow on the hillside. We had arrived. We spent about two hours wandering around the garden, which was

immaculately kept — not a weed in sight. The heathers all seemed to thrive, with the exception of *E. vagans* 'Valerie Proudley', which apparently was damaged each winter and spent the rest of the year recovering. Near the house, situated at the top of the hill, the heathers gave way to alpines, growing in rocky outcrops. Narrow paths weaved in and out of this part of the garden and passed a pond, the only level part of the garden.

Having loaded the boot with boxes upon boxes of heathers and alpines, we boarded the coach (which had to go four miles further on to turn round!) for Ness Gardens. As we had over-run our time at Mr. Ruane's nursery, most of us ate our packed lunches on the coach so that we could make the most of our stay at Ness.

We were met by Mr. Hume, the Director of Ness, who gave us a conducted tour of the gardens. Just as we were approaching the heather gardens, the heavens opened and we returned to the lecture hall to continue the tour on slides! After a brief interlude, when an inspection of the heather garden was possible, we returned to the lecture hall to hear Mr. Cunningham, a member of the staff at Ness, give a talk on "A wider view of Ericaceae", which concentrated in particular on the extensive genus *Rhododendron.*

After dinner that evening, we were treated to a fascinating talk by Dr. John Griffiths on "Some experiments in the hybridisation of hardy heathers"; a technical subject which held the interest of all in the audience. He had demonstrated that it was possible to cross *E. carnea* and *E. erigena* both ways, i.e. either species could act as the seed parent. He had also crossed *E. vagans* 'Lyonesse' with *E. tetralix* 'Melbury White' in the hope that he could produce a white-flowered *E.* x *williamsii*. He tantalised us by showing a dwarf and slow growing plant, yet to flower, from this cross.

John Griffiths's work is far too comprehensive to report here; suffice it to say that in keeping with his own request, many of us went away from this year's conference, determined to have a go at hybridisation.

Finally, the Chairman formally closed a conference which will be long remembered.

The Annual Pilgrimage

A. J. Stow, Flackwell Heath, Bucks.

A pilgrimage is normally a journey to a specific place, but in The Heather Society this place changes yearly. The venue is decided by Council and, at the appointed time and place, members gather from far and wide to pay homage to The Heath and The Heather.

I joined the Society some twenty odd years ago and believe that the most significant development has been the advent of the Annual Conference. It has enabled my wife and me to meet and enjoy the friendship of many members.

We remember the first Conference at Grantley Hall so well, even though it did take place fourteen years ago. It was the first time we had met the organiser, the Vice-President John Ardron, who did so much to foster interest in our plants in the Sheffield area and in promoting the Heather Trials at Harlow Car. He did not always see eye to eye with the Council in London, but enlivened many an AGM in the early days. However I remember him most for his views on the mosaic planting of heathers. Unlike the usually recommended method of planting in groups, he appreciated that not all gardens were large enough to accept bold plantings and he was not averse to planting single specimens of various cultivars in the bed, which to my eye still gave a pleasing effect.

Fred Chapple was also at Grantley, a quiet unassuming man. His book *The Heather Garden* is still my bible. Horticulture has progressed so much in recent years with the introduction of expanded volcanic rock, resin-coated fertilisers, modern greenhouse equipment and poly tunnels, that it is soothing to glance through his book from time to time and savour the more gentle pace of life.

In May of 1969 Jack London had brought him to our garden. He signed my copy of his book with a wry grin and gently chided me for not having bought the latest edition!

Constance MacLeod, who did so much for the Society in the early days, turned to me as the week-end was drawing to a close with a visit to Harlow Car and asked whether I would write an account of the Conference. I was honoured, flattered and panic-striken! If only I had been warned beforehand; I had taken no notes. However I coped. The editor, P. S.

Patrick did not find too much fault and it appeared in the 1972 edition of the *Year Book.*

Some years later I myself followed in Pat's footsteps and became editor and it seems appropriate that I take this opportunity of thanking Constance for all her assistance I needed and received during my term in office.

At Westerham House a year later, the only Conference so far to be held in the Spring, Jack Platt emerged as perhaps the most prolific grower of new cultivars. He grows them all, but is most ruthless in discarding them as quickly as they are obtained if they do not meet his exacting standards.

The following year Dartington Hall was the delightful setting for the annual meeting of enthusiasts. No one who was there will readily forget the evening that Terry Underhill guided us through the grounds, passing the Main Hall where a concert was taking place. To hear the orchestra through the open windows in such an idyllic setting was for those brief moments, delightful

I remember Dartington also for a visit to a garden that had Daboecias waist high and as much across. I have not come across Daboecias so luxuriant and floriferous before or since.

In 1975 we travelled to Farnham having missed the Stirling Conference. There had been a long hot Summer which helped towards the great drought of 1976. However that weekend the heavens opened and apart from dodging the rain pouring through various parts of the building we were residing in for the Conference, I remember Molly Boxall's most delightful and amusing talk on flower arranging with the emphasis on heathers.

The following year her husband Bernard broke new ground by instructing us in the art of preparing our own labels to withstand the attentions of birds, cats and the weather. The real highlight of the weekend which was at The National Park Study Centre in Snowdonia was the dramatic unveiling by Harold Street to an unsuspecting world of the double white *Calluna* 'My Dream'.

After missing Norfolk, we travelled to Losehill Hall in Derbyshire in 1978 for a Conference organised by John Ardron, but due to his untimely death was left to Peter Vickers to ensure all went well. My most vivid reminder of

that weekend was the audio/visual presentation of Derbyshire by the field lecturer to the background of Beethoven's Pastoral Symphony. Absolutely superb.

On to Weymouth in 1979 where I saw for the first time the heather beetle on Hartland Moor. I was pleased that I had seen it, if only from the educational viewpoint, although saddened at the effect on parts of the moor itself. I later learnt that plants affected do regenerate growth. Weymouth will also be remembered for a most instructive and interesting talk by David McClintock on preparing plants as herbarium specimens. Mrs Metheny, our Vice President from the U.S.A., was also there and informed us of the delight of heather growing in America.

In Edinburgh the following year we met Eileen Petterssen from Norway making her first visit to a Conference; I also met a Lord (Haddington) in his gardens at Tyninghame and was overwhelmed by the diversity and quality of plant life in the Botanic Gardens, but most of all Edinburgh will be remembered for the superb food supplied by Queen Margaret's College!

It was two years before we met our friends again, this time in Lancaster University where we met Stuart Fraser from America, enjoyed the beauty of Lakeland and listened to David McClintock describe his visit to Spain with Charles Nelson and David Small. The most amazing aspect to my mind was that David Small had fitted out his vehicle with a mini mist propagator connected to the cigar lighter and some cuttings had already rooted on their return home.

In 1983 Falmouth was the venue and for me it was the first time I had seen *Erica vagans* growing wild and our visit to The Lizard and Kynance Cove was most impressive.

Wrexham in 1984 was notable for the visits to Bodnant and Ness Gardens and also for a couple of interesting talks by Bert Jones and John Griffiths on hybridisation coupled with some excellent photography. I listened however with mixed feelings. For me the attraction of heaths and heather is that unlike roses, carnations and the like, new cultivars and hybrids have occurred naturally and not by human endeavour. No doubt though that I would be near the front of the queue if a startling new variety was produced!

At the end of the Conference one member said to me, "This has been a GOOD Conference". How true. For those

members who have not yet attended one may I quote from an article by Eileen Petterssen in the 1983 *Year Book*. 'Arriving as a newcomer you leave as one of the gang'.

Kurt Kramer's New Carneas

David McClintock, Platt, Kent.

Kurt Kramer of Edewecht-Süddorf in NW Germany, who had been a *Calluna* specialist, has lately gone in for Ericas as well. In addition to being a skilled propagator, he is a brilliant photographer and a scholarly investigator of heathers, down to their fine details, which he also photographs: and he hybridises them. Various people have tried this before, with no, or negligible, success, but he has evolved a simple technique (also of knowing when the seeds are ripe) and has succeeded in a big way.

In 1981 he put pollen from numerous other carneas on to 'Myretoun Ruby'. In October 1982 he planted out in three long rows about 5,000 of the resultant seedlings. On 28/29 August 1983 I saw these rows and was amazed at the variation — some plants dark, some light, some with coloured foliage, some compact, some spreading, some erect, some small, some large and all full of health and promise. A return trip to see them in flower promised a treat.

So, on 23/24 March 1984, there I was back again, this time with Hugh Nicholson and our wives, and we found much more than a treat, an astonishing flowing tapestry of bewildering variety, all the plants fine, practically no two alike, or like any we have already, even though already reduced to rather over 2,000. In addition to the variation showing six months earlier, the flower colours ranged from white and palest pink to rich crimson, and pinks or salmon colour. Some had started to flower in December, and were still quite fresh, some were still in bud. The buds were often of particular allure, the calyx and pedicels making an excellent, 'Domino' - like, dark contrast especially to paler flowers. One could have written pages of flowing descriptions of individual plants if one had had the hours to make the notes!

Nor were these all. Kurt had also crossed 'Springwood White' with 'Snow Queen' and in pots in close rows were 115

of these seedlings, which had also been pricked out in October 1982. Some approached one parent, some the other, but most were vigorous intermediates. *Erica* x *darleyensis*, with its *erigena* genes, is not reliably hardy in Germany and it is hoped these lusty plants may replace the white, even 'White Perfection', which it is generally agreed is the best. 'Golden Starlet' is the name he has given to 'Foxhollow' x 'Snow Queen': no other names have been given. He is also doing some inbreeding, trying to get pure lines from seed, currently with 'Myretoun Ruby'.

All in all, he has opened a new epoch in carneas. Pity him having to choose which to propagate from this wealth.

He has also crossed some erigenas with 'Myretoun Ruby'. Seedlings from it as mother plant to 'W T Rackliff' were green, while those of the reciprocal cross were yellow. With 'Brightness' as the other parent, the foliage was dark and the flowers bright crimson. This had just started flowering, and we took a floret to test its pollen under the microscope, which, since it was almost entirely shrivelled proved it was a successful cross. Even if these may not do well in Germany, they should be welcome here.

There is plenty more going on there, almost too much, an embarras de richesses. We should be proud of our able and enterprising member.

Some Efforts at Hybridisation of South African Ericas.

J. E. Crewe-Brown, Randburg, Transvaal.

About two years ago my brother, a retired medical practitioner, visiting me, was busy examining an *Erica* blossom in my garden when he was surprised to hear a youthful voice behind him saying, "What are you doing doctor — are you hybridising? He was more surprised when he turned to see who had spoken to him. It was seven-year-old Xelani, a bright-eyed Zulu boy who had been born and grown up on our smallholding. Xelani continued, "Because if you do not know how to do it, I can show you!" My brother, really intrigued, asked Xelani to do so. And he did. And so whatever the merits of my methods are, I have at least one faithful exponent of them!

The question has been raised why one should want to

hybridise South African ericas when there are over six hundred known species covering a wide range of colour, shape, size and other characteristics. The main reason would seem to be that many ericas do not prosper readily in any given locality. They appear to be too attached to their own habitats.

My own inclination has always been to favour ericas that do well naturally in any particular circumstances and not those which require special treatment. Ericas are, after all, wild flowers and as such have a history of being able to take care of themselves.

In cases where two ericas from different habitats do not grow well in each other's habitats, their offspring might do so in either area: the only way to find out is to cross them and experiment with the hybrids which emerge.

Another reason would appear to be that a particular cross couldn't have occurred before in the wild because of the distance between the habitats of the parent species. Such a cross offers unknown and therefore interesting possibilities.

We have confined our hybridisation to those species (or hybrids) which produce a flower in tubular form, because in this case it is a simple procedure to collect pollen and transfer it to a stigma. Where flowers are small, such as in the case of *Erica canaliculata*, the collection of pollen and the transfer thereof to a stigma is more intricate.

In collecting pollen we are in competition with the bees and I am glad to say that although the African bee has a reputation for being fierce, we have often had them buzzing around us while pollinating and never been stung. The bees are active from about sunrise and to collect pollen for hybridising you must be out early. On overcast and cold days they tend to be sluggish and so you have more time.

We do not use a brush to transfer pollen but the tip of a finger. It is easier to see whether or not the pollen has been caught by the stigma and to ensure that pollen from one flower does not become mixed with that from another. The flower that is to receive pollen is used at the stage just before it ceases to be a bud, i.e. a short while before it opens and allows the bees to rob the anthers. Petals and anthers are removed and the pollen is placed on the stigma which should be shiny and sticky.

A discarded nylon stocking is useful here. A section is cut to size and the ends secured with string. We do not always cover the hybridised flower immediately, but sometimes wait for a day or two so that several flowers can be protected with one covering. The covering is left on the hybridised flower head for several weeks and in due course collects the seed which was the object of the exercise. This covering together with the tag which was completed at the time of hybridising giving details of the cross, including the date it was effected, is stored in a paper envelope until planting time.

In May this year we planted seed of several crosses which was four years old. Germination was possibly ten per cent. With fresh seed germination is usually good.

It would be a happy situation if one could raise an outstanding *Erica* from hybridisation and then perpetuate it by vegetative means — by budding or striking cuttings as is done with roses. But raising ericas by vegetative means in South Africa has not for a number of reasons, become, as far as I know, regular practice. So we grow from seed and this gives much variety, for the simple reason that two parents are always involved and only where the parents are the same species, is uniformity certain.

Numbers of the ericas we have raised have been species or their hybrids. The average garden lover, even if keen on ericas, is not particularly concerned with names. A plant that is hardy is what is wanted. A preference for a particular flower shape or colour may be stressed.

In our breeding programme we have used varieties which we have found do well on the Witwatersrand. But there are probably many others which should do equally well. No ericas are indigenous to these parts. Species which have done well here are *bauera*, *canaliculata, cerinthoides, glandulosa, versicolor* and *vestita,* and from these we have raised most of our hybrids. Not one of these has been named. Most of them are growing in gardens round about, if they have survived the drought.

While the drought did not seriously affect mature ericas growing in our garden, our stock of young plants succumbed in a big way. We have virtually got to start again from the beginning. Even where we were able to water the plants in packets, it seemed the atmosphere was not at all to their

liking, for they withered and died inexplicably.

One of our most promising hybrids at the present time is a cross between *cerinthoides* and *cerunthoides* var. *barbertona.* It makes viable seed, not always the case with hybrids, and we are hoping that by pollinating it with its own pollen for two or more *Erica* generations we may achieve some consistency with future seedlings. We are following a similar programme with a hybrid of *versicolor* which is an attractive light pink. In both instances, the flowers are tubular, measure approximately one and a half inches in length and the plants reach a height of some four feet. In the *cerinthoides* cross, the flowers are bright red and appear in large numbers. Needless to say, the flowering plant is eye-catching.

There appear to be exciting possibilities for the hybridising of our *Erica* here in their homeland. This is an enticing prospect for gardening enthusiasts, specially those who have youth on their side. From date of hybridising to the first blooming of the resultant cross takes about three years when climate is normal. Thus rather a long time is involved if you want to pursue a line of breeding through two or three generations.

The drought which we have experienced over the last two years has made many gardeners increasingly interested in indigenous plants, especially those which can survive in periods of low rainfall. Although ericas are often referred to as moisture-loving plants, many of the species do survive serious droughts, as European species have done here in our garden. Clearly there is a firm place here for ericas in present climatic circumstances.

South African ericas appeal to many of our gardeners, which makes it most surprising that so little is done in the field of breeding for new and attractive forms of this splendid genus.

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Hybridisation of the Hardy Ericas

John Griffiths, Garforth, Yorkshire

The various European species of *Erica* are remarkable for their apparent reluctance to hybridise between species (i.e. interspecific hybridisation, as opposed to infraspecific hybridisation, the latter corresponding to the crossing of

different forms of the same species). For example, there are approximately 18 different species (the exact number being a subject of some dispute), which could potentially give rise to 306 different hybrid combinations, and yet at the present time only five such hybrids are known. This is even more curious in view of the fact that other genera of the Ericaceae appear to hybridise with gay abandon, as for example with the rhododendrons, the gaultherias and the pernettyas. It is even more intriguing that the parentage of *E.* x *darleyensis* alone has been conclusively proved by deliberate crossing experiments, and we have to rely on deductive botanical analysis in order to establish the assumed parentage of the other hybrids. However, in the case of *E.* x *stuartii*, Professor D. A. Webb obtained viable seed by pollinating *E. tetralix* with pollen from *E. mackaiana* (1).
Unfortunately the resulting seedlings perished before flowering (2), thus denying him conclusive proof that they were the hybrid.

It was against this background of rather negative data that I first became interested in the possibilities of producing new hybrids artificially, and the pioneer work of Mrs. Parris with the *E.* x *darleyensis* hybrid, reported in the *Year Book* in 1976, 1977, 1978 and 1980, provided the necessary impetus for me to embark on this work. Although my experiments began in 1981 and will hopefully continue for some time to come, at the present time results are rather patchy and inconclusive. This is partly due to my own incompetence and the slow development of good techniques, and partly due to the necessarily long time scale of such experiments. A hybrid can only be confirmed unequivocally after it has flowered, and it seems that the time a seedling takes to reach flowering age is in direct proportion to the impatience of the hybridiser awaiting the first flower. Thus three years or more might elapse before a positive, or more likely a negative, result can be confirmed. It was with more than a little reluctance therefore that I agreed to deliver a talk on my work at the Wrexham Conference, as I felt my results to be rather minimal. However, I was assured that fellow heather enthusiasts would be interested to know what I had been doing these past four years, and this certainly seemed to be the case. This paper is largely intended, therefore, to provide a general background to *Erica* hybrids as the situation

existed in 1980, to discuss work that has been carried out since then by myself and others, and also to summarise suitable techniques for hybridisation. As I have indicated, my own results are as yet inconclusive and I merely present the facts without making any claims as to hybrid character. If and when any of my plants are confirmed as hybrids at some future date, the experimental details will be presented in full in the *Year Book* of the Society. At present my main ambition is to perhaps encourage others to take up this fascinating, challenging, and exasperating hobby. If this article succeeds in persuading only one reader to join me, I shall feel that all my efforts to date have been well worthwhile.

The Five Known Hybrids — and a Few Red Herrings

A maximum of 18 European species have been recorded, and in alphabetical order these are : *E. andevalensis, arborea, australis, carnea, ciliaris, cinerea, erigena, lusitanica, maderensis, mackaiana, manipuliflora, multiflora, scoparia, sicula, terminalis, tetralix, umbellata* and *vagans.* The specific status of *E. andevalensis* is uncertain (3); *E. maderensis* was originally called a variety and is not strictly European; *E. sicula* may be extinct in Europe and the distinctions in the *vagans, manipuliflora* group need clarification. Of the five known hybrids, four probably occur in nature and two have arisen in cultivation. All provide valuable additions to the garden-worthy ericas, contributing their own special characteristics to the heather garden.

The first hybrid to be discovered was *E.* x *watsonii,* for which *E. tetralix* and *E. ciliaris* must be the parents (which is the pollen, and which the seed parent is, however, unknown). This hybrid was found by H. C. Watson near Truro, Cornwall, in 1831, and the original form, much later, given the clonal name 'Truro' by David McClintock. The parents grow together in that locality, and also in Dorset, where other forms (e.g. 'Dawn', 'F. White' etc.) have since been found.

The second hybrid found was *E.* x *stuartii* (*E.* x *praegeri*), discovered in Ireland by J. T. Mackay in 1846, but named only in 1902. In this case the accepted parentage is a cross between the similar species *E. tetralix* and *E.*

mackaiana. The original form is now known as 'Connemara', and other forms have been found since. Noteworthy is a very unusual form 'Stuartii', found once only in 1890, which did much to confuse the nomenclature of this hybrid (4).

The next of the "natural" hybrids is *E.* x *williamsii,* which is also the rarest of our native heaths. All the few forms that have been found occurred in the Lizard area of Cornwall, the first being noted by R. Davey in 1860 near St. Keverne. The hybrid, with the assumed parents being *E. tetralix* and *E. vagans,* was not brought to the attention of botanists until 1909, when P. D. Williams, a nephew of the original discoverer, found the hybrid again. The hybrid binomial was given in 1911 by Dr. G. C. Druce, and in 1965 Williams's clone was given the cultivar name 'P. D. Williams' by David McClintock.

The remaining two hybrids arose spontaneously in cultivation as seedlings. *E.* x *veitchii* is generally accepted to be a hybrid between *E. arborea* and *E. lusitanica*, and appeared in the Exeter nurseries of R. Veitch and Sons before 1900. It was this plant that W. J. Bean described and gave its formal binomial in 1905. The clonal name 'Exeter' was assigned by David McClintock in 1969. However, it is probable that this hybrid was found in the wild before 1890 (5). In 1979 General Turpin investigated two assumed cultivars of *E . arborea* ('Pink Joy' and 'Gold Tips') and reassigned them to *E.* x *veitchii* (6). In so far as 'Pink Joy' was known to be raised from seed of a plant of *E. arborea,* this then became another hybrid for which the seed and pollen species were known.

One could not reasonably expect to find our fifth and last hybrid growing in the wild, for the parents of *E.* x *darleyensis* grow nowhere together in nature. The parentage of this hybrid was deduced to be *E. carnea* x *E. erigena,* and this has been confirmed by deliberate hybridisation. The original plant ('Darley Dale') arose as a chance seedling in the nurseries of James Smith and Son at Darley Dale in Derbyshire some time near the end of the last century, and was formally named by Bean in 1914. Today several valuable forms are available, including white-flowered and golden-foliage variants.

The pioneer of heather hybridisation was Mrs. Anne Parris, formerly of Usk, Gwent, and it was in 1972 that she made her first experiments with *E. carnea* 'Springwood Pink', *E. erigena* 'W. T. Rackliff' and 'Brightness' as parents. The procedure was rather crude, but effective, and involved tying together flowering branches of 'Springwood Pink' with the appropriate *E. erigena* parent, and protecting them with a bag. Seed was obtained from the *E. erigena* parents in both cases, but none from the *E. carnea.* The seed subsequently germinated and provided a small number of plants which proved to be typical *E.* x *darleyensis* hybrids. The results of these and later experiments with the same hybrid were reported in 1976, 1977, 1978, and 1980 *Year Book of the Heather Society* (7). In 1981 the German heather specialist Kurt Kramer, of Süddorf, began a series of careful experiments also on the *E.* x *darleyensis* hybrid, in which the pollen parent was this time *E. erigena.* His procedure involved isolating the approriate pollen and applying this to flowers of the female parent, ensuring as rigorously as possible that contamination of the flowers with other pollen before and after his pollination was prevented (8). Several hybrid plants were obtained, with the following parentages (citing the female parent first) : *E. carnea* 'Snow Queen' x *E. erigena* 'W. T. Rackliff', *E. carnea* 'Myretoun Ruby' x *E. erigena* 'W. T. Rackliff' and *E. carnea* 'Myretoun Ruby' x *E. erigena* 'Brightness'. In 1983, Herr Kramer succeeded in crossing *E. erigena* 'W. T. Rackliff' with 'Myretoun Ruby', in this case the *E. carnea* species acting as the pollen parent. We now know that the *E.* x *darleyensis* hybrid can be produced in both directions, that is, the pollen and seed parents can be reversed. Unfortunately we do not know which was which for the original 'Darley Dale', and we may never do so if the hybrids that result from the crosses in the two directions prove to be indistinguishable.

The *E.* x *darleyensis* hybrid system has intrigued another heather enthusiast, and it was in 1982 that H. M. J. Blum, the gardener responsible for creating the extensive heather garden at Steenwijkerwold, Holland, succeeded in carrying out the crosses in both directions between *E. erigena* 'Golden Lady' and *E. carnea* 'Myretoun Ruby', and also between *E. carnea* 'Foxhollow' (pollen parent) and *E.*

ergiena 'Brightness' (seed parent) (9). At present he has seedlings showing a broad range of foliage colours, from gold to dark green, but it will be some time before the garden value of these plants can be assessed fully. Thus it seems that the *E.* x *darleyensis* system has been well studied, and in fact it is the only *Erica* hybrid system, excluding Cape heaths, for which we have any definite evidence.

It is interesting to consider some other hybrids that have been claimed from time to time, all of which have proved to be "red herrings" and are no longer credited as hybrids by botanists. One of the earliest of these was *E.* x *pickardi* F. A. Lees (an unpublished name), collected near Falmouth in 1898, which was claimed to be hybrid between *E. cinerea* and *E. vagans.* David McClintock has examined the original herbarium specimen and in the 1965 *Year Book* he informed us that the plant showed no hybrid character and had the attributes of pure *E. cinerea* (10). Mention has also been made in the botanical literature of the occurrence of a hybrid between *E. tetralix* and *E. cinerea* (11), but this was almost certainly an erroneous reference to the *E. tetralix* x *E. ciliaris* hybrid (9).

The name *E.* x *lazaroana* was published in 1946 for a presumed hybrid between *E. arborea* and *E. umbellata* (13), but nothing else is known about this plant, and there have been suggestions that it was probably a form of *E. umbellata* (12). Another intriguing hybrid about which little is known is a presumed cross between *E. cinerea* and *E. terminalis*, seedlings of which are mentioned by Arends in his book, published in 1951 (14). Unfortunately he says that they were lost in a particularly hard winter, so the validity of this claim cannot be tested. However, it would certainly be worthwhile to attempt such a cross again.

A particularly unusual hybrid parentage was claimed by Brigadier J. M. J. Evans in 1957 for 'Wishanger Pink'. He believed that this arose from the crossing of *E.* x *darleyensis* and *E. australis*, making it a triple hybrid. Such a cross is very unlikely in view of the male sterility of *E.* x *darleyensis* (15), and it was probably a form of *E. australis.* This heather, which has been discussed in detail by Brickell and McClintock (16), has regrettably been lost to cultivation.

An even more unusual hybrid parentage was proposed for the various forms of *E. cinerea* with split corollas, a

characteristic which tends to suggest a superficial resemblance to *Calluna vulgaris.* Dr. G. Krüssman, following ideas of Chapple and others, suggested that such plants were intergeneric hybrids between *E. cinerea* and *Calluna*, erecting the hybrid genus x *Ericalluna* (17). It is now universally accepted, however, that these plants are indeed merely abnormal forms of *E. cinerea* (*E. c.* var. *schizopetala*).

We can see then that the evidence for interspecific hybrids other than the "gang of five" is scant to say the least. The field for experimentation is thus wide open to anyone interested in establishing new hybrids of our hardy heathers. In the next section I will review briefly suitable techniques for such experiments.

Theory into practice

When one reads the various books on plant breeding, the technique of hybridisation seems attractively simple. And indeed it is — if you are working with flowers the size of an old halfpenny piece or larger.

No one seems to have any advice to offer for flowers as small as those of our heathers, and if anyone cares to try to remove the anthers from a heather flower with a pair of scissors without all but annihilating the flower they will soon realise why such advice is rather scarce. Clearly the methods long found suitable for rhododendrons, fuchsias and the like are of little value here. The methods I shall outline are by no means ideal, and are offered principally as a suggestion. There is ample scope for those with greater ingenuity or dexterity than I to improve the suggested techniques, and I hope that others might be able to develop improved methods and pass these on to fellow hobbyists.

The important steps in heather hybridising may be listed as follows :

(1) collect the chosen pollen; (2) store the pollen without loss of viability, if storage is necessary (for example if the two species chosen flower at different times of the year); (3) obtain flowers of the chosen seed parent which have not been pollinated by other sources; (4) transfer the pollen to the clean, receptive stigmas; (5) protect the treated flowers from subsequent unwanted pollination; (6) collect the seed (if one is lucky enough to have a cross that has worked); (7) ger-

minate the seed and (8) raise the plants.

Pollen collection is relatively simple if one waits until the flowers are ready to give up their pollen, which can only be found by trial and error. If one holds the flowers close to the surface of a clean glass plate and agitates them with a pin or needle, the pollen will fall onto the plate where it can easily be seen. Only a small amount is needed for each experiment, and one such extraction will be more than sufficient in most cases. However, some species give very little pollen. Even within a species pollen yields will vary from cultivar to cultivar. All forms of *E. cinerea* for example are very poor providers, apparently because the pollen is released as soon as the buds open. *Erica tetralix* is better, but is nowhere nearly as prolific as *E. carnea, erigena, ciliaris* and *vagans. E. tetralix* 'Alba Mollis' has never yielded any pollen for me, although it readily sets seeds. For storage purposes, larger quantities are needed, and a good method is to use a long glass tube into which flowering stems are inserted and agitated vigorously. *E. carnea* and *E. erigena* give copious amounts of pollen in this way.

Although it is always best to use the pollen as soon as it is collected, sometimes storage is essential. It appears that cold, dry conditions are best for this, although definitive experiments need to be carried out to establish the ideal conditions for each species. One method that has succeeded with *E. carnea* and *E. erigena* is to dry the pollen over anhydrous calcium chloride and to seal it in a bottle which is then kept in the refrigerator at a temperature just above freezing point.

One should choose the flowers to be pollinated some days in advance, selecting a cluster on one stem which is not quite open, that is the stigmas are still sealed in the flower bud. The stem is then inserted into a fine nylon mesh tube, approximately 2 inches in diameter and 4 inches long, sealed at one end. Net curtain material seems to be ideal for the purpose, as it is open enough to give the flowers light and air, but fine enough to keep out all but the smallest of insects. The tube is then sealed to stem by a loop of wire. After a few days the flowers will have opened and the stigmas will be clearly visible. To apply the pollen one should fashion a small pointed stick out of some plastic material, preferably black, and rub this on a piece of cloth. On touching the pollen with this, one

will find that the static charge will cause the pollen to adhere firmly to the point. The pollen is then readily transferred to the sticky tip of the stigma, the dark colour of the stick enabling the pollen to be seen clearly. After a little practice one will find the whole operation very simple, and it can be carried out rapidly without disturbing the pollen in the anthers of the mother flower. Ideally of course one should first remove the anthers, but this is extremely difficult with heather flowers, and more often than not results in contamination of the stigma with the pollen that one is trying to remove.

Having pollinated the flowers, the mesh tube is then replaced and a label is attached to the stem with details of the pollen parent, date of pollination, and number of flowers treated. Make sure that the label is firmly attached and that the writing is not removed by the elements. There is nothing worse than finding a nice crop of seed on a plant when one has lost the label and has no idea which particular cross it is. Once the pollination has been carried out all one can then do is wait and let nature take its course. The pollen on the stigma has to germinate and produce a 'pollen tube' which penetrates down the stigma into the capsule at the base of the stigma. The male cells then enter the capsule where fertilisation occurs and the seeds develop. The ability of the pollen to germinate will depend on its viability, on the climatic conditions, and on the compatibility of the stigma with the pollen. It may be that the nature of the stigma of one species, for example the secretions which trap the pollen, will be unsuitable for the pollen of another species, and germination is inhibited. This is but one of many types of hybrid barrier that can prevent interspecific crossing. Another example of such a barrier would be if the female flower has a stigma that is too long for the maximum pollen tube length that the pollen can produce. There are approaches to overcoming some hybrid barriers, but as yet no definitive experiments with the heathers have been carried out. Leaving such complications aside, if the attempted cross is successful, then after a few weeks one will be able to detect a definite swelling of the capsule. If the cross has not taken, the capsule will shrink and in most cases the flower will drop off readily after fading. Although it is difficult to generalise about such matters, the time between pollination and when the capsules are ready to

shed their seeds (dehiscence) is usually of the order of 8 to 16 weeks. This applies to my rather cool garden in Yorkshire, and times may well be shorter in the South. I find that pollinations made in summer tend to take 8 weeks for seed development, whereas those made in early spring or late autumn (e.g. *E. carnea* and *E. manipuliflora* respectively) take longer. There does not seem to be a great deal of difference between the species otherwise.

The hybridiser is advised to watch seed development carefully and to collect the capsules when they are brown and just showing signs of splitting. It is far better to sow slightly immature seeds (this does not seem to affect germination rates) than to wait until they are fully mature, only to find that they have all been shed overnight. In some cases a cross may be only partly successful, and although the capsules swell slightly, so few seeds develop that there is no natural dehiscence. In such cases the capsules should be collected when brown and the seeds extracted forcibly with a needle. The most interesting crosses seem to give this sort of result, perhaps indicating that the hybrid barriers that exist are not totally effective.

I prefer to sow seeds as soon as possible after collecting, and this is most conveniently carried out in plastic margarine cartons (with drainage holes), as they can be sealed and stored in a cool place without risk of drying out. Contrary to popular belief, I find that germination occurs readily in sterilised compost, and this has the undoubted advantage of both minimising damping-off problems, and preventing the appearance of spurious seedlings. Provided the custodian of the kitchen is looking the other way, I find that a microwave oven is ideal for sterilising small amounts of compost rapidly and cleanly. A compost based largely on peat and perlite, with a little loam, gives good results.

Germination times are very difficult to generalise, and these are very much dependent on the species, the time of sowing, and the conditions under which the seeds are kept. For example, *E. carnea* and *E. erigena* seeds sown early in the year can often germinate in 8 -10 weeks, whereas seeds from other species formed in late summer do not usually germinate until after the following winter, when a total germination time of 15 - 30 weeks may result. In any case, if the

seeds do not germinate within 12 months of sowing they are almost certainly non-viable and can be discarded.

Once the seed has germinated the hard part then begins, namely waiting impatiently for two, three or more years for the first flowers, and the first proof that one has indeed produced a hybrid, or a perfect replica of the mother plant!

Some preliminary observations for hybridisation experiments 1981 - 1984

My attempts at hybridisation began very hesitantly in the early part of 1981, hampered as I was by the lack of guide lines for suitable techniques. Many of my early experiments provided large amounts of seed, all of which was carefully germinated and the seedlings duly raised. It was rather annoying therefore to find that the vast majority of the plants were pure species, and to make matters worse these were generally inferior to the cultivar that had played the role of seed parent. In these experiments I had not bothered to protect the flowers from the ministrations of bees, as I hoped that a combination of heavy artificial pollination together with the dearth of bees in my garden would have rendered such protection irrelevant. I have since found that there is no such thing as a dearth of bees in a garden; we simply do not see them unless we deliberately look for them! In my own garden I find that every open flower on a heather will be visited by one type of bee or another in a very short space of time; and I know of no beehives in the neighbourhood. I have even found that on removing the mesh protection from a cluster of flowers that have fully opened, I have had to forcibly keep bees away from them whilst I attempt to apply pollen, such is their desire to get at an untapped source of nectar. The moral then is, if you want to avoid raising a lot of nondescript, non-hybrid plants then protect the flowers at all times.

Having learned my lesson, I was then able to study more meaningfully the susceptibility or otherwise of the various species to hybridisation. As I have indicated earlier, it is too soon to make any claims about new hybrids so here I shall be more concerned with general observations about the behaviour of our more common *Erica* species. Anyone wishing to attempt his own experiments may find this information

helpful. For convenience I shall deal with each species in terms of its behaviour as a seed parent, and these will be discussed in alphabetical order.

Erica carnea

As found by other workers before me, *E. carnea* hybridises readily with various forms of *E. erigena*, and the seedlings are easily raised. Perhaps the most interesting of my attempts are the young plants from *E. carnea* 'December Red' as seed parent, and *E. erigena* 'Brightness' as pollen parent. The plants show a rather more erect habit at present than other forms of *E.* x *darleyensis,* particularly those in which *E. erigena* is the seed parent. It remains to be seen if this characteristic persists as the plants mature. Attempts to pollinate *E. carnea* with pollen from other species have so far proved unsuccessful.

Erica ciliaris

This species, at least in the case of 'Corfe Castle' and 'Mrs. C.H. Gill', has not proved to be an amenable seed parent, and several attempts to produce hybrids from these have failed. One possible exception is with *E. tetralix* pollen parent, and in 1984 seed was obtained in reasonable yields from Corfe Castle using careful protective methods and with 'Con Underwood' as pollen parent. If indeed this is hybrid seed, then this should provide examples of the *E.* x *watsonii* hybrids. Unfortunatelay we will not know at the earliest until 1987.

Erica cinerea

This is another reluctant seed parent for hybridising, and one of the main disadvantages of this species is that the flowers shed their pollen almost simultaneously with the opening of the buds. This means that it is difficult to find flowers with suitably clean stigmas for artificial pollination, even if one takes the trouble to protect unopened flowers. Using the

sparse flowers suitable for experiments, I have yet to find a pollen parent from another species which will give a good result, although a very small number of seeds from crosses with *E. ciliaris* 'Mrs. C. H. Gill' and *E. terminalis* 'Thelma Woolner' are awaiting germination.

Erica erigena

As expected, this species is readily fertilised with pollen from *E. carnea*, and various plants of *E.* x *darleyensis* are currently being raised, some of which have flowered and show typical hybrid characteristics. The cross between *E. erigena* 'Irish Dusk' and *E. carnea* 'Foxhollow' has proved interesting, in that the offspring show foliage colours ranging from dark green to pure gold. As also noted by Mr. Blum. the gene responsible for the gold foliage colour of Foxhollow can manifest itself in first generation hybrid offspring. Unfortunately the golden forms have yet to flower, so it is not possible to assess their garden-worthiness yet.

Erica manipuliflora

The particular clone that I used for my experiments had the advantage of very low self-fertility, (which in my experience is very rare among our hardy *Erica* cultivars), coupled with a high female fertility if suitably compatible pollen can be found. This is a very real advantage for the hybridiser, since it means that one need not worry about self-pollination giving spurious results, and all one has to ensure is that bees cannot gain access to the flowers. The plant is not totally self-sterile, and control experiments have shown that with deliberate heavy self-pollination only about one fifth of the flowers set any seed, and even then the amount of seed formed is very small, perhaps only two or three per flower. It was very interesting therefore to find that pollen from various forms of *Erica vagans* (notably 'Mrs. D. F. Maxwell', 'Lyonesse' and 'Valerie Proudley') consistently gave very high seed set, and the seed was invariably viable, giving vigorous seedlings. Several of these are currently being raised, but as yet hybrid character cannot be claimed with any certainty. However, it is noteworthy that those seedlings from the cross with

'Valerie Proudley' as parent show a fair proportion with golden foliage. A close affinity between *E. vagans* and *E. manipuliflora* has long been recognised, and successful hybridising of the two would not be too surprising.

Erica mackaiana

The forms of this species commonly grown in cultivation all originate form Ireland, and are noted for their general sterility. Certainly my own experiences with *E. mackaiana* have confirmed this, notably with an unnamed pink form (almost certainly 'Wm. M'Calla') and the white-flowered 'Dr. Ronald Gray'. Self-pollination and many attempted cross pollinations have failed to give any trace of seed from these two parents. In contrast, the Spanish forms of this species are stated to be fully fertile, and thus it would seem to be more worthwhile concentrating on these as seed parents. Although I now have pink and white forms of the Spanish *E. mackaiana* I have yet to carry out any such experiments, although these will have a high priority next season.

Erica terminalis

The form of this species that I grow is 'Thelma Woolner', and this is both a prolific producer of pollen and of self-pollinated seed. Consequently special care has to be taken with hybridisation experiments. To date I have only been able to raise selfed progeny from many attempts at interspecific hybridisation, but experiments continue and I have seed from the current season which awaits germination. Experiments with *E. terminalis* are of particular scientific interest because it is the only hardy heather that produces its pollen cells singly, other species having their cells in groups of four, or "tetrads".

Erica tetralix

The cross-leaved heath, *E. tetralix*, promises to be the most obliging of the ericas as far as hybridisation is concerned. It has always been suspected, but never proved, that this species is the seed parent for the hybrids *E.* x *stuartii, E.* x *williamsii* and *E.* x *watsonii*, and my own tentative experien-

ces with *E. tetralix* suggest that this species may very well play the female parent role in these crosses. If this is so, then it is clear that *E. tetralix* must have low hybrid barriers compared with other species. The high self-fertility of the species presents no real problems to the hybridiser, as the pollen is not shed until some time after bud opening, and it is a relatively easy matter to provide clean flowers for artificial pollination. Even more advantageous is the well known cultivar 'Alba Mollis', since this is fully female fertile and yet produces no pollen of its own. At least I have never been able to abstract a single grain of pollen from my own plants. This means that any seed set by this plant must arise from artificial pollination, provided adequate protection of the flowers from bees has been employed of course.

I have observed good seed set on various forms of *E. tetralix,* including 'Alba Mollis', using pollen from forms of *E. vagans* and *E. ciliaris.* The offspring, if true hybrids, will then correspond to *E.* x *williamsii* and *E.* x *watsonii* respectively. Seeds have also been obtained this season using pollen from Spanish *E. mackaiana*, which if successful should give *E.* x *stuartii.* However, no plants from any of these crosses have yet flowered and no claims as to hybrid character may yet be made. It is worth mentioning the characteristics of one set of seedlings, which at present are quite distinct from either of the parent plants. These serve to demonstrate that the hybridiser can always expect to have a few pleasant surprises. In September, 1981, protected flowers of *E. tetralix* 'Melbury White' were dusted with pollen from *E. vagans* 'Lyonesse'. Not only was it hoped that this might give for the first time an artificially produced *E.* x *williamsii* hybrid, but also that some of the offspring might have white flowers, since both parents are white forms. A white-flowered *E.* x *williamsii* is as yet unknown. Seeds were subsequently obtained, and these eventually germinated and the seedlings raised. The plants proved to be very slow growing, and by 1984 they were only a fraction of the size of plants of the parent species, which had also been grown from seed over the same period. The largest of the potential hybrids measured 2" high with a 4" diameter circular spread. All had very compact, mossy foliage, ranging from dark green to gold in colour, forming symmetrical domes. The leaves had typical *E.* x *williamsii* characteristics, quite distinct from those of

the two parents. We must of course wait for flowers, which unfortunatley have yet to materialise, before hybrid character can be confirmed, but many of the offspring are sufficiently distinctive to be worth cultivation for their foliage and form alone. At present one of these makes a very pleasant addition to a small rock garden.

Other interesting potential crosses have been obtained using 'Con Underwood' and 'Bartinney' as seed parents and *E. manipuliflora* as pollen parent. The young seedlings at present look quite distinct from *E. tetralix* seedlings of the same age, and resemble a vigorous *E.* x *williamsi.* This would not of course be too surprising in view of the close relationship between *E. manupuliflora* and *E. vagans* mentioned previously.

Some experiments with *E. tetralix* have proved rather tantalising, in that there is evidence of seed set, as shown by a slight swelling of the capsule, but the amount of seed formed, or its viability, is very low. This happens when the pollen comes from *E. carnea, erigena, cinerea and terminalis.* On the other hand, pollinations with *E. umbellata, lusitanica* and various Cape heaths have so far shown no signs of fertilisation. The partial success of some pollinations suggests that hybrid barriers are present, but these are not total. Such crosses should therefore be attempted under a wider range of conditions, and in large numbers, in order to offset these barriers. Future experiments will concentrate on these more problematical crosses.

Erica vagans

This species is a difficult one for the hybridiser because of the small size of the flowers and because of the high self-fertility of many of the cultivars. Various crosses have been attempted, but in all cases the resultant plants have proved to be pure *E. vagans*, always of inferior colour to the parent. One redeeming feature of this species is that it can reach flowering size in many cases within eighteen months of germinating, which does enable the hybridiser to find out that his carefully nurtured seedlings are of no interest without wasting too much time!

Conclusions

There is obviously a lot of very interesting work to be done on hybridising the various species of the European ericas, and my own efforts have barely scratched the surface. Hopefully others may join in this challenging field. Two cases for such experiments can be made. Firstly there is the satisfying of scientific curiosity, which can be a sufficient reason in itself for the academically minded. Secondly, there is the possibility of producing new distinctive plants of garden value, perhaps exhibiting characteristics not shown by existing heathers. One can think of many examples of the latter. White flowering forms of *E.* x *williamsii, watsonii* and *stuartii* are unknown, and the probability of these occurring naturally is extremely low because of the natural scarcity of white-flowered parent plants. Here the hybridiser can swing the balance in his favour by artificial pollination techniques. Heathers with extended flowering seasons can be envisaged, particularly where the parent species flower at appreciably different times of the year. It is interesting to speculate, for example, about the flowering period of a hybrid between *E. carnea* and *E. tetralix.* And finally there is perhaps the crowning objective — to introduce the incredible variety of flower form and colour of the tender Cape heaths into the hardy ericas. When we understand more about the hybrid barriers of our European species we should then be in a better position to approach this intriguing problem.

Acknowledgements

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Erica 'W. G. Pine'

David McClintock, Platt, Kent.

This elusive cultivar was briefly referred to in the last Year Book; but more can now be added.

D. F. Maxwell in his posthumous "English Heather Garden" completed by P S. Patrick, and published in 1966, wrote that this was the first of J W., Porter's x *darleyensis* seedlings "raised 23 years ago". (When did he write this? — Maxell died in 1963.) The original plant was "now" 14 ins by 4 ft with rosy-purple flowers and red-tipped young growth. Porter gave Maxwell a young plant.

But this cv never got into Maxwell & Beale's catalogue, nor had any trace of it been found anywhere. It was assumed lost.

Then, one time when I was abroad in late 1983, I was startled to find *E. erigena* 'W. G. Pine' listed in a catalogue of the excellent Boskoop firm of C. Esveld (which has since ceased to grow, but still lists, heathers). Mr. Dick van Gelderen, its proprietor, kindly and at great expense sent me a fine plant of it in December (and another to Mr. Foley so he could compare it with his also enigmatic 'C. J. Porter'), saying it was of course an *x darleyensis.* He had obtained it some time ago from one of the Capability Brown garden centres in S. England, but he could not remember which. (Could members who live near one at Ferndown, Liss, Eastleigh, Chessington, Horsham, Sidcup or Tunbridge Wells see if they still stock it, and if so where it came from?)

In March 1984 I was in the nursery of the Great German Experimental Station at Bad Zwischenahn, where they have an enormous number of heathers, and there under the pine branches they have there to protect their tenderer heathers in winter, was a bushy plant a foot or so high labelled 'W. G. Pine'. It was much browned by the winter weather, and had no flowers. It had come from Esveld.

My plant had fine 3" long racemes of bright H 1 flowers, which were succeeded by crimson young growth, much like 'J. W. Porter'. It could be Porter's plant.

From Heathland to Garden

P. L. Joyner, Totton, Southampton.

This article is intended as a beginners introduction to heathers. It is based on an article I wrote for a work's magazine, and forms the basis of a talk I give to local horticultural societies.

With few exceptions, those of you with an eye for beauty have undoubtedly stopped to marvel at the carpet of pinkish purple that stretches across the heath and moorlands of the British Isles at the height of summer. Well, this splendour need not be confined to nature, but can be brought into the garden, and can be extended all the year around with a suitable choice of the plants responsible — the heaths and the heather.

The plants referred to as heaths and heathers are mainly the genera *Erica* and *Calluna* respectively. *Erica* contains in excess of 600 species, whilst *Calluna* contains only one. Eighteen of the *Erica* species are native to Europe, the shores of the Mediterranean and to Madeira, and *Calluna* has a similar distribution, but 98% of the *Erica* species are native to the southern area of Africa. *Erica* and *Calluna* are not indigenous to other continents, but other members of the family Ericaceae, notably *Rhododendron,* are. A third genus referred to as a heath is *Daboecia* which contains two species, one of which is native to western Ireland and the northern coast of Spain, and the other to the Azores. Two further genera, closely related to *Erica* and *Calluna* are *Andromeda* and *Bruckenthalia* which are also the responsibility of the Heather Society but will have no further mention in this article.

Calluna vulgaris is widely distributed in the acid areas of the British Isles, often being the predominant plant on the heath and moorlands. It is often referred to as the Scottish Heather or Ling. On close inspection it is found that the colour of the flowers can vary from white to dark pink and even nearly red. The foliage also varies in colour and texture, being bright green through to shades of gold and even grey. The habit of the plants can vary from tiny cushions through spreading plants to tall erect specimens. It is therefore not surprising that hundreds of cultivars exist and it is these

which are grown in gardens to give a range of foliage and flower colour. "Lucky white heather" is most often a white-flowered form of *Calluna vulgaris*, although *Erica* is also used. There are some very attractive double-flowered Callunas. It can be the basis for a very varied heather garden without the addition of other plants, although the flowering period will usually only last from July through to September.

There are five species of *Erica* growing wild in Great Britain, and this can be extended to seven if western Ireland is included. The most common species is the Bell Heather, *E. cinerea*, so called because of the bell-shaped flowers. It forms purple hummocks, during June to September, in the drier areas of heathland. As with *Calluna, E. cinerea* can have different flower and foliage colours, but these are not as common. *E. tetralix,* the Cross-leaved Heath, is also widely distributed and the pink flowers form terminal clusters above the light green, often grey, foliage. It favours damper areas, but this is not a necessary requirement for garden cultivation. The Dorset Heath, *E. ciliaris*, is found in that county on the heathlands on the western side of Poole Harbour. It also occurs in Cornwall. It flowers from July to October and has elongated dark pink flowers, larger than those of the previously mentioned heaths and the plant tends to be low and spreading in habit. *E. ciliaris* grows with *E. cinerea* and *E. tetralix,* and hybridises with the latter to form *E.* x *watsonii*, which can vary from nearly *E. ciliaris* to nearly *E. tetralix. E. vagans* is the Cornish Heath and dominates parts of the Lizard Peninsula. It is a heath which varies in its flower colour and near-white flowered plants are quite common, as are various shades of pink. The species flowers form July to October and has small flowers in the leaf axils all the way up the stems. Its cultivars are some of the *finest summer-flowering ericas. E. vagans* grows with *E. tetralix* and hybrids are known but they are very rare. They are *E. williamsii*. Western Ireland boasts two more species of *Erica* as well as having its share of *E. cinerea* and *E. tetralix. E. mackaiana* is a low-growing heath with the appearance of a well-clothed prostrate *E. tetralix* and terminal pink flowers. The only double-flowered *Erica* known in cultivation is *E. mackaiana* 'Plena'. *E. tetralix* also hybridises with *E. mackaiana* to give *E. stuartii.* All the ericas

mentioned above are lime-hating plants, although *E. vagans* does grow in an area where the soil is just alkaline. *E. erigena,* native to western Ireland, is tolerant of lime and flowers in the spring. This particular heath is taller-growing than the aforementioned species and may exceed four feet. Its flowers are usually shades of pink though whites are known.

Mention will now be made of three other European species which are not native to the British Isles, but are of great usefulness in the heather garden during spring. *E. carnea*, indigenous to central Europe and lime-tolerant, is a low-growing *Erica* flowering during the winter and spring months. It flowers profusely even in snowy conditions, and, although generally pink in the wild, has given rise to a varied collection of flower colours from white through to nearly red. *E. carnea* and *E. erigena* when brought into garden cultivation produced the hybrid *E.* x *darleyensis* which is intermediate in height between the parent species and has given us a set of very long-flowering winter and spring ericas. Tree heaths are useful plants for raising the height of a heather garden, and two of these, *E. lusitanica* and *E. arborea*, native to Spain and Portugal, and the Mediterranean area and beyond, respectively, are attractive flowering shrubs. *E. lusitanica* has pink buds opening to white flowers from as early as October in some areas up to May. *E. arborea*, not unlike *E. lusitanica* in appearance, has greyish-white flowers from March to June. The tree heaths, particularly *E. lusitanica*, may be damaged in a severe winter and suffer stem-splitting and foliage-burning, so a sheltered spot should be provided. Much the hardiest is *E. arborea* 'Alpina'. *E. arborea* and *E. lusitanica* are the parents of a third tree heath *E.* x *veitchii*, and three cultivars of this are available.

Ten of the European *Erica* species have been described but there are eight others, two of which are well worth mentioning, *E. australis,* a tree heath and *E. manipuliflora* which, despite its bad reputation, can be hardy and garden-worthy. It is summer-flowering and tolerant of lime.

Heaths and heathers may be easily grown in lime-free peaty soil, preferably moss peat, and in sunny conditions. If the soil contains lime then only the lime-tolerant species may be grown successfully unless special precautions, such as

raised peat beds, are taken. The preparation of the ground and the planting of container grown plants may be done at any time, except in extreme conditions of cold or heat. The plants must be tended carefully over the first year and given plenty of water in drought. A mulch of peat, given annually, will be beneficial, as will a light autumn dressing of bone meal and a dressing of growmore in the spring. The plants may be grown singly or in groups according to the owner's preference, but 12 to 18 inches should be allowed between each plant, with 3 feet between tree heaths. The aftercare of the heather garden should include hand-weeding (not hoeing) and pruning. Summer-flowering cultivars should be pruned in early March and winter/spring-flowering plants should have their trim in early May. Pruning should be used to provide distinct and shapely boundaries between different cultivars, but confined to growth with leaves on.

Propagation may be from seed, layering or cuttings. However, most cultivars will not come true from seed, and cuttings are preferred. Large numbers of plants can be obtained from a small amount of material. Cuttings should be taken in June, July or August, starting with the winter-flowering, and finishing with the summer-flowering species. The cuttings can be tips, but are preferably half-ripe laterals taken with a heel. They are dibbled into a peat/grit mixture (my mix, using a 500g margarine container as a measure, is 10 parts moss peat, 2 parts ⅛ inch grit and two teaspoons of growmore), watered and placed in a frame. They should be shaded in hot weather and sprayed as necessary to prevent drying out. They will root during the late summer and autumn and will be ready for potting, in the same mixture, during the spring. Other methods for cutting propagation include mist propagators and plastic domes.

The South African Ericas, or Cape Heaths, form the greater part of the genus *Erica.* Well over 600 species have been reported and their range of habit, flower shape and colour is almost infinite. The yellow flower colour, absent in the European heaths, occurs in the Cape Heaths. Cultivars of Cape Heaths are now not nearly so numerous as their hardy counterparts, and they are grown as species or hybrids. The South African Ericas are not tolerant of our damp frosty winters and so have to be grown in pots which are taken into an airy glasshouse during the winter months but stood out-

side in the summer. However, experiments have shown that some Cape Heaths will survive some of the British winters outside, and therefore should not be dismissed entirely from garden cultivation. It should be mentioned that in South Africa they are frosted but in drier conditions than can be provided by the British Isles. The density of species in South Africa appears to be related to the local variations in growing conditions, as many species will only cover an area of a few yards and then further along another species will take over, but what a challenge this provides to the heath grower especially in the British Isles.

This article has made no mention or indeed recommended any particular cultivars, and for details of these the reader is referred to the Society's Heather Culture Leaflet Pack and the *Pocket Guide to Heather Gardening.* Careful selection from the cultivars available and attention to the conditions required may provide the grower with an "all the year around" display of flower and foliage for many years to come.

Heath, Heather and Ling in Place-Names

Alan James, Appley Bridge, Lancashire.

Heath

Haeth in Old English (i.e. the language of the Anglo-Saxons, from the 5th to 11th centuries) was used very generally of 'open, uncultivated wasteland', whether acid or alkaline. In mediaeval times, such land was often included in royal or other hunting-forests, and later in the great sheep-pastures of monastic and private estates. Otherwise, it was generally common land, grazing for sheep and goats and a source of materials for thatching, fire lighting etc.

The word was also used of plants typical of such land: an 8th century biblical gloss translates *thymus* as *haeth*, and as late as 1611, the Authorised Version of the Bible has 'heath in the wilderness' as a rendering of the obscure Hebrew *ar-ar* (thought by modern scholars to be *Juniperus sabina)* at Jeremiah 17.6 and 48.6. This is not to say that the Anglo-Saxons were hopelessly vague in distinguishing plants : there was doubtless an extensive and detailed vocabulary, with

much dialectal variety, for naming visibly different heathland plants, most of which is unrecorded. The monastic writings that have survived reflect the problems of mediaeval scholars in trying to equate plants familiar to themselves with those named in the Bible, patristic writings, Dioscorides or Pliny. It is only from the 15th century that we begin to see an increasingly consistent application of *heath* in a great variety of compounds, e.g. *Challice Heath*, (*E. ciliaris*), Gerard 1597, *Berry-Bearing Heath,* (*Empetrum nigrum*), Ray 1676, *English Low Sea-Heath*, (*Frankenia laevis*), *ibid.,* to plants with broadly similar appearance and habits of growth, while the influence of systematic botany only gradually restricted its application to ericaceous plants during the 17th -18th centuries. In the 19th century the urge to systematise gave rise to the pedantic distinction between "heath" for *Erica* and "heather" for *Calluna*, which has no historical justification.

So place-names derived from *haeth* cannot necessarily be taken as evidence of an extensive tract of heather in mediaeval times. Where *Heath* stands alone as a place-name (e.g. places of that name in Derbys., W. Yorks., S. Glamorgan, Herefords., Shrops.) it is likely to be a settlement on former common land, typically of the 12th - 13th centuries, and places called *The Heath* (e.g. in Dorset, Leics., Worcs., Staffs., Suffolk) were similarly commons, as were the many with qualifiers (e.g. *Great Heath*, Coventry, *Small Heath*, Birmingham, *High Heath*, Walsall); these are often now spelt as single words (e.g. the places called *Blackheath* in Kent, Essex, Suffolk, Surrey and Staff.).

Where *haeth* was the first element of a two-part name, it is usually a qualifier, 'heathy' or 'where there is heath', so there is more likelihood that the name is evidence of ericaceous vegetation, though still by no means certain (a warning can be taken from a field named *Heathy Piece* at Monyash, Derbys., which Field (1972) glosses . . . land overgrown with heather and scrub — it is on almost bare limestone where even *Erica carnea* might look chlorotic!). *Haeth* — is quite a common first element in English place-names, but it is often modified to *hat* - or *had* - (in the N. E. to *het* - or *hed* - *)*; the following list illustrates the most frequent compounds (and gives some examples of the need to trace the earliest available spellings of any place-names, often in the

Domesday Book: not all *hat* - or *had* - names are from *haeth* -!).

haeth-dun	'heath hill'
Haddon	Derbys., Northants., Dorset etc. (but Haddon near Peterborough may be from a personal name, Headda)
Hedon	E. Yorks. (a settlement founded on former common land in the 12th cent.)
Heddon	Northumb. (Heddon on the Wall and Black Heddon, but East and West Heddon are from *Hidewine*, 'Hidda's pasture')
Headon	Westmoreland. (but Headon Notts. is probably *heahdun,* 'high hill')
haeth-feld	'open heathland in a generally wooded area'
Heathfield	Somerset, Sussex, Devon, Cumb. etc.
Hatfield	Essex, Herts., Herefords., Worcs., Notts., E. & W. Yorks. etc. (Hatfield Chase was a no-man's land between Mercia and Northumbria)
Hadfield	Derbys.
haeth-tun	'farming settlement on a heath'
Hatton	Ches., Derbys., Lincs., Staffs., Shrops., Worcs. etc. (there are three, curiously, in Aberdeenshire)
Hetton	Northumb., W. Yorks. (but Hetton le Hole and le Hill in Durham are from *heppedun*, 'hill where hips grew')
haeth-cot	'cottage on a heath'
Heathcote	Derbys., Warks., Shrops.
haeth-leah	
Headley	Hants., Worcs., W. Yorks. (Headley Heath in Surrey is a good example of a surviving common heath)
Hadley	Herts., Shrops. etc. (but Hadley near Droitwich is *Headdaleah* 'Headda's clearing')
Hadleigh	Essex, Suffolk
Heatley	Ches., Staffs.
Hedley	Durham, Northumb. (also Headlam, Durham, from the locative *aet thaem haeth leam*, 'at the heath-clearings')

Apart from these, there are a few individual examples like *Hethelm* (Norfolk, 'heath hill') and Hethfelton (Dorset, 'farming settlement in open heathland' from *haeth feld tun*), but many possible *haeth* - compounds turn out to be false trails, like *Heathpool* (Northumb., from a hill named Hetha), *Heathwaite* (Lancs, 'hay farm') and *Hadham* (Herts., probably from a personal name *Haedda*).

In minor names, *heath* again usually indicates former waste or common, not necessarily ericaceous vegetation : field names such as *Heath Field, Heath Piece, Heath Ground, Heathilands* generally indicate enclosures of former common heaths. The adjective *haethen* sometimes occurs and causes confusion ' it meant literally 'heathy', but was also used by clerics as a translation of Latin *paganus*, 'dweller in the wilds, uncivilised' and survives in that sense as the modern *heathen*, synonym of *pagan*. Fields called *Heathen Field, Heathen Close* etc. are likely to have simply been 'heathy', though folklore and some archaeologists would tell us that these are sites of pre-Christian temples!

In the Celtic languages, the nearest equivalent of *haeth* is *ros* (Gaelic, Cornish) or *rhos* (Welsh); it is a very common element in the place-names of Scotland, Ireland, Wales, the Welsh Borders and Cornwall. It is often anglicised as *Ross* (*Ross-shire, Ross on Wye*), also as *Rose* (generally so in Cornwall, as Roseland, Rosewarne, also in Scotland at *Roseisle*) and as *Rush* in *Portrush* etc. in Ireland.

The Old French word *bruiere* was introduced after the Norman Conquest and replaced *haeth* in a few places : Bruera (Ches.), Brewershill (Beds.), Bruern (Oxon.), Temple Bruer (Lincs.), Stoke Bruerne (Northants.); once again, it was used generally of heathland, not of specific plants.

Heather

The name most commonly used for our plants now is of Scottish origin, presumably derived from word *haeddre* in the Northumbrian dialect of Old English, related to but not derived from *haeth*. It is recorded in Scots from the 14th century, and seems always to have been used of plants, mainly ericaceous; it was adopted in English with increasing frequency in the 17th-18th centuries, progressively replacing

heath and *ling* as the plant-name in standard usage.

There are few place-names definitely derived from *haeddre*, and these are restricted to the Scottish Lowlands and Northumberland. A representative group are from *haeddrewic*, 'small farm where heather grows' : *Heatherwick* in Northumb. and Aberdeens., *Hedderwick* in Berwicks., E. Lothian and Angus. Others further south are doubtful : *Hathershelf* and *Faweather* (W. Yorks., *?haeddre-scelf* 'heather shelf' and *?fag haeddre*, 'speckled, multi-coloured heather') are within the area of Old Northumbria, but *Heather* in Leics. and *Uttoxeter* in Staffs. are curious. The former lies on a stretch of heathland between two ancient chases, Charnwood and Leicester Forest, known in mediaeval times as *Le Heath* (*Normanton le Heath* and *Donnington le Heath* are nearby); the name is recorded from 1209 and was probably a 12th century settlement on marginal land formerly in the forst of Charnwood. I suspect it may have been **haeth-aern*, 'heath house', the loss of final -n being common in Middle English. Similarly, *Uttoxeter* (which is often thought, wrongly, to be Roman on the analogy of *Exeter* and *Wroxeter*) appears in Domesday Book as *Wotocshede*, and in a document of 1175 as *Uttokishedere;* the first element is a personal name, Wuttuc; the 1175 form suggests that the second element may have been **haeddre*, but the earlier form seems to have been *haeth*, so **Wuttuces haeth aern*, 'house on Wuttuc's heath' seems more likely.

Ling

The Danes introduced the Old Norse *lyng* to the English dialects of the East Midlands, Yorkshire and the North-West. It is recorded in English from the 14th century, always referring to plants of heathland, mainly ericaceous. It is not found in place-names of any importance, but is quite common in minor names in the area of the Danelaw. Two field-names recorded by Field (1972) are of interest as they combine *lyng* with other norse words : *Ling Carr* (Goosnargh, Lancs.), *lyng kjarr*, 'waterlogged land where heather (*?E. tetralix*) grows', and *Linghall* (Harlestone, Northants.), *lyng haugr,* 'burial mound where heather grows'. Other typical field-names are *Ling Field* (but *Lingfield* in Surrey is probably from an Anglo-Saxon tribal

name, *Leangas*, and certainly not from *lyng*), *Ling Hill*, *Ling Ley, The Lings*. Some apparent *lyng-* compounds turn out to be false, especially those derived from Old English *hlinc*, 'hill', e.g. *Lingwood* (Norfolk).

Like *heather* and *ling,* the Welsh *grug* occurs only in minor names : *Gruglwyn,* 'heather-bush', *Cefngrugos*, 'heathery ridge', are examples.

During the period (roughly the Anglo-Saxon and early mediaeval eras) when most major settlement and topographic names now in use originated, 'heaths' were an important feature of the land, and the many names incorporating *haeth* reflect the extent of uncultivated but open land used for common grazing, hunting or sheep pasture — they are not necessarily places where *Calluna* or *Erica* grew, though of course in many cases conditions would have favoured them. *Heather* and *ling*, on the other hand, are relatively rare elements in major place-names, though quite common in minor names in Scotland and Northern England (*heather*), N. W. England, Yorkshire and the East Midlands (*ling*), where they are in some cases demonstrably quite ancient, and are evidence that heather probably grew in their vicinity.

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M. Garidel on page 160 of his *Histoire des plantes qui naissent aux environs d'Aix* (en Provence), published in 1715 writes of *Erica juniperifolia dense fruticans narbonensis* (*E. multiflora* to Linnaeus 38 years later) "J'ai voulu tenter plusieurs fois de la transporter dans nos jardins, mais elle ne prend pas facilement". If he couldn't manage it in the part of the world where it grows naturally, no wonder we too find it curiously difficult too. He has a fine wood-cut of it on his Plate 32.

D. McC.

Miss Waterer of Eden Valley 1882 - 1974

Mrs. B. Garrett & D. McClintock

The name of Miss G. Waterer crops up quite often in connection with heathers, but very little seemed to be known about her. The only obituary was in *The Cornishman* for 20 March 1974. So we decided to see what could be found, and luckily some of her friends were still alive, having lived nearly as long as she had.

Her family was descended from Thomas Waterer, who married Martha Yearly of Ockham in Surrey in February 1736/7: they were only very remotely related to the Waterers, the nurserymen of Knap Hill, Surrey. Her grandfather was Yearly Waterer (this Christian name is still used by Waterers), born on 3rd September 1825, who married Isabella Barley Sparkhall in February 1853. Her father, Percy, was born on 26 June 1855 at Clapham and died on 11 April 1931. He was a keen gardener, and a member of the London Stock Exchange from 1880 to 1907, by which time his wife, Mary Easterbrook, had died. During at least the latter part of this period he lived at Fawkham in Kent. His remote cousin, Mr. G. Donald Waterer, of Knap Hill presented in 1984 to the Lindley Library four gold medals her father had won, which Miss Waterer had sent to him on 7 September 1971. One, in 1896, was from the Chrysanthemum Society of America for the best 12 commercial blooms, another 'Souvenir of Jubilee' also in 1896 from the National Chrysanthemum Society of which he was a Vice President. A third was from the RHS in 1902 for Sweet Peas and the fourth 'The Public Schools Veterans Challenge Trophy'. His daughter Mary Betha Gertrude was born at Carshalton in Surrey on 4 December 1882.

In 1907 Percy had planned to go to Rhodesia with his daughter. Instead he fell in love with Cornwall, whither, via Widecombe in Devon, he took his enthusiasm for chrysanthemums. Miss Waterer remembered her having to get up at night to protect them, and Miss H. Greenwood of Penzance still has 'the curious wooden tool used for curling or arranging the petals'.. The Rector of Ludgvan was the famous plantsman Canon Boscawen, who died in 1939; and soon her father was planting trees and shrubs, many given to

him by Canon Boscawen.

The Waterers' garden at Ludgvan was made out of a field sloping north-east on acid soil. It had a marshy bit and a stream and a lean-to greenhouse. The house, a cottage really, "Eden Valley" (which Miss Waterer wrote, should be "Edhu", Cornish for a bird), lay just off the main road from Penzance to Hayle and was not easy to find. The house itself was eventually hidden, even from the gate, by the trees and shrubs. To get to it one had to leave one's car at a little stone bridge, and walk down a path by a stream, across two meadows to the gate with no name on it. It had no laid-on water. It was recycled in tanks, or fetched from the stream, a Cornish shute or adit which was next to the footpath, which is the short cut to Velanoweth to Ludgvan church. There was no electricity (but finally a telephone) and no drainage to speak of ('minimal' as she put it).

A love of plants was in the family. When Gertrude was six, she won a prize for a basket of roses, but, she wrote in 1949, she never showed again until 1911 at Truro.

She tried teaching botany for many years, between 1920 and when her father died, at the West Cornwall Girls' College, Chapel St, Penzance, which disappeared long ago. She stayed in Penzance during the week, coming home at weekends. But she was not cut out for it and later made great play of her efforts. She was a vegetarian and grew her own fruit and vegetables.

Miss Greenwood recalled her first visit there in February 1935/6 when she was enthralled by the sight of the mimosa in glorious bloom, higher than the cottage. The garden was marvellously laid out to give the effect of a natural walk uphill. It was always a 'wild garden' but in those days very well kept with a fertile vegetable plot and a very sheltered bottom garden. A farm track ran through the garden. This was open in early days, but eventually had to be fenced against farm animals, to her great chagrin.

She herself wrote to D. McClintock of her garden in 1967 that most of her heaths (which had been very fine) were very much over-shadowed by tree heaths, myrtles, eucryphias, rhododendrons and azaleas. All her Dorset heaths did very well on a dry bank, but bronze-leaved forms of *Erica cinerea* did badly in spite of plenty of oakleaf mould. At that time she had not been to Trink Hill for some time, where the site of

'Eden Valley', which grew there for many years had been cleared away to make a cart track, and most of the hillside fired from time to time.

Another later description said that little was done to restrict nature's ways, the paths were single-file width, bordered by thickets of brambles, white-thorn and masses of rambler roses in wild profusion, but here and there were bowery nooks and clearings with drifts of bulbous plants and a wealth of wild flowers, on which she concentrated. She had quantities of them flourishing as ground cover. Claytonia was rampant, Bog Myrtle, Bog Asplodel flourished in the wetter parts and Lithospermum and purple and white periwinkles are mentioned, and mosses in great diversity. Among this riot of foliage were specimen trees and shrubs, including immense clumps of bamboo. There were rhododendrons in full flower at Christmas and camellias, Magnolia, Viburnum, Vaccinium, Cryptomeria, Azaleas, Myrtles and Tree Heathers grew enormously in sweet disorder. One tree was a Monterey Pine which she had grown from a seed in a cone. Later the tree had a buzzard's nest in it.

She conceded nothing to fashion and was usually dressed in heavy brown material of a very pleasant shade, heavy tweed in winter and heavy cotton in summer, with a brown wool cap or straw hat. Her face was brown too, so she was "all of a piece" with her garden.

She had little money (her father had put all theirs into Government stocks in Rhodesia, so it was lost under UDI and she somehow never qualified for an old age pension). She was "an unusual person, knowledgeable, simple in tastes, asking the minimum of material goods and comforts, uncomplaining, and to whom plants and the wild places of the land seemed more important than people". After her father died she was rather a recluse, but did however have two memorable holidays in search of plants. Earlier, at a time when she collected alpines (which did not thrive in Cornwall) she had been to the South of France whence she brought a white violet which seeded itself. Friends would come and take her for a ride, when she would choose to be taken to some piece of moor or bog where she had found things in the past.

In 1967 she was described as "an amazing old lady, absolutely clear-headed, memory not too bad, even for Latin

name, *Leangas*, and certainly not from *lyng*), *Ling Hill*, *Ling Ley, The Lings*. Some apparent *lyng-* compounds turn out to be false, especially those derived from Old English *hlinc*, 'hill', e.g. *Lingwood* (Norfolk).

Like *heather* and *ling,* the Welsh *grug* occurs only in minor names : *Gruglwyn,* 'heather-bush', *Cefngrugos*, 'heathery ridge', are examples.

During the period (roughly the Anglo-Saxon and early mediaeval eras) when most major settlement and topographic names now in use originated, 'heaths' were an important feature of the land, and the many names incorporating *haeth* reflect the extent of uncultivated but open land used for common grazing, hunting or sheep pasture — they are not necessarily places where *Calluna* or *Erica* grew, though of course in many cases conditions would have favoured them. *Heather* and *ling*, on the other hand, are relatively rare elements in major place-names, though quite common in minor names in Scotland and Northern England (*heather*), N. W. England, Yorkshire and the East Midlands (*ling*), where they are in some cases demonstrably quite ancient, and are evidence that heather probably grew in their vicinity.

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M. Garidel on page 160 of his *Histoire des plantes qui naissent aux environs d'Aix* (en Provence), published in 1715 writes of *Erica juniperifolia dense fruticans narbonensis* (*E. multiflora* to Linnaeus 38 years later) "J'ai voulu tenter plusieurs fois de la transporter dans nos jardins, mais elle ne prend pas facilement". If he couldn't manage it in the part of the world where it grows naturally, no wonder we too find it curiously difficult too. He has a fine wood-cut of it on his Plate 32.

D. McC.

Miss Waterer of Eden Valley 1882 - 1974

Mrs. B. Garrett & D. McClintock

The name of Miss G. Waterer crops up quite often in connection with heathers, but very little seemed to be known about her. The only obituary was in *The Cornishman* for 20 March 1974. So we decided to see what could be found, and luckily some of her friends were still alive, having lived nearly as long as she had.

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which got named. With these must be mentioned "Hamildon", which a letter of hers suggested was the name of a *cinerea*, but is almost certainly a place, Hamel Down near Widecombe where she found one of her "Janets". It seems that she, like many others, did not restrict a given name to just one plant. She herself said she found "Janet" at Hamildon (Hamel Down) and Hunt's Tor (Hunter's Tor) both in Devon and at Trink Hill, near her home in Cornwall. To this list she added "On the way to Fingal's Bridge", which might mean Hamel Down, and on Dartmoor (which might be Hunter's Tor). It cannot now be known from which of these places our present "Janet" came; it is of a good but not rare colour — shell pink — which in particular Gen. Turpin has found in many places, including Carrine Common, Crousa Downs and Kynance in her own parts of Cornwall, as well as Dorset, the New Forest and Witley Common.

Her keen eye for the unusual meant that she also collected what she called her Freaks. She set them out in 1967, and said that most of them came from not far from Trink Hill, which is halfway between Penzance and St. Ives, near Cripples Ease. Her list, with comments, is in the Appendix. The only one still grown is *E* x *williamsii* 'Gwavas', which barely qualifies to be called a freak.

It was a grief that we never met her. D. McC. tried to in May 1968, but she replied that she would be away then, and by the next occasion she was in the nursing home.

We are grateful to several people who have responded to our questions. The fact that all of them seemed so pleased to write about her is a sign of the esteem in which she was held. These are Mr. & Mrs. R. S. Best, Miss Hannah Greenwood, Mrs. D. I. Inch, Mr. Ian Shaw, Mr. Donald Waterer and Miss Williams. Dr. David Coombe also reported how her house looked in 1980 and Gen. Turpin has been most helpful. The photos were most kindly provided by Miss Williams.

Appendix . . . .
Miss Waterer's Freaks.

Chapple in the 2nd and 3rd editions of his *Heather Garden* of 1960 and 1966, mentions her finding "The Freak" on Trink Hill after a "good hunt" when she got 'Gwinear' and

'Zennor' as well. But he does not say when this was "The Freak" was "so named because the flowers in shades of pink and red looked as though they had been partly nibbled".

Without specimens, one can only hazard guesses what most of the Freaks were, with even the species of the first six unmentioned. But one assumes these were cinereas, because she wrote that there was a description of 'W. G. Notley' and other freaks in the RHS Journal for August 1960 (p. 336) where the three then standard schizopetalous forms are referred to; and Chapple includes 'The Freak', with no number, with the cinereas.' Some of her place names are enigmatic.

Her list, dated October 11 1967, is given verbatim, the comments in brackets.

1. Leaf-like, purplish red flowers — Long Rock. (Long Rock? *E. cinerea* var *rendlei??)*
2. Flowers complete, corolla split up and reduced. Connor Downs *(E.cinerea* f. *kruessmanniana*).
3. Flowers complete, corolla still further reduced, no stamens. (*cinerea* ? f. *kruessmanniana*, subvar. *depauperata*)
4. Flowers complete, but reduced. Finger Points. (?)
5. Flowers complete, split up, but larger. Trink. *(E.cinerea* ? var *schizopetala* which D. McC. sent her a sample of. She replied that the flowers were much larger and a better colour than 'Notley', which by implication at least, some of the others resembled, "but with a bucket of leaf mould it may improve" I am gradually giving each heather one, but it is a long job". One of these might be Chapple's plant)
7. *Ciliaris* — no petals, growing with *ciliaris* Carrin Common, near Truro, 1946. (*E. ciliaris* var. *anandra*). She sent me a bit of this, which matches closely two gatherings Dr. Nelson made from Carrine Common 37 years later, where General Turpin also found it the following year. Her plant was cultivated in "Eden Valley" and still there 21 years later. It is referred to on p. 169 of *The English Heather Garden.*
8. Trink I. Unopened buds. *Erica vulgaris* white — 1953. (a bud flower? Is this the *vulgaris* she wrote was "almost white and sent out by Underwoods in 1953?)
9. Trink II. Unopened buds. *Erica vulgaris*, red or silvery pink, 1957. (*Calluna* f. *diplocalyx*. She sent me a specimen, saying the plant was the best she had that year, 1967).
10. Gwavas — *Erica vagans* x *Erica tetralix* between 1917 and 1922. Lizard District, prostrate — bright yellow tips in spring. (She was staying at Gwavas Farm, nr Cadgwith at the time, but her plant was

(Plate 1)
Miss M. B. G. Waterer

(Plate 2) Eden Valley Vellanoweth, Ludgvan

(Plate 3)
Percy Waterer, 1909

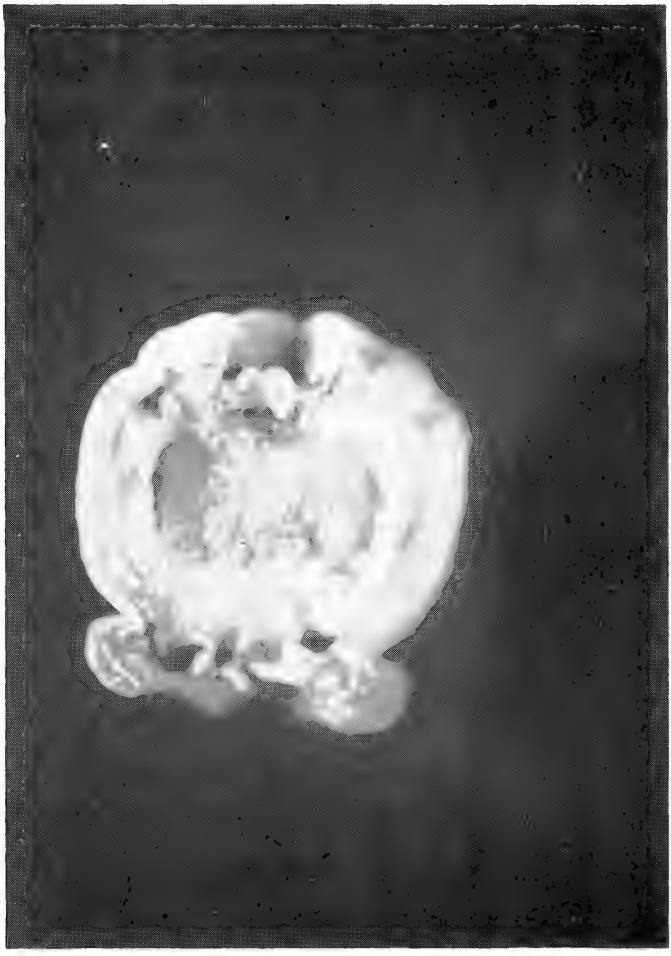
(Plate 4) Mr. J. G. Bridgland at the Royal Southampton Horticultural Society Show

(Plate 5)
Anthers of Erica ciliaris. X 15 approx.

(Photomicrographs by A. W. Jones,
shown at the Annual Conference, Wrexham, September 1984)

(Plate 6)
Anthers of Erica x watsonii. X 15 approx.

(Plate 7)
Anthers of *Erica tetralix.* X 15 approx.



(Plate 8)
Section of capsule of *Erica ciliaris.* X 30 approx.

found on Goonhilly Downs).
She wrote in 1967 that Nos 1, 2, 3, 4, 5 and 6 had long since disappeared. Trink I & II had also disappeared when she last visited the hill.

Book Reviews

An Irish Flower Garden

E. Charles Nelson. Illustrations: Wendy Walsh. 218 pp.
Boethius Press, Kilkenny, Ireland. 1984.
Limited Edition £62.00. Hard covers £15.20. Paperback £8.85.

This book will appeal to all those who love flowers and are interested in their origins and their fascinating histories. Dr. Nelson has made a selection of more than 100 garden plants, which all have an Irish connection, and has arranged them in twelve imaginary settings to which they naturally belong. For instance there is a chapter on "Shrubs from Distant Lands", one on "A Winter Garden" and another on "A Heather Garden". Each chapter tells the story of about a dozen plants which were collected by plant-hunters and botanists and raised in Irish gardens or nurseries.

The Irish have made an immense contribution to horticulture and the comparatively mild climate of Ireland has provided a congenial home for many of the plants which have been introduced from overseas, as it has also for many Scottish botanists and gardeners. Charles Nelson has had a rich field from which to make his selection and few of us would be critical of the choice which he has made.

The book is charmingly illustrated by Wendy Walsh. There are 4 colour plates and 19 Chinese ink portraits, one of which is of *Erica erigena.* In addition there are 17 tail-pieces in black and white.

Chapter 7, "A Heather Garden", will be of particular interest to members of the Heather Society. Charles Nelson has selected eleven heathers of Irish origin, one *Cassiope* and one *Pernettya* for his Heather Garden.

Ireland is the home of 4 heather species and hybrids which occur no where else in the British Isles: *Daboecia cantabrica, E. erigena, E. mackaiana,* and *E.* x *stuartii.* It is

very fitting that all of these should be included in the author's selection. In addition he includes two *Callunas,* two *E. cinereas* and one *E. carnea.* Most of them are well-known cultivars but two of the selection are recent discoveries. The double form of *Daboecia cantabrica*, illustrated in a tail-piece at the end of the chapter and named 'Charles Nelson' after the finder, has been described in a recent issue of the Year Book. I am sorry that the author has had to describe his delightful and intriguing namesake as a "monstrosity"! The other novelty is 'Clare Carpet', a prostrate form of *Calluna vulgaris* with bright emerald green foliage, also found by the author. Although it is an attractive plant, it is unlikely to rival 'White Lawn'. Tribute to the work of J. W. Porter is paid by the inclusion of *E. carnea* 'Eileen Porter', one of our best winter-flowering heathers.

This is not a book to be put away on a shelf. It should be kept at hand, to be dipped into whenever you wish to be refreshed by some half-forgotten story of a well-loved flower.

P. G. T.

Op de heide en in hit veen

Harry Wonink. Terra, Zutphe, 1984. 44 Florins

My only regret about this attractive book is that its 235 large pages are all in Dutch. Nevertheless those who can stammer their way through, or at least look at the many pictures, will find it breathing the atmosphere and essence of heathery country, with nostalgic pictures in colour and black and white of flowering heather and much else. Yet in effect the Dutch have only two sorts of heather — and there is no mention of the many forms and cultivars found on Dutch moors. The book tells of plants, sheep, deer, foxes, insects, birds, history, megaliths, barrows, peat, honey, ecology, economy. The job is well done and makes an eloquent plea for the conservation of the 5% rump of what there was 150 years ago of this sort of country.

D. McC.

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2. Maj.-Gen. Turpin found a racemose *tetralix* at Setley Pond in the New Forest, Hants on 18 June 1984. He usefully noted "it had florets in two whorls of 4 and 7 flowers, instead of the usual umbel. 3 of the florets had 4 lobes on the corollas and 8 had 5 lobes. The leaves were in whorls of 4".
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What causes this, somewhat unstable, variant, is not known. Will someone sow seeds from a racemose inflorescence and see what comes up?

Some Notes on *Erica cinerea* var. *rendlei*, and Six Recent finds

A. W. Jones, West Camel, Somerset.

The phrase "wheatear varieties" has been used to describe 'Broadstone' and 'Studland', the two named cultivars of *Erica cinerea* var. *rendlei*. The phrase may be applied equally well, and graphically to the vast majority of the plants of this variety. It is distinguished by having all, or some of its flowers replaced by tufts of, usually, reddish leaves or bracts, which are laid over each other like the tiles of a roof, or even the leaves of *Calluna vulgaris*. Botanists describe them as imbricate.

These notes are not intended to be an exhaustive commentary on the variety but, in view of what is to follow, a short account may be worthwhile.

The plant was described, with exemplary thoroughness and good illustrations, by Dr. Alfred Barton Rendle, the then Keeper of Botany at the British Museum, in 1909 (1) from a plant found by Miss E. J. Rendle close to the top of Trinity Hill, near Axminster, Devon in October of that year. David McClintock tells me there is a specimen at Kew, found by Enna Hubbard in 1889 near Sidmouth, about 15 miles from Miss Rendle's find. There are French records from the 19th, and even the early 18th centuries.

The next English record that I have seen, is of its finding by Lieut. R. Whymper near Wool, Dorset in September 1918 (2), though there are others that I still have to seek out. In 1923 it was recorded from Maltesmoor (Mutter's Moor?) near Sidmouth (3).

Leslie Beeching Hall (4a, b) recorded its finding on two occasions in 1925 and 1927 by Surg.-Capt. G.G.Borrett RN. In the first of these references he calls it *E. cinerea* f. *bracteomania* Penzig, but no such name has been published. There are two specimens from Surg.-Capt. Borrett from Studland Heath, Dorset dated 18th September 1925 and 7th September 1927 at the British Museum. The style of the first cannot be seen, but it is clearly visible in the second. On the sheet carrying the first specimen is a letter from Surg.-Capt. Borrett dated 25th July 1927 and mentioning two plants, one on Studland Heath, the other in the Bourne Valley, which he had had under observation for three years. Further on he writes "Do you happen to know if my other "Bracteomania" plants are under observation anywhere — I first reported these 2 plants to Kew Oct. 1925 & shortly after (Nov.1925) to Dr. A. B. Rendle". There is a specimen from Surg.-Capt. Borrett at Kew dated 11th November 1927.

By 1927 Maxwell & Beale had introduced 'Broadstone' and 'Studland', which D. F. Maxwell found at those places (5b). Maxwell wrote "The first-named variety ('Broadstone') hardly ever produces a flower, but, during the flowering seaon, the latter ('Studland') is generally found to have a few purple blooms scattered about over the plant" (5a). Of the plants that have so far been mentioned, only these two and Miss Rendle's plant carried flowers. In the case of Miss Rendle's plant, one half had all flowers, while the other carried all imbricated bracts.

In 1928 Hall (4c) published the name var. *rendlei* on the basis of the plant described by Dr. Rendle, two he had found at Parkstone, and four found by Surg.-Capt. Borrett "in four other places, making a total of six widely separated localities in the Poole district of Dorset". His diagnosis runs *"E. cinerea* L. var. *Rendlei* variat bracteis plerumque rubris auguste lanceolatis et arcte imbricatis capitula ovoidea in loco corollae formantibus" (with bracts for the most part red,

In view of the oceanic and Irish origins of, respectively, *Daboecia azorica* and *D. cantabrica*, tenderness under English inland conditions during severe winters was to be expected. However, my experience, as described above, goes some way to suggest that *Dabolecia* cultivars possess a recuperative capacity that quickly allows them to recover from severe frost damage.

Erica tetralix with a racemose inflorescence

David McClintock, Platt, Kent.

Because most of the finds of this form were made in Holland, I published, in 1982, the formal paper about f, *racemosa*, the Cross-leaved Heaths with their flowers in racemes instead of umbels, in that country and in Dutch. It appeared in two of their journals, *Ericultura* 47 : 8-9, and *De Levende Natuur* 84 (5-6) : 189. General Turpin said there ought to be an English version. The trouble was that I seemed to have lost my original text, so I have had to translate the Dutch instead.

In most Floras, *Erica tetralix* is characterised by an umbellate inflorescence, in contrast to *E. cinerea* or *E. ciliaris*, which have their flowers in racemes. Even Linnaeus (1753) in his original description wrote *"corollis subglobosis aggregatis"*.

In 1972 the wife of the well-known Boskoop nurseryman, M. Zwijnenburg found near Hoorn on the island of Terschelling, a plant of *E. tetralix* with its flower in 8 cm long racemes. Cuttings were taken, propagated, and distributed as 'Terschelling' (van de Laar, 1976). Since then Mr. Zwijnenburg has confirmed that his plants have kept their racemes, except later in the season. The most of them have normal inflorescences, while even in June, some may flower normally. The plants he kindly gave me have been, in recent years, normal.

Since the discovery of this form on Terschelling, earlier examples have come to light, namely —

1. 11 August 1832. No locality. Labelled *"macrostachys"*, ex Herb. A. Braun in Herb. Gottingen. Racemes 8 cm long.
2. 28 May 1848. Montmorency, Seine et Oise, France. Coll. L Souberieux. Herb Leiden. (van Ooststroom, 1950).
3. 11 July 1897. Chateau de la Chasse, Montmorency, ex Herb. Vagnes & Cosson. Racemes 8 cm long, Herb Paris.
4. No date. Near Den Hoorn, Texel. Coll. B. Boon. Herb. H Heukels. Herb. Leiden. (van Ooststroom, 1950).
5. 20 July 1902. Wouwsche Plantage (east of Bergen op Zoom). Coll. J. W. C. Goethart. Herb. Leiden. (Geothart, 1903).
6. Summer 1946. By a small path in the most northerly valley (west of the footpath) of the dunes at Kooispleklid, Vlieland. Racemes 8 cm long. Herb Leiden. (van Ooststroom, 1950).

Perhaps further examples of this aberration lurk in other herbaria, or in the wild. With seven localities discovered without any special search, this form deserves formal recognition. So

Erica tetralix L. forma *racemosa* D. McClintock, f. nov., a typo inflorescentis racemosis differt. Holotypus ex Zwijnenburg's nursery, Boskoop, Holland, 17 August 1975, coll. D. McClintock. Herb. BM.

I am grateful to H. J. van de Laar and M. Zwijnenburg for their help and Dr . J. Mennema for checking on the four examples in the herbarium at Leiden.

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* * *

Since the above appeared, I have heard of three further records.

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The plant was described, with exemplary thoroughness and good illustrations, by Dr. Alfred Barton Rendle, the then Keeper of Botany at the British Museum, in 1909 (1) from a plant found by Miss E. J. Rendle close to the top of Trinity Hill, near Axminster, Devon in October of that year. David McClintock tells me there is a specimen at Kew, found by Enna Hubbard in 1889 near Sidmouth, about 15 miles from Miss Rendle's find. There are French records from the 19th, and even the early 18th centuries.

The next English record that I have seen, is of its finding by Lieut. R. Whymper near Wool, Dorset in September 1918 (2), though there are others that I still have to seek out. In 1923 it was recorded from Maltesmoor (Mutter's Moor?) near Sidmouth (3).

Leslie Beeching Hall (4a, b) recorded its finding on two occasions in 1925 and 1927 by Surg.-Capt. G.G.Borrett RN. In the first of these references he calls it *E. cinerea* f. *bracteomania* Penzig, but no such name has been published. There are two specimens from Surg.-Capt. Borrett from Studland Heath, Dorset dated 18th September 1925 and 7th September 1927 at the British Museum. The style of the first cannot be seen, but it is clearly visible in the second. On the sheet carrying the first specimen is a letter from Surg.-Capt. Borrett dated 25th July 1927 and mentioning two plants, one on Studland Heath, the other in the Bourne Valley, which he had had under observation for three years. Further on he writes "Do you happen to know if my other "Bracteomania" plants are under observation anywhere — I first reported these 2 plants to Kew Oct. 1925 & shortly after (Nov.1925) to Dr. A. B. Rendle". There is a specimen from Surg.-Capt. Borrett at Kew dated 11th November 1927.

By 1927 Maxwell & Beale had introduced 'Broadstone' and 'Studland', which D. F. Maxwell found at those places (5b). Maxwell wrote "The first-named variety ('Broadstone') hardly ever produces a flower, but, during the flowering seaon, the latter ('Studland') is generally found to have a few purple blooms scattered about over the plant" (5a). Of the plants that have so far been mentioned, only these two and Miss Rendle's plant carried flowers. In the case of Miss Rendle's plant, one half had all flowers, while the other carried all imbricated bracts.

In 1928 Hall (4c) published the name var. *rendlei* on the basis of the plant described by Dr. Rendle, two he had found at Parkstone, and four found by Surg.-Capt. Borrett "in four other places, making a total of six widely separated localities in the Poole district of Dorset". His diagnosis runs *"E. cinerea* L. var. *Rendlei* variat bracteis plerumque rubris auguste lanceolatis et arcte imbricatis capitula ovoidea in loco corollae formantibus" (with bracts for the most part red,

narrowly lanceolate and tightly imbricate forming ovoid heads in place of corollas).

There are specimens from one of Hall's Parkstone plants, dated 31st August and 22nd September 1927, 26th August 1929 and 12th August 1930 at the British Muesum. These had been circulated to the members of the Botanical Exchange Club under the reference No. 703. A note from Hall (4d) indicates that it was also circulated in 1928. The 1927 circulation caused J. Fraser (6) to write "I had seen this curious heath .... some years ago, but was unaware that it was so plentiful". On the sheet of the 1930 collection there is a printed note from Hall, probably from *The Report of the Botanical Exchange Club*, in which he states that he had then seen the variety in eleven different places in Dorset.

There is another specimen in the herbarium at the British Museum that I should like to mention. It bears the enigmatic label "ex Herb. R. Brown", and no other information. This appears rather different from the other plants. The groups of bracts are 5mm long, with very obvious styles protruding from them. The individual bracts, of which there are about 32, very tightly packed into each tuft, are only about 1mm long. They are pale in colour, rather than reddish, though they may have faded to that colour after picking. The tufts look rather more like immature pine cones than wheatears.

E. Thurston (7) records that an example of var. *rendlei* was found in Cornwall "in 1928 by Miss Wood in heathland on the slopes of St Anne's (*sic*) Beacon near the cliff edge about a quarter of a mile from Chapelporth". This refers, in fact, to St. Agnes Beacon. It is possible that it was found again in Cornwall by Miss Waterer at Longrock between Penzance and Marazion. She described her "Freak No. 1" as having "Leaf-like purplish red flowers", but no specimen of that plant exists.

Over 40 instances of the finding of var. *rendlei* have been recorded. Between 1930 and 1980 it was found at a number of places, including Ireland, Wales, Jersey and Kent. Only one of these has direct relevance to the finds of the 1980s. Early in August 1965, our founder member Mrs. D. B. Maginess found a plant on Merely Moor, Broadstone, one of the districts where Maxwell had found it during the 1920s.

This was the finding that David McClintock, another of our founder members, referred to in the 1965 *Year Book* (p. 39). Cuttings were taken from this plant, and on 28th August 1984 I saw some of them growing, most attractively, in General Turpin's garden. Both Rendle (1) and Maxime Cornu (8) remarked on the decorative qualities of the variety.*

On 28th August 1983 Mrs. Maginess found another plant, this time on Upton Heath, Broadstone. In both these plants all the flowers are replaced by the tufts of bracts. I was sent specimens of both these plants on 23rd October 1984. Dissection revealed that both had capsules and styles hidden among their bracts. Free hand sections of the capsules showed that the locules of the first were deformed and contained no ovules. Some of the capsules of the second had normal locules containing very small ovules. In some of the tufts of the second plant there were filamentary structures which may have been rudimentary stamens. I have not previously seen reports of the finding of stamens in var. *rendlei.*

David McClintock has a specimen of a seedling var. *rendlei* found by Kurt Kramer in his nursery at Edewecht-Suddorf in Germany, and dated 26th July 1983.

On 6th September 1984 I received specimens of a fine example. It had been found by Mrs. Wendy Bamford in Ringwood Forest, Dorset, in 1982, and propagated by our nurseryman member David Edge. The largest specimen was some 220mm long and the stem 2 mm in diameter at its base. In addition to numerous tufts of reddish bracts, it carried 20 near-normal flowers distributed along its entire length. The corollas, which were 5mm long by 2.7mm in diameter.

* I had thought that var. *rendlei* had been absent from nursery lists since Maxwel & Beale ceased to offer 'Studland' in 1934. However, plants have recently been available from several sources in the Poole area. These were probably descended from Mrs. Maginess's 1965 Merely Moor find. Naked Cross Nurseries of Corfe Mullen have four plants that they intend to use as a source of cuttings in an attempt to reintroduce the variety. It is desirable that these plants should be given a cultivar name.

shaded from H1 (amethyst) at their tips to H2 (mauve) at their bases. They were held in calyces, each made up of ten sepals 2.5mm long by 0.6mm wide, and of the same reddish hue as the wheatears. The flowers contained the normal complement of eight awned anthers, and included style and a capsule 1.8mm long by 1.0mm in diameter. The wheatears were from 2.7 to 3.5mm long and ranged in diameter from 1.6 to 2.3mm. They were made up of from 12 to 16 bracts, resembling the sepals in size and shape. The bracts concealed capsules from 0.5 to 1.0mm in length and from 0.4 to 0.7mm in diameter. Each capsule had a rudimentary style hidden by the bracts. The locules of the capsules were deformed and contained no ovules.

David and Delia Edge visited me on 23rd September 1984 and presented me with specimens of a second plant found by Mrs. Bamford earlier in the month, again in Ringwood Forest. This plant did not have flowers. Some of the capsules contained small ovules.

Also in 1984 Miss Mary Blower of Wimborne found a plant near Ferndown, Dorset. This is about five miles from the sites of Mrs. Bamford's finds. A specimen of this plant has been lodged in the Reading herbarium.

The final recent find was made by Mrs. Turpin on 28th September 1984 at St. Agnes Beacon. The plant was "just about a mile, as the crow flies, from Chapel Porth". I have not yet seen either of these last two plants.

There are considerable detailed variations from plant to plant within the variety. Some have flowers, though most do not. The tufts of bracts vary from 2.4 to 6mm long, and these tufts contain from 12 to 32 individal bracts. In some the styles clearly protrude from the bracts, but in most they are hidden. There are also some indications that the perfection of the capsules may also vary from plant to plant. Some contain ovules, but this should not be taken as indicating that the plants are fertile. The bracts, unlike faded flowers, drop off the plants during the winter.

Rendle (1) wrote "The question naturally arose as to whether the phenomenon was the result of an injury by some external agent. There was, however, no sign of fungus, and Mr. C. O. Waterhouse, who kindly examined the specimens, found no trace of any animal organism; he pointed out, however, that the appearance was such as might result from

the work of a *Phytoptus,* which in the ordinary course would have already deserted the buds". Bayley Balfour (2b) says that the tufts of bracts are due to the action of the larvae of a species of *Perrisia* or *Myricomyia.* He writes "It is similar in appearance to galls formed by *Myricomyia mediterranea* F. Low, on *Erica vagans* Linn, and *Erica scoparia* Linn. It also resembles somewhat galls on *Erica carnea* by *Perrisia ericina* F. Low". *P. ericina* is now called *Wachtliella ericina*. There is a photograph in the 1966 *Year Book* which shows that its galls do bear a superficial resemblance to the wheatears of var. *rendlei*. However, they are deformed growth tips, not flowers. They have no pedicels, nor do they contain capsules and styles. Harris (9) states that *W. ericina* attacked only *E. carnea*, and that the larvae remain in the galls on the plants until April. Dr. A. M. Massee, formerly the entomologist at East Malling Research Station and an agreed authority on the subject of galls, in a letter appended to Surg.-Capt. Borrett's first herbarium sheet at the British Museum, attributes the tufts to an undescribed species of Gall Mite of the genus *Eriophyes.* In addition to fungi and insects, bacteria or a virus may have been responsible for the malformation of the flowers in this variety.

Hall (4e) did not include *E. cinerea* var. *rendlei* in an article on plant galls of Hampshire and Dorset. Fraser (6) attributes the tufts of bracts to a partial reversion of the floral leaves to normal leaves. However, Rendel (1) while pointing out that the phyllotaxy of the tufts resembles that of the flowers, stressed that the number of bracts is much greater than that of the parts of a normal flower.

Hall (4f) amongst others, has reported that the mite induced *fissa* "variety" of *E. tetralix* is unstable, and David McClintock (10) has written that *E. cinerea* var. *schizopetala* "is not quite stable". In contrast, both Hall's specimens and Mrs. Maginess's first plant have shown that *E. cinerea* var. *rendlei* is stable.

The first plants found by both Mrs. Maginess and Mrs. Bamford have shown that the aberration is consistently transmitted through cuttings. This is not always the case with *fissa* plants of *E. tetralix.* For this to happen if insect attack is responsible for the modification of the flowers, the insect at some stage of its life cycle would have to be present on the

cuttings or it must have chemically altered the genes of the plant. A virus infection would be expected to be carried by cuttings. Since viruses are generally not found in meristematic shoots tips of infected plants, the production of normal *E. cinerea* var. *rendlei* may confirm that a virus was responsible.

In every case where the variety has been found, only a single individual in the population has shown the aberration. This hardly seems consistent with an attack by a mobile external agency.

We do not know how most of the recorded plants arose. However, Kurt Kramer's recent find shows that the variety can occur as a result of sexual reproduction, though not from a *rendlei* parent.

It thus seems that *E. cinerea* var *rendlei* may not be a teratological form, but has a genetic basis. The re-occurrence of the variety in areas where it has previously been found, and only very rarely elsewhere, may result from the presence of the responsible gene in the *E. cinerea* populations of those areas.

Acknowledgements

As mentioned above, I owe Mrs. Maginess and David Edge my thanks for specimens of *E. cinerea* var. *rendlei*. I also gladly acknowledge my debt to David McClintock and Maj.-Gen. Turpin for providing or pointing me to much of the information on which these notes have been based. I thank them most sincerely for this, and for their help and advice during the preparation of my text. I must, however, take sole responsibiltiy for the opinion on the cause of the aberration which characterises the variety.

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9. Harris, K. M., "Midge Galls on Erica Carnea", *Year Book of the Heather Society,* 1966, pp. 46 - 7
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Two new plants of *E.* x *williamsii* found at the Lizard

On October 30th 1983 Miss Marion Hughes discovered a plant of *E.* x *williamsii* growing in an area of "tall heath" near the Goonhilly Earth Station and on August 18th 1984 Mr. Andrew Byfield found another plant of the hybrid, this time in "short heath", near Cow-y-jack farm, not far from St. Keverne. This brings the total number of plants of *E.* x *williamsii* so far discovered to ten, five of which are still growing in the wild. Miss Hughes and Mr. Byfield are both on the staff of the Bristol University Lizard Project.

P. G. T.

Cultivars registered in 1984

The Registrar

Of all the names given to plants during last year, only the handful below have been registered, and these by only three members.
ALL the new ones should have been notified to the Registrar.

Calluna 'Caleb Threlkeld' by its finder, Dr. E. C. Nelson. A dark-foliaged pink-flowered completely prostrate Ling from Co. Clare, Ireland. Found in 1977.

C. 'Clare Carpet' also by its finder, Dr. E. C. Nelson and also in 1977. A yellower-green pale pink flowered completely prostrate plant also from Co. Clare.

C. 'Llamedos Lady' by Mrs. Audrey Grayson. A sport on 'Serlei Aurea', likened by its finder to an upright, white-flowered 'Golden Feather', richer in colour.

Erica carnea 'Lake Garda', by its propagator, Mrs. Tessa Forbes. Distinctive, shell pink H 16, flowers which tend to grow all round the inflorescence, and a good habit, collected by D. McClintock above Lake Garda in March 1977 and later specially selected by Mrs. Forbes.

E. mackaiana 'Errigal Dusk', by its finder, Dr. E. C. Nelson. Corolla darker, dusky, barrel-shaped. From Co. Donegal 1978.

E. scoparia 'Madeira Gold' by Mrs. Tessa Forbes. A sport with good yellow-green foliage noticed in 1982 on a plant at Bracken Hill, Platt, Kent, collected by D. McClintock in 1977 in Madeira.

E. umbellata 'Monterrey Gold' by Mrs. Tessa Forbes. An orange-yellow sport noticed in 1980 on a plant near Castilio Monterrey, Verin, Spain by her sister, Mrs. Audrey Summers.

New Acquisitions

J. Platt, Ulnes Walton, Lancashire.

(Among the heathers that Jack Platt has added to his collection during 1984 are the nineteen that are described here. As usual most of them are *Calluna*, and this year fourteen have been introduced from Germany or Holland. It is interesting to see how short the interval was between the finding and the introduction of some of these plants One wonders if it was long enough for some of the plants to prove their real worth.

As in previous years, where names have been published elsewhere, references are given.

I am indebted to Albert Julian, David McClintock, Hugh Nicholson and General Turpin for providing extra information on these unfamiliar cultivars.

Ed.)

Calluna vulgaris

'Allegretto' Aug. - Sept.

The flowers are H5 (ruby), and are carried in long racemes over greenish-yellow foliage which turns bronze in winter. It has a broad erect habit and reaches a height of around 20 inches (60 cm). It was found, as a sport on the green-leaved 'Allegro', and introduced by P. Bakhuysen & Zonen of Boskoop in 1981. (*Ericultura*, 1982, No. 24, 48, *Heidegarten*; 1982, No. 12, p. 46; *Year Book*, 1984, p. 61)

'Angela Wain' Aug. - Sept.

This plant has white flowers and grey-green hirsute foliage. It is about 9 inches (22 cm) tall, with a semi-prostrate habit and curling stems. It was found as a seedling in the nursery of Mr. and Mrs. Wain at Barton under Needwood, Staffordshire, and named after one of their daughters.

'Amilto' Aug. - Sept.

The flowers are red-purple (H5) and the foliage yellow in summer. During the winter it turns bronze to orange-red. The new growth is bronze-yellow. The plant is about 14 inches (35 cm) tall and has a broad upright habit. It was found as a seedling by J. J. M. C. van Steen of Etten - Leur, and introduced by P. G. Zwijnenburg of Boskoop in 1982. (*Ericultura*, 1982; *Year Book*, 1984, p. 70)

'Anna' Aug. - Sept.

An excellent white sport found by Kurt Kramer on 'Fairy'. He named it after his mother, who lives with him. The foliage is a bright golden-yellow, and it has a narrow erect habit. It is some 9 inches (22 cm) tall. Herr Kramer introduced it in 1978,. (*Year Book*, 1981, p. 74)

'Bernadette' July - Aug.

This cultivar has light purple (H10) flowers. The foliage is yellow-green to bronze-green in summer, and becomes bronze-red in winter. It has a low spreading habit, being some 8 inches (20 cm) high, and is said to be a good plant with a hardy constitution. It was found as a seedling by H. M. J. Blum, and named after his fourth and youngest daughter. P. G. Zwijnenburg introduced the plant in 1982. (*Ericultura*, 1982, No. 48, p. 4; *Year Book*, 1984, p. 70)

'Blueness' Sept. - Oct.

The broad erect habit to 18 inches (45 cm) makes this a good ground cover plant. It has mauve flowers. It was introduced by P. Bakhuysen & Zonen in 1982, after being found as a seedling among 'Darkness' in their nursery. (*Ericultura*, 1984, No. 55, p. 4)

'Con Brio' Aug. - Sept.

Another of Bakhuysen's names with a musical connotation. It was found as yet another sport on 'Allegro'. Its flowers too are H5 (ruby). The foliage is green-yellow in summer, and bronze-red in winter. The habit is spreading and the plant is some 14 inches (35 cm) tall. Introduced in 1981. (*Ericultura*, 1982, No. 48, p. 24; *Heidegarten*, 1982, No. 12, p. 47; *Year Book*, 1984, p. 61)

'Easter Bonfire' Aug. - Sept.

The flowers are light purple (H10), and borne over light green foliage. The new growth is cream-white and red, and may be retained as late as November. The plant has an upright growth habit and reaches about 16 inches (40 cm) in height. This good cultivar was found as a seedling by S. Ketelaar of Nieuwegein *c.* 1980 and introduced by P. G. Zwijnenburg in 1982. (*Ericultura*, 1982, No. 48, p. 4)

'Gold Knight' Aug. - Sept.

A golden sport on 'Silver Knight' with lavender (H3) flowers and a vigorous erect habit to 16 inches (40 cm). It was found by R. S. Burdis of Hollins Farm Nurseries, Tarporley, Cheshire, and introduced *c.* 1981. (*Year Book*, 1984, p. 62)

'Lemon Gem' Aug. - Sept.

This cultivar has white flowers, light yellow foliage and an erect habit. It arose as a seedling in David McClintock's garden at Bracken Hill in the late 1960s. The name was once mis-quoted as "Lemon Jam". It was introduced in Germany and Holland before 1982. (*Ericultura*, 1982, No. 48, p. 24)

'Mirelle' Aug. - Sept.

A white-flowered sport fading pinkish on 'Ralph Purnell' found by J. Westdikj of Boskoop in 1977, and named after his eldest daughter. The foliage is dark green and the habit erect to 24 inches (60 cm). It was introduced by the finder's nursery in 1979. (*Ericultura*, 1979, No. 36, p. 15; *Year Book*, 1981, p. 62)

'Mullard' Sept. - Oct.

This is low spreading plant with dark green foliage more vigorous than 'Mullion'; like that with H2 (mauve) flowers. It was found in France *c.* 1981 close to the village of the same name, and introduced by P. Bakhuysen & Zonen *c.* 1981. It is said to have been discontinued last year.

'Red Favorit' Aug. - Sept.

This cultivar was found as a sport on 'J. H. Hamilton' by Herr Barth in Bad Zwischenahn. The double flowers are variously described as shading from deep H11 (lilac pink) at their tips to H14 (magenta) at their bases, a uniform light H13 (crimson), or little darker than those of its progenitor (H8, pink). The plant has a broad spreading habit. It was introduced by the finder's firm in 1982, and was then patented in Germany. (*Ericultura*, 1982, No. 48, p. 23; *Heidegarten*, 1982, No. 12, p. 47; *Year Book*, 1984, p. 61)

'Snowball' Aug. - Sept.

This plant has double white flowers and a bushy habit. It is about 18 inches (45 cm) tall. The foliage is a lighter green than 'My Dream' and it flowers a fortnight earlier, otherwise these two cultivars are very simiilar. It is thought to have been found as a sport on 'H. E. Beale', possibly by David Ross of Brookholton Nursery. It first appeared in 1984.

'Sonja' Aug. - Sept.

This cultivar has double H16 (shell pink) flowers, dark green foliage and an erect habit. It looks like a compact 'H. E. Beale', being only 8 inches (20 cm) tall, but is said to have larger and earlier flowers. It was found as a sport on 'H. E. Beale' by Herr J. Westendorf of Edewecht in 1977 and named after his daughter. He introduced the plant in 1979. (*Ericultura*, 1980, No. 40, p. 11; *Year Book*, 1981, p. 74; Heidengarten, 1982, No. 12, p. 48)

Erica carnea

'Lohse's Rubin' (Lohse's Ruby) March - April

The flowers of this plant are ruby (H5?). It has dark green foliage and a broad spreading habit to six inches (15 cm). It was found by Max Lohse as a seedling in his nursery in Bullerkuhlen, Schleswig-Holstein, and was introduced by him in 1977. (*Heidegarten*, 1982, No. 12, p. 48; *Year Book*, 1984, p. 71)

Erica cinerea

'Jack Craig' June - Sept.

The flowers are H13 (crimson) and the foliage dark green. This plant is outstanding when in bloom. It was introduced by Oliver and Hunter by 1983. (*Year Book*, 1984, p. 71)

Erica mackaiana

'Ann D. Frearson' July - Oct.

The flowers of this plant each have a ring of petaloid stamens within their H11 (lilac pink) corollas. It is thus "semi-double", and rather more like 'Maura' than 'Plena'. Unlike 'Maura' the cilia are glandular. It has a broad habit, but is more compact than 'Plena'. It is also said to be hardier than that cultivar. It arose in the garden of Mr. W. D. Frearson, then in Coventry, in 1970. Its origin is something of a mystery, for at that time Mr. Frearson grew no *E. mackaiana.* It is named after his daughter.

Erica vagans

'Bianca' July - Sept.

This plant has white flowers, and is 10 to 12 inches (25 to 30 cm) tall. The faded flowers remain a silvery-grey colour, rather than turning light brown like most other white-flowered *E. vagans.* It was found by P. G. Zwijnenburg in northern Spain in 1975, and introduced by him in 1983. (*Ericultura*, 1983, No. 52, p. 2)

When Jack Platt sent in his original list, it contained *E. ciliaris* "Gillian's Aurea". It later turned out that the girl who sends out the plants at Four Oaks Nursery near Macclesfield had mis-read *ciliaris* as "Gillians's". Unfortunately, plants had been sent out thus to several other nurseries, and hence the name may gain currency. Should you see it, you will know that it is a mistake for *E. ciliaris* 'Aurea'.

* * * *

Corrections and Additions to "Fasciated Heathers", *Year Book*, 1984, pp. 47 - 8.

David McClintock, Platt, Kent.

The fasciated 'Foxhome' mentioned on p. 48, was Kurt Kramer's. He has a photo of it.

Mrs. Metheny, in our 1977 *Year Book* (p. 17), mentions a fasciated branch of her No. 28 *E. australis* seedling. The cuttings she took of this single twig did not root, and the original plant was cut to the ground by winter frost. Consequently it remains to be seen if any of the fresh growth will be fasciated.

Miss M. Scannell of Glasnevin collected, on 2nd August 1976 at Craiggamore, *E. mackaiana* with a fasciated flowerhead measuring an inch across, consisting of about 60 flowers. It was sent to their nursery for propagation, but did not take. A voucher is in their herbarium.

★ ★ ★ ★

Supplement to "Sports, Reversions, Witches' Brooms and the Like".

David McClintock, Platt, Kent.

Additions

1. Sporting

Calluna vulgaris

'Alba Erecta' to 'Anneke'. This was formerly known as "Alba Erecta Select".
'Cuprea' to 'Manitoba'
'Darkness' to white flowers. This has been named 'Whiteness'.
'J. H. Hamilton' to brick-red shoots
'Kinlochruel' to green shoots in winter
'Marleen' to orange shoots
'Mullion' to 'Mullion Variegated'
'My Dream' to green shoots in winter
'Ralph Purnell' to 'Ralph Purnell Select'
'Silver Cloud' to red shoots

Erica carnea

'Myretoun Ruby' to darker leaves

Erica cinerea

'P. S. Patrick' to yellow shoots
'Providence' to variegated leaves
'Stephen Davis' to yellow foliage

2. Reverting

Calluna vulgaris

'Boreray' to purple flowers

Ameliorations

Colluna vulgaris "Annemarie No. 2" has now been named 'Red Star'.

The double *Calluna vulgaris* 'Darkness' has now been named 'Dark Star'.

Calluna vulgaris "Gold Carmen" should be written as 'Goldcarmen'.

Delete *Erica cinerea* 'Cevennes' to gold leaves. It has been listed as 'Cevennes Gold'.

Errata

The following errors have appeared in past *Year Books.* The Editor offers his apologies for them.

1982, p. 36, line 20. For "1864" substitute "1846".

1984, p. 53 *Calluna vulgaris* 'Foxhollow Wanderer' was found in 1963, not 1983.

p. 71, *Calluna vulgaris* "H. Tho Seeth" should be written 'H. tho Seeth".
Caleb Threlkeld came from Cumbria. The plant that bears his name was found in 1977, and not *c.* 1980.

p. 72, *Calluna vulgaris* 'Clare Carpet' was found in 1977, and not *c.* 1970.
'Danemark' is *Erica Tetralix*, and not *Calluna vulgaris.*

p. 74, line 29. For "Heitg-Weniger" read "Hietz-Weniger".

Recent Writing on Heathers, 1984

Annezo, Nicole, and Malenggreau, D., "Inventaire des plantes menacees du Massif Armoricain", *Pen Ar Bed,* 1984, Vol. 15, No. 1, pp 116, 118 - 9. *Erica lusitanica* down to one station; *Daboecia* much reduced.

Anon. Neidersachsen's Moore sind beroht. Fachbehorde fur Naturschutz, Hanover, Merkblatt No. 6, 1978

Anon. Hochmoor in Niedersachsen, *ibid*, No. 12, 1982

Anon. Hochmoore in Schleswig-Holstein, Landesamt fur Naturschutz, Keil, 1980 Three leaflets, including a map showing what is left of the ***Hoch und Nieder-moore of*** W. Germany.

Anon. "Heidevelden worden bedreigd vanuit de lucht", *Hed Dagblad*, May 1984
Even more heathlands put down to grass following nitrogenous fertilisation.

Anon. "Heideveldendreigen te vergrassen", *ibid*., 12th June 1984
More on the work at Utrecht University.

Anon. "Heidetuin een uniek plekje in de gemeente Driebergen", *De Nieuwsbode*, 14th August 1984
An account of the great heather garden at Driebergen-Rijsenburg and its prospects.

Anon. "Heide brengt weer geld op", *Het Dagblad*, 28th August 1984
Heather beetle damaging Dutch heathlands; but the stems used for filters and exported to Germany.

Anon. "Plant-aardig", *Steenwijker Courant,* 8th October 1984
The advantages of a heather garden.

Anon. "Heathers, simple propagation", *Popular Gardening*, 10th November 1984, p. 19.
Mostly photographs.

Anon. "Heide", *ibid*., 16th November 1984
In brief praise.

Bartels, A., *Zwerggeholze*, Ulmer, 1983
p. 102 *Andromeda*; p. 108 *Bruckenthalia*; pp. 110 - 3 *Calluna,* 72 listed with data; pp. 132 - 9, 23 *E. carnea*, 10m *E. cinerea,* 5 *E. tetralix,* 4 *E. vagans,* 3 *E.* x *darleyensis,* 1 *E.* x *williamsii*. Colour photos include 'Dart's Brilliant'.

Bartels, A., "Im Sommer bluht die Grauheide", *Garten praxis,* 1984, No. 7, pp. 9 - 11
E. cinerea, with much colour and 29 cvs summarised in a list.

Bastie, Florence, "Heathers — for colour all year round", *My Weekly*, 24th June 1984, pp. 28 - 9
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Bayfield, N. G., "The dynamics of heather (Calluna vulgaris) stripes in the Cairngorm mountains, Scotland", *Journal of Ecology,* 1984, Vol. 72, No. 2, pp. 51 - 8
Regular wind blasted stripes on exposed hill shoulders, a marginal habitat for *Calluna*. They move about 5mm a year.

Beaujard, F. and Astie, M., "Les bruyeres en vitro. Culture in vitro de l'*Erica* x *darleyensis* et mise en evidence d'une croissance rhythmique accentuee des rameaux orthrotropes", *Canadian Journal of Botany*, 1983, Vol. 61, No. 2, pp. 3533 - 5
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pp. 9 - 12, *Bruckenthalia, Calluna, Erica arborea, E. bocquetii, E. manipuliflora, E. sicula*, with distribution maps on pp. 42 - 8.

Cox, D., "Tree Heaths are worth more than a pipe dream", *Garden News*, 21st April 1984, p. 21
A pot boiler, not always accurate.

Crane, E., Walker, P. and Dar. R., *Directory of Important World Honey Sources,* IBRA, 1984
pp. 69 - 70 *Calluna*; pp. 113 - 5 *Erica arborea, E. carnea, E. cinerea* and *E. manipuliflora.*
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Davies, M. S., "The response of contrasting populations of *Erica cinerea* and *E. tet ralix* to soil types and waterlogging", *Journal of Ecology*, 1984, Vol. 72, No. 1, pp. 187 - 208
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Unintelligent copies and inaccurate maps of *E. arborea, E. cinerea* (twice), *E. mackaiana* and *E. tetralix* around the Mediterranean.

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Ferguson, N., *Ferguson's Garden Plant Directory*, Pan 1984
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Foss, P. E., Rushe, E. M. and Doyle, G. J., *"Andromeda polifolia* in West Mayo", *Irish Naturalists Journal,* 1984, Vol. 21, No. 8, p. 343
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Godet, J. D., "Knospen and Zweige", ibid.
Plants in alphabetical sequence. *Calluna* pp. 160 - 1, *E. carnea, E. tetralix* and *E. vagans* pp. 202 - 7.

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A wide ranging account, including the history of the Luneberger Heath, and excellent colour photos.

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Dikegulac as effective as hand pruning and superior to mechanical means.

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