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THE
CYCLAMEN SOCIETY'S
VOL 20 No 2 JOURNAL December 1996

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News

Wisley Show Autumn 1996

Despite gloom among most growers at the lateness of the season, the display at Wisley was of a surprisingly high standard. While in more auspicious years we may have seen more plants in flower at this show, those on display were of consistently high quality. Overall there were 132 entries, well up on the Spring show and matching the numbers for earlier years. The weather, too, put on a grand display, making it a splendid day out both at the show and in Wisley itself. Sales of plants went extremely well and included a good number of *C. repandum rhodense, peloponnesiacum* and *peloponnesiacum vividum* grown by Peter Moore from Expedition plants and sold for the benefit of the Society.

Among the non-competing plants, Brian Cresswell brought a *C. coum* bought recently from a garden centre and already in flower. Graham Simpson had also bought similar plants and it's thought that these are being imported from Israel, where they presumably are chilled to bring them into flower at this time of year. It has to be said that the particular charm of *C. coum* – flowering bravely through the worst of the winter weather – is somewhat diminished when compared with the brilliance of the true autumn-flowering species. Melvyn Jope brought two well grown trays of second-generation Turkish *C. coum*, the progeny of collected plant S21/N88397. Quite a high proportion were solid silver, with equal numbers showing a strong "Christmas tree" pattern. Not only were the plants of interest, but so were their containers, demonstrating clearly that cyclamen like growing in mushroom boxes (best to use two inside each other as they tend to degrade in sunlight and become very brittle). Peter Moore's excellent specimens of *C. cilicium album* and *C. mirabile* 'Tilebarn Jan' were welcome additions to the non-competing plants.

It was interesting to note the increasing numbers of silver-leafed forms in the foliage classes, excellently represented by a fine *C. graecum* in Class 1 grown from seed of a plant from the Plataneas area in Crete, a site where only a few of the original plants remain – a good example of the benefits of bringing these plants into cultivation. The top prize in this class went to Margaret Wiltshire's excellent *C. graecum* with distinctive pointed leaves and bright silver markings against a dark background. The overall silver cast carried through to Class 2, where the dramatic contrast of Margaret's plant was pipped to the post by the symmetry and harmony of Martyn Denney's silver-centred, dark-margined winning plant. Class 5, on the other hand, was dominated by 'Bowles Apollo' types offering an interesting range of variation.

Class 4 provided vivid contrasts of colour, with Martyn's superb *C. graecum album* (a mass of at least 50 pure white flowers) taking both first prize and the Buglass Bowl for the best flowering *C. graecum* in the show, while John Fielding's deep carmine plant – originating from a plant originally distributed as *C. graecum gaidurowryssii* var. *malingeri* – came in at third. Class 11 provided a really fragrant corner of the display area with a good selection of *C. mirabile* and *C. cilicium* – the profuse, well formed flowers of Melvyn Jope's winning *mirabile* had a strong coconut smell. And Jill White's particularly robust *C. hederifolium* winner in Class 8 also had a pleasing smell.

The winner of Class 9 also took the Nick Carter Memorial Trophy for the best foliage plant in the show – Melvyn scooped this prize, taking second and third places too. It's unusual for *C. persicum* to sweep the board in an Autumn show in competition from both spring- and autumn-flowering species. All three plants were the progeny of one collected by Jim Archibald in the Lebanon (JCA 1050). The first and third prize plants were silver with just a thin green margin, the second had rather more marking but maintained the characteristic shield-like appearance.

Ian Robertson's compact, delicate plant of *C. mirabile* 'Tilebarn Nicholas' in Class 10 was one of a number of such plants to take top prizes. The second prize went to a marvellous *C. purpurascens* shown by Stewart and Janet Richards – not a trace of stunted leaves on this luxuriant silver-centred specimen. Peter Moore's stunning, evenly shaped 'Tilebarn Nicholas' (bred, of course, at his nursery and named after his son) took first prize in Class 18 and also the Buglass Salver for best plant in the show. His paler plant of the same name came equal second with a magnificent *C. hederifolium* 'Rosenteppich', carrying at least 70 deep magenta flowers. There were two further striking examples of this 'Rosenteppich' or 'Ruby Strain' form in Class 16. It was a close call between the prize-winners in this class – Ian Robertson's well formed *C. mirabile* coming top, with Margaret's dramatic *C. graecums* taking second and third. A *C. graecum* also came through in Class 14 – Wisley's Director of Horticulture showed a plant with very bold markings on the flowers and leaves; the nose stands out clearly against the pale pink flush of the flowers.

Brian Walker again swept the field in Classes 13 and 15 devoted to flowering cultivars with his usual high standard of compact well grown plants – he undoubtedly shows these better than anyone else in the Society. Class 17 – for plants with unusual or interesting features – produced a clear winner. Jill's *C. hederifolium* with its deeply fimbriated petals and leaves, whose early leaves look clawed, generated lots of comment, but is unlikely to spread as so far it hasn't set seed. Stewart and Janet's 'Stargazer', the subject of some comment in earlier issues of the Journal, came in at second place.

As a fitting finale to the show, Melvyn Jope announced that a new trophy would be awarded at each Autumn and Spring show. The James Mars Trophy, presented to the Society by the widow of founder-member and late editor of the Journal, Colonel James Mars, will be awarded to the best Society-collected plant or progeny of such plants in the Autumn Show. We were unable to announce this award until the show itself, so the number of such plants on display was limited. However, a fitting winner was available with Martyn Denney's *C. graecum* in Class 18 – a well marked, small-leaved plant collected from Monte Smith in Rhodes whose seeds have already been contributed to the seed exchange. This award, which clearly recognises the value in horticultural terms of collection and maintenance of good specimens from the wild, seems a particularly fitting memorial to the enormous personal contribution which James Mars made to the Society and to the cultivation of cyclamen generally.

Results

Class 1: 1st Mrs M Wiltshire, 2nd Mrs J White, 3rd M Denney (12 entries)
Class 2: 1st M Denney, 2nd Mrs M Wiltshire, 3rd P Nicholls (9 entries)
Class 3: 1st Mrs J White, 2nd M E L Jope and M Denney, 3rd P Nicholls (7 entries)
Class 4: 1st and 2nd M Denney, 3rd J Fielding (8 entries)
Class 5: 1st Mr and Mrs S & J Richards, 2nd B Walker, 3rd Ms M Cox (8 entries)
Class 6: 1st and 3rd Mr and Mrs S & J Richards, 2nd Ms M Cox (5 entries)
Class 7: 1st Mr and Mrs S & J Richards, 2nd M Denney, 3rd Mrs J White (5 entries)
Class 8: 1st Mrs J White, 2nd B Walker, 3rd M Denney (7 entries)

Class 9: 1st, 2nd and 3rd M E L Jope (14 entries)
Class 10: 1st I Robertson, 2nd Mr and Mrs S & J Richards, 3rd Mrs J White (7 entries)
Class 11: 1st and 3rd M E L Jope, 2nd M Denney (11 entries)
Class 12: 1st M E L Jope, 2nd and 3rd M Denney (6 entries)
Class 13: 1st, 2nd and 3rd B Walker (3 entries)
Class 14: 1st, 2nd and 3rd Director of Horticulture, Wisley, 2nd P Cornish (8 entries)
Class 15: 1st, 2nd and 3rd B Walker (3 entries)
Class 16: 1st I Robertson, 2nd and 3rd Mrs M Wiltshire (7 entries)
Class 17: 1st Mrs J White, 2nd Mr and Mrs S & J Richards, 3rd P Jones (6 entries)
Class 18: 1st and 2nd (2 plants) P Moore, 3rd M Denney (6 entries)

Shows in 1997

Plants and weather permitting the Society will have a stand at the RHS Halls at Vincent Square, London SW1 on 21/22 January and, if volunteers can be found to organise it, at one of the Autumn shows (more details in the June issue of the *Journal*). The Society will hold a competitive show on Saturday 22 February in the Demonstration Buildings, RHS Garden, Wisley, Surrey, which is clearly signposted from the A3 just south-west of the M25's junction 10. A Cyclamen Society membership card will admit those who are not members of the RHS itself. Please let Melvyn Jope know by 15 February what entries you will make; exhibits should be staged between 8.30 and 10 am on the 22 February. Judging will start at 10.15. Classes will be as follows:

Section A: Any size container
1 *C. coum* shown for leaf
2 *C. coum* in flower
3 *C. pseudibericum* in flower
4 Cyclamen species in flower not eligible for classes 2, 3 or 6
5 Any autumn-flowering cyclamen species shown for leaf
6 *C. persicum* cultivar shown for flower

Section B: Container not to exceed 16.5cm (6.5in) diameter
7 *C. coum* shown for leaf
8 *C. coum* in flower
9 *C. pseudibericum* in flower
10 *C. parviflorum in* flower
11 *C. trochopteranthum* in flower
12 Any autumn-flowering cyclamen species shown for leaf
13 Cyclamen species in flower not eligible for classes 8 to 11 or 14
14 *C. persicum* cultivar shown for flower

Open Section: Any size container
15 Any cyclamen species shown for leaf
16 Any cyclamen species in flower
17 Any cyclamen species collected on a Society Expedition
18 Any cyclamen species which is the progeny of Society Expedition collected plants

Novice Section: Any size container
19 Any cyclamen species shown for leaf
20 Any cyclamen species in flower

Non-competitive, open to all
21 Any cyclamen species or cultivar that is unusual or interesting

The Moira Reid Trophy will be awarded to the winner of Class 10; the Jill Moore Trophy for the winner of Class 2; the Temple Trophy for best cyclamen in the Novice classes. There will be a new trophy for best overall in Classes 17 and 18. Prize money will be awarded at follows: first prize £5, second £3, third £2.

Plants in the competitive classes are to be shown without labels. The measurement for pot size is the outside diameter of the pot at the top of the rim. The exhibitor's and plant's name is to be written clearly on the entry card which will be supplied at the Show. The full Show Notes and Regulations were printed in the *Journal* for June 1994 (p26).

Please bring plants which you'd like to display (or on which you'd like advice) even if you don't want to compete. Members are also welcome to bring surplus plants (cyclamen, or other plants likely to interest cyclamen growers), to sell or exchange; they will be expected to donate to the Society 25% of the proceeds (exchanges will be treated as sales). "Bargain" cyclamen (at a very low price, to encourage starter growers) are also welcome. Plants for sale should have two labels, one with the name of the plant, the other with the seller's name and price: prices must be DIVISIBLE BY FOUR, for example £1.20, £1.60 and £2. There may be some seeds for sale.

1997 Conference

Outline plans are now being prepared for the 1997 Conference. It will be held during October 1997 in Telford, Shropshire (we hope at the same place as the very successful 1995 conference). Telford is easily accessible from the M54 and handy for the exceptionally interesting range of places to visit around Ironbridge.

Trip to Turkey?

Mrs Jill White is considering organising a private cyclamen trip to Turkey in October 1997. If you are interested in going please send a SAE to Mrs Jill White, 6 Edward Avenue, Brightlingsea, Essex CO7 0LZ.

A miscellany

C. graecum on Rhodes

Martyn Denney writes that the Expedition plant CSE91313 which won the Mars Trophy at the Wisley Show (see News) was found in an area of steeply sloping scrub in which the major shrubs were windswept *Pinus* and *Thuja*. The slope had a WNW aspect, the degree of slope was 1:0.5, and the soil a fine, water-retentive clay over coarse, shelly calcareous conglomerate. Nearby plants included *Allium, Anthyllis, Arum, Asphodelus, Ballota, Convolvulus, Crocus tournefortii, Cytinus hypocistis, Erodium, Galium, Hypericum* and *Papaver*. On this Monte Smith Site 91/14, ranging from just above sea level to 150m (490ft), *C. graecum* grew in three types of microclimate: pockets and crevices in conglomerate; amid dense shrubby and herbaceous vegetation in full sun; or on virtually bare soil covered with needle litter in deep shade below *Pinus* and *Thuja*.

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Subscriptions for North American members

US and Canadian members may be interested to know that they can send us sterling subscriptions etc (and make payments to other countries in other foreign currencies), through Ruesch International, 1350 Eye St NW, 10th Floor, Washington, DC 20005. Call them on 800-424-2923, and they will quote their current exchange rate, give you a confirmation number, and send you a dollar invoice. When you have paid them, along with their nominal charge of $2, they will send you a cheque in pounds sterling; if you send them the amount with the $2 plus $3 more ($5), they'll post it direct to us on the date you want from one of their UK offices.

Odd names

Elsie Sadler reports seeing, on a display of miniature cyclamen for sale on a stall outside a local supermarket, the sign "SICAMON £1.50". Anything to beat that?

Odd flowers

From the Netherlands Robert Maijer reports a set of adventitious leaves around one flower on a young plant of *C. trochopteranthum* (the other flowers were normal). The leaves were each about 1 cm across and had markings similar to those of the plant's proper leaves, but otherwise looked more like a seedling's first leaf; four were on short stems, one was attached directly to the base of the flower – which in other respects was normal.

This is the first time we have come across this happening in this species, and (thanks to the clarity of Mr Maijer's photographs) the first time that the adventitious leaves have struck us more as a set of incipient plantlets. Any comments?

Winter 1995/6

John Walker writes from Lancashire with more comment on the harsh winter (see "The Season", *Journal*, June 1996). He has a large collection in two heated greenhouses, one unheated, and (predominantly *C. coum*) outdoors. Growing cyclamen since 1980, he has never experienced temperatures as low as last winter's – for two nights after Christmas it went down to -16 deg C (3 deg F) in his unheated greenhouse, and by day rose to only -3 deg C (27 deg F). The pots in this house are half buried in sand, and in frosty weather covered with Agro fleece (and in very cold weather with a layer of bubble film too).

Although this sand froze solid for over a week, *C. cilicium, C. cilicium album, C. coum, C. cyprium, C. hederifolium, C. libanoticum, C. mirabile, C. pseudibericum, C. purpurascens, C. repandum* and its *peloponnesiacum, vividum* and *rhodense* variants, and *C. trochopteranthum* all survived, as did the crosses *C. repandum* x *balearicum* and *C. repandum* x *creticum*. However, all plants of *C. balearicum, C. creticum* and *C. intaminatum* were killed.

Out of doors, with similar air temperatures, these all survived: *C. balearicum* (all leaves lost despite shelter from a camellia). *C. cilicium, C. cilicium album, C. coum* (some flowers lost), *C. cyprium* (half their leaves lost), *C. hederifolium, C. libanoticum* (some leaves lost), *C. pseudibericum, C. purpurascens, C. repandum, C. repandum album* and *C. repandum peloponnesiacum* – these last three were planted

about 10 cm (4 in) deep. His six *C. repandum rhodense* seem to have been killed.

A friend of his went on holiday just before the very cold spell, after first watering all his pots and the bench sand in his greenhouse. On his return a fortnight later he found all the cyclamen dead except for *C. hederifolium* – and for some *C. coum* under the staging which he had missed watering, and which were alive but dry (or rather perhaps because they were dry).

Seed Distribution

There were several problems with the seed distribution this year. One of these, as members will no doubt have discovered, concerned the seed packets many of which were very difficult to open. Special thanks must go to the packeters whose job was made so much harder, but who completed the task without complaint.

Newly listed varieties are always popular. This is well illustrated in the list of the most requested varieties. The top five for 1996 are shown below; the first figure shows the number of applications, the second the number of donors. The latter is the highest ever for *C. parviflorum*.

C. mirabile 'Tilebarn Nicholas'	252	6
C. purpurascens, silver leaf	242	8
C. trochopteranthum	214	16
C. parviflorum	209	10
C. coum 'Tilebarn Elizabeth'	202	22

Seeds of the following are still available subject to being unsold: Code Numbers 1, 4, 7, 8, 12, 13, 14, 15, 16, 21, 28, 33, 38, 39, 40, 42, 43, 44, 45, 47, 49, 53, 57, 64, 65, 75, 80, 82, 98, 99. There is also a small number of packets of *C. hederifolium* 'Ellen Corker' and *C. mirabile* 'Tilebarn Jan'. For these two, 1996 seed donors will be given preference.

All the above are 50p a packet. Please use code numbers when ordering, details of which can be found in the June Journal, page 10. Also offered are:

Offer 1 – 6 packets Society's choice £2) limited to 1 offer per member
Offer 2 – 9 packets Society's choice £3)

Offer 1 can be restricted to hardy varieties only if requested.

Some CSE seed remains. This will be sold at the reduced price of 50p for 3 packets: 1D, 1G and 1 other either C or F, the choice to be the Seed Distribution Manager's.

In many cases only small quantities of seed remain, so payment should be by limit cheque only; and please list alternatives.

Applications should be sent WITH AN ADDRESSED ENVELOPE (STAMPED OR WITH ONE INTERNATIONAL REPLY COUPON) to reach Miss Short, at the address below, by 31 January 1997:

Miss Patricia Short, The Cyclamen Society, [redacted]

The Cyclamen Society Expeditions to Crete

Martyn Denney

In 1991 the Cyclamen Society embarked on a study of the subgenus *Psilanthum* Schwarz, more commonly referred to as the *repandum* group of species. The aim was to establish the distribution of the various species and subspecies, study the environmental conditions in which they grow, and record statistical information about variations in leaf and petal dimensions, shape, patterns and colour. Representative herbarium collections were to be made. In addition, a number of plants were to be collected (under licence) for further study and to introduce into cultivation genetic material of interesting or desirable forms. A secondary activity was to be the collection of herbarium material and desirable forms of other cyclamen species found in the areas visited.

In particular, the intention was to answer a number of outstanding questions, such as those posed by Grey-Wilson (1988):

- Does ssp. *repandum* occur in the Greek Peloponnese, or do the dark-flowered plants merely represent an extreme form of subsp. *peloponnesiacum*?
- Does *C. repandum* occur anywhere in Crete and do pink-flowered forms of so-called *C. creticum* actually represent plants that have arisen initially by crosses between *C. creticum* and *C. repandum*?
- Do all Cretan forms have a chromosome count of 2n=22?

In 1991 the Society sent an expedition to study *C. repandum* ssp. *rhodense* Grey-Wilson on Rhodes (Bailey, 1991) and to study *C. creticum* Hildebrand on Karpathos (Bailey, 1992). It also sent expeditions to the Peloponnese to study *C. repandum* ssp. *peloponnesiacum* f. *peloponnesiacum* Grey-Wilson, and *C. repandum* ssp. *peloponnesiacum* f. *vividum* Grey-Wilson in 1992 (Johnstone, 1992) and 1993 (Moore, 1993).

The Peloponnese and the island of Rhodes represent respectively the western and eastern ends of a chain of islands which are the remnants of a Tertiary mountain range, part of the Aegean land mass which became submerged in the Pliocene period some 5.2 million years ago. From west to east, these islands or near-islands are the Peloponnese, Kithira, Andikithira, Crete, Kassos, Karpathos, Saria and Rhodes. In 1994, 1995 and 1996 the Society sent expeditions to Crete, the largest of the islands, to study *Cyclamen creticum*, and in 1997 an expedition will go to the island of Kithira to establish whether either *C. repandum* or *C. creticum* grows there.

Although Saunders (1979) described *C. creticum* as "very abundant in Crete", Turland, Chiltern & Press (1993) gave a relatively restricted distribution, with the majority of populations concentrated at the western end, limited populations in the east, and two isolated populations in the centre of the island. The Society's 1994 expedition (Aspland, 1994) visited the western end of Crete recording 20 sites, finding many more populations, and collecting 40 plants (4 *graecum*, 4 *hederifolium* and 32 *creticum*). In 1995 the drier eastern end of Crete was visited (Wiltshire & Dale, 1995), and *C. creticum* was found to be far more extensively distributed than had previously been recorded. Twenty-nine sites were visited and 28 plants collected (1 *graecum*, 3 *persicum* and 24 *creticum*).

The 1996 Expedition

The 1996 expedition was to cover the remaining central part of Crete. This area extended from Lefka Ori (The White Mountains) eastwards past Psiloritis (Mount Ida) to a point almost due south of the city of Iraklion, and represented some 50% of the land mass of the island. It was clear from the early planning stage that the expedition would be able only to "sample" the area, not cover it thoroughly and in detail. Research while in the UK had produced a list of known sites and these provided a safety net. A number of other potential sites had been identified, from maps and walking books. However, the work of mapping the distribution of *C. creticum* required that time be spent investigating areas where there had been no previous sightings, as it was as important to establish where it did not grow, as where it did grow. Thus there were days when no cyclamen were seen. The team drove about 750 miles in two weeks, recording a total of 33 sites for *creticum* and *graecum*, carrying out surveys, and collecting 61 plants (46 *creticum*, 15 *graecum*).

Melvyn Jope, John Fielding and Martyn Denney flew from Gatwick to Iraklion in the evening of Friday 12 April, reaching their self-catering apartment in Rethymnon in the early hours of Saturday morning.

Saturday morning was spent recovering from the flight and arranging a hire car. In the afternoon the team explored the Kouloukinas mountains, a low range on the north coast between Rethymnon and Iraklion. Two sites for both *creticum* and *graecum* were recorded at between 300 and 600 metres (1,000 and 2,000 ft). At the higher of the two sites large numbers of *creticum* were found among dense pistachio scrub adjacent to a large stand of *Arum concinnatum*.

Sunday, the first full day, was spent driving into Psiloritis from the north along the 22 km road which leaves Anogia and crosses the northern flanks of the mountain to the Nidha Plateau and the Idaien Cave. *C. creticum* was found at 850m (2,800 ft) growing with the dwarf yellow and white *Orchis pauciflora*. Other interesting plants on the Nidha Plateau included *Corydalis rutifolia* ssp. *uniflora* and *Chionodoxa nana*, however the *Cyclamen graecum* reported by Lionel Bacon (1979) was not seen. This being the Greek Orthodox Easter Sunday, the team lunched on the traditional spit-roasted lamb complete with all the bits (liver, kidneys, intestines and testicles).

Cyclamen have never been reported from the Asteroussia Mountains on the coast directly south of Iraklion. These mountains had been clearly identified as an area which should be explored. The trip south across the island was uneventful other than the discovery of a site for *C. creticum* high above the road where some excellent pink-flowered forms were found. The three-bedded "rooms" in Pirgos were clean and comfortable but brought the second variation on the theme of Greek plumbing (a shower with scalding hot water but no cold). The hills around the town were green and lush with many species of *Ophrys* and *Serapias* but no cyclamen. The Asteroussia Mountains stretching west towards Matala had a number of potential sites on both northern and southern flanks but these felt wrong, were too dry and trampled by goats, and nothing was found except some good colour forms of *Gynandriris sisyrinchium* and extensive stands of pale yellow *Arum creticum* in both its green- and maroon-stemmed forms. Whether *C. creticum* existed here before the mountains were so extensively grazed is pure speculation.

After a night in Agia Galini the team returned to Rethymnon along the southern flank of Psiloritis. Both *creticum* and *graecum* were found more or less as expected at various locations.

The sheer size of the area to be covered during the expedition meant that there

was no possibility of returning to any site, and more than once this led to us arriving at our accommodation in the dark, having found a particularly good cyclamen site late in the afternoon. This happened this same afternoon. We came across a place where *creticum* grew in dense drifts under trees at the edge of cultivated land. The scent of the flowers was very apparent, carried on the late afternoon wind. By the time we had completed a 50 plant survey (have you ever tried measuring cyclamen petals in a howling gale?) it was coming on towards evening.

There followed the most successful day of the entire trip. We decided to visit the Gipari Gorge. This uniquely runs roughly east/west; it is in the centre of the island and ends at the mountain village of Asigonia. We found *creticum* growing in very dense populations in the wooded river valley, under *Quercus coccifera* and *Platanus orientalis*, with robust plants of *Dracunculus vulgaris* just coming into flower. Among the *creticum* were some quite exceptional leaf forms and flowers with very long petals, some of which were collected: 96252 – petals 38 mm long (1½ in) with 360 deg twist; 96256 – acuminate leaves 98 mm x 62 mm (nearly 4 in long); 96258 – very bright silver hastate pattern; 96259 – silver leaves with a few flecks of green; 96260 – silver leaves. An interesting plant (96261) had foliate calyx and corolla.

Early the following morning, we headed south across the island towards the mountain village of Spili, finding further sites for both *C. creticum* and *C. graecum* on the way. After a brief pause to see the large colony of the scarlet endemic *Tulipa doerfleri* to the east of Spili on the Gerakari road, we made our way back to the south coast at Agia Galini. Over the next few days we explored the gorges and gullies which dissect the coast between there and where the Lefka Ori meet the sea at Sfakia to the west of Chora Sfakion. The south coast of Crete is noticeably warmer and drier than the north of the island, and *C. creticum* hides deep in damp shady places or at the bottom of the deep gorges, though even here it remains on the north side of rocks and cliffs. Some of the sites are well documented elsewhere (Turland, 1988; Rowland, 1991) and the team confirmed the existence of these populations in all bar one case – the Imbros Gorge.

Two sites were of particular interest: Site 96/25 between Plakias and Kato Rodakino had plants with leaves which were apparently thicker with a more leathery texture than usual. The plants collected here will need further investigation to establish whether they exhibit any morphological or chromosome variation. Site 95/25, the Aradena Gorge, had populations of *creticum* in very dark crevices, growing as a chasmophyte in limestone rock, and epiphytically in moss, with a significant proportion of flowers in varying shades of pale pink (69D, 76B by RHS colour chart, or paler).

We had particularly wanted to find populations of *C. creticum* at high altitude. Grey-Wilson (1988) gives an altitudes range of 0-1,250 m (up to 4,100 ft) for the plant. The 1994 expedition had found it at 1,250 m between Agia Irini and the Omalos Plain in Lefka Ori; the 1995 expedition had found it at 1,050 m (3,440 ft) above the Lassithi Plain in Dikti; in 1996 we had found it only at 850 m (2,790 ft) in Psiloritis. We were now fortunate enough to find a site at 1,000 m (3,280 ft) on Mount Akones, which is an outlier to the east of Lefka Ori (site 96/27). The site was very exposed and comprised a north-northwest facing gully with a few stunted trees of *Acer sempervirens* growing with mountain grasses which supported a flora of (among others) *Anenome heldreichii, Phlomis fruticosa, Asphodeline lutea, Asphodelus aestivus, Arum idaeum, Daphne sericea, Crocus laevigatus, Hermodactylus tuberosus, Orchis quadripunctata* and *Ophrys fuciflora*. The cyclamen were found growing only in the gully, where they sheltered under rocks which would probably

be submerged in the stream in early spring, and around the stunted trees where they could make the most of the scant shade. Few plants were in flower.

After surveying a site for both *C. creticum* and *graecum* on the Askifou Plain, we headed north-west towards Chania – the plan being to spend a night in Platanias to further arrangements for the Society's conference to be held there in September. On the way we found and surveyed an excellent population of *C. creticum* near the village of Agiou Pantes. The plants ranged around the edge of ancient *Cupressus sempervirens* woodland and included some excellent silvered leaf forms. Three plants were selected for collection; two with very distinct silver hastate patterns (96494 and 96496) and one with very heavy silver spotting (96497).

Returning along the north coast of the island to Rethymnon, we explored a series of limestone gullies to the west of the town, but although these carried a fairly rich flora there was no sign of any cyclamen.

Our last evening and much of the following morning was spent back at the apartment checking the condition of the collected plants and herbarium specimens and packing both ready for the journey back to England. In the afternoon of Friday 26 April, we had time for one last trip to explore the north-west foothills of Psiloritis near the Arkadi Monastery at about 450 m (1,480 ft). Here we found *creticum* growing in a limestone ravine (which still had pools of water left from the torrent which flowed in winter) and in drifts in the wooded hillsides, accompanied by large quantities of *Arum concinnatum*.

Initial conclusions and analysis

None of the expeditions has seen anything to indicate the presence of *C. repandum* in any of its forms on Crete. There is thus no evidence that the "pink" forms of *C. creticum* have arisen as a result of a cross between *C. creticum* and *C. repandum*.

C. repandum and *C. balearicum* have a chromosome count of 2n=20, while *C. creticum* is generally 2n=22. Collections made by the 1994 expedition near Agia Irini (site 94/17) west of the Omalos Plain, and at Agios Stefanos (site 94/06) just south of the Rodopou Peninsula, have been analysed and have been confirmed as having a chromosome count of 2n=20. The collection from Agia Irini confirms the findings of Greilhuber (1989), but so far as we are aware 2n=20 chromosome counts have not previously been recorded from Agios Stephanos, and it is considered that both sites warrant further investigation. The Society obtained permission from the Greek government to collect further plants from both sites this autumn, in order to further this work, and we are grateful to George Handrinos for facilitating this.

The analysis which follows is based on field data collected during the three expeditions to Crete and at the one site on Karpathos in 1991. It must be borne in mind that it brings together statistics collected over four years and therefore differing seasons which may have affected the data collected and thus the conclusions which have been drawn. The data itself have been recorded by different personnel each year and therefore the subjective evaluation of such factors of leaf shape and leaf pattern may affect what is recorded. Still, it is doubtful if such infinitesimal variations invalidate the results.

At each site which is suitable for analysis, depending on the size of the population, either 25 or 50 pairs of a leaf and a flower are collected from random plants. The following data are recorded: leaf length, leaf width, leaf shape, leaf pattern, flower colour, petal length, petal width, degree of petal twist, and colour of leaf reverse. Leaf shape and pattern are determined by matching collected leaves against

photographs of designated leaf standards.

The following analysis of the field data is based on simple averaging – the author is not a statistician. For simplicity, leaf reverse has been treated as "red" or "green" rather than separating out "pale red" etc. Flower colour has been treated as "white" or "pink". In this context, pink includes all flowers which are not entirely white. This varies from petal colour which can be clearly identified as either 69D or 76B according to the RHS colour chart to such a pale pink as not to register. It also includes flowers with a pink nose or a pink flush.

Growing conditions

The expeditions found *C. creticum* growing at almost every altitude from 60 m to 1,250 m (200-4,100 ft).

There were 4 basic habitat types: phrygana (mixed drawf shrubs, often spiny and aromatic), generally on the northern side of the island; mid to high altitude open grassland, with the shelter of rocks; deciduous or *Cupressus sempervirens* woodland at mid to low altitude in east/west inland valleys; southern gorges and gullies.

Most populations were growing with an aspect in the northern half of the compass. Where the aspect was basically southerly the plants were growing in deep shade, usually within a gully, often with summer running water. The degree of shade varied from 0% to 90%, to some extent with altitude – the higher populations being typically more open, possibly simply in the shelter of rocks. There was no correlation between the percentage of shade and any other factor, although a subjective view is that the larger leaves occurred in the deepest shade.

Soil was generally a clay, usually terra rossa but sometimes black/brown, sometimes overlying limestone and usually with a humus layer of decaying organic matter. The soil at the Ag Irini 2n=20 site differed in being based on a schist. At most sites there was an identifiable amount of moisture in the soil, and in some of the gulliesplants would sometimes have been under water.

Leaves

Leaves varied dramatically in size, up to 162 mm long by 148 mm wide (over 6in long, nearly as wide). There was a direct correlation between leaf length and leaf width. Nine sites had a ratio of leaf length to width of 1.1:1, 30 sites had a ratio of 1.2:1, and 3 sites had a ratio of 1.3:1. There was a very slight increase in leaf size as longitude increased, ie going from west to east; however this was not carried through to Karpathos, where average leaf size was among the five smallest.

There was little correlation between longitude and leaf shape, except that west of Dikti there was a significant increase in the percentage of plants of Leaf Shape 1. Generally, there was no correlation between aspect and leaf shape, but at sites with a southerly aspect Leaf Shape 3 became predominant, at the expense of Leaf Shape 1. Except for a slight increase in the predominance of Leaf Shape 1 the further north, there was no significant correlation between latitude and leaf shape. The illustration on page 41 shows the ten general shapes under which leaves were classified; and the six general types of marbling under which leaf patterns were classified – if they were not plain green – are shown on page 42.

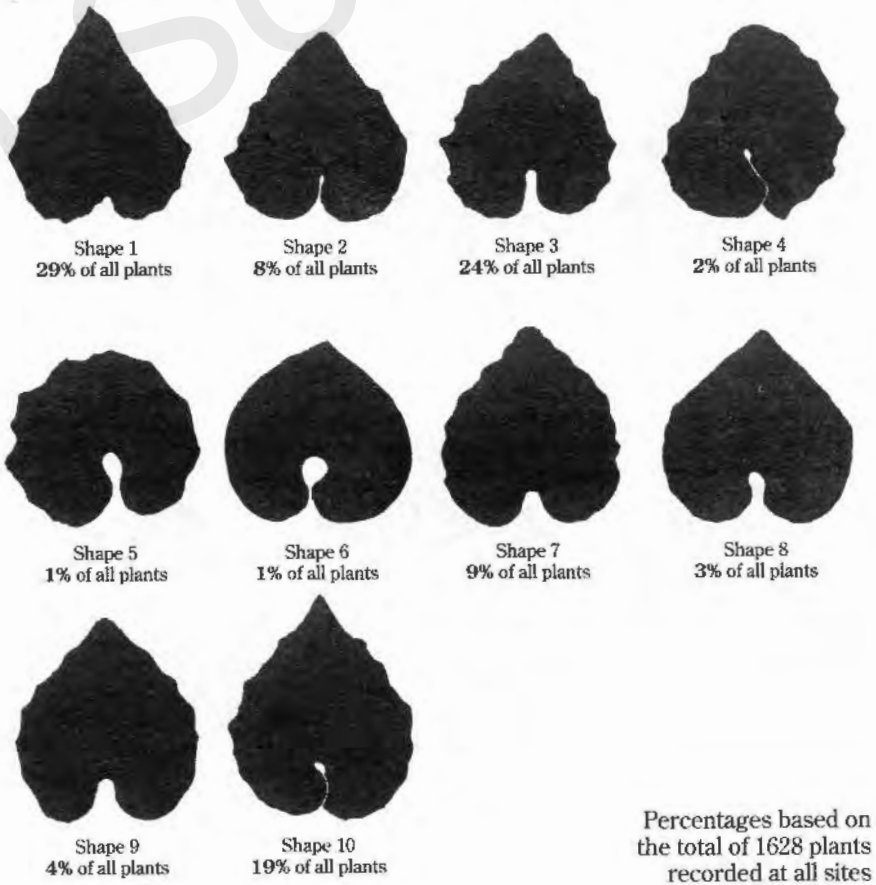
Leaf Pattern A predominated at the western end of the island, Leaf Pattern C predominated in the centre of the island, and Leaf Pattern B predominated at the eastern end of the island. Leaf Pattern A is based on a photograph of *C. repandum album*, B on *repandum* ssp. *rhodense*, and C to F on *repandum* ssp. *peloponnesiacum*.

The predominance of a *repandum rhodense* leaf pattern in the east supports a gradation along the ancient Aegean land mass from *rhodense* in the east to *peloponnesiacum* in the west. It is however the only factor which supports this, and is to some extent contradicted by 87% of Karpathos plants having Pattern C.

A percentage of plants had plain green leaves with no marbling pattern, however all these occurred to the east of longitude 24° 21'E (approximately, Episkopi, half way between Lefka Ori and Rethymnon). At two sites at the extreme eastern end of the island the percentage of plain leaves represented over 40% of the population.

Leaves with a red reverse were found at all sites, and in total accounted for 90% of all plants recorded. Green-backed leaves were found at only 12 sites, but at one site (94/02) formed 93% of the population. Sites where plants with green-backed leaves were found generally had an aspect in the northern half of the compass, that is from east, through north-east, north and north-west. No green-backed leaves were found at altitudes above 680m (2,230 ft), and none was recorded on Karpathos.

Table 1: Leaf Shapes



Shape 1 **29%** of all plants

Shape 2 **8%** of all plants

Shape 3 **24%** of all plants

Shape 4 **2%** of all plants

Shape 5 **1%** of all plants

Shape 6 **1%** of all plants

Shape 7 **9%** of all plants

Shape 8 **3%** of all plants

Shape 9 **4%** of all plants

Shape 10 **19%** of all plants

Percentages based on the total of 1628 plants recorded at all sites

Flowers

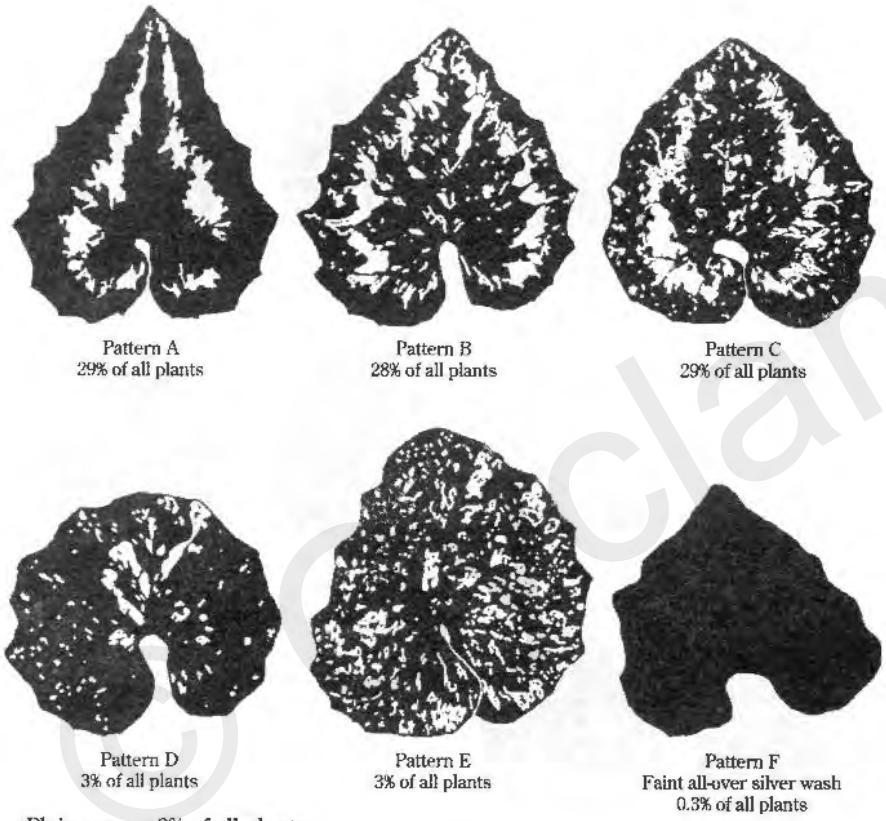
The longer petals found were 38 mm (1½ in) long; the widest were 8 mm (⅓ in) wide. The average length varied from 16.8 mm (⅔ in) at site 94/20 to 28.4 mm (1⅛) at site 96/02. Average width varied from 3.8 mm (just over ⅛ in) at site 94/12 to 6.8 mm (¼ in) at site 96/02. The degree of twist varied from 0 deg to 360 deg. There was no correlation between petal length and petal width, degree of twist or flower colour. The largest flowers recorded were all plain white, but this is probably not significant as white is in any case the predominant flower colour. The ratio of average petal length to average petal width varied between 3.5:1 and 5:1, except at the Karpathos site which had a ratio of 3:1 – relatively short and wide. At over half the sites the average ratio of petal length to width was 4:1.

The degree of petal twist correlated with a number of other factors. With the exception of one site (95/16) at 625 m (2,050 ft), all petals with a twist greater than 180 deg occurred at lower than 400 m (1,310 ft) altitude. There is a significant correlation between latitude and petal twist. No plants with a petal twist greater than 180 deg were found north of 35° 16' N, and it is significant that the further south the expeditions went, the greater the proportion of highly twisted petals. There is a very distinct correlation between longitude and the degree of petal twist. With the exception of a small number of plants (2%) at site 96/12 (Gipari Gorge), and 15% of plants at site 95/03 (north-west of Dikti), all plants with a twist greater than 180 deg were at the eastern end of the island, that is east of longitude 25° 39' E (or, east of Dikti). Here, most sites had a significant proportion of plants with a petal twist greater than 180 deg, and most had some plants with a twist of 360 deg. The site on Karpathos had 6% of plants with a petal twist of 270 deg.

All sites where plants were found with a petal twist greater than 180 deg had an aspect between due east, through north, to north-west. All sites with a southerly or westerly aspect had plants with a petal twist of 180 deg or less.

White flowers were found at all sites, while flowers with varying shades of pink were found at 85% of sites in proportions varying from 2% to 74% (site 94/08). There was no correlation between the proportion of pink flowers and any other factor. The Ag Irini 2n=20 site (94/17) had 60% pink flowers. At the site on Karpathos, all flowers were white.

Table 2: Leaf Patterns



Pattern A
29% of all plants

Pattern B
28% of all plants

Pattern C
29% of all plants

Pattern D
3% of all plants

Pattern E
3% of all plants

Pattern F
Faint all-over silver wash
0.3% of all plants

Plain green: 8% of all plants

Percentages based on the total of 1628 plants recorded at all sites

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Articles needed for Journal

We are short of material for the Journal. Please let us have anything you think other members might enjoy reading – chatty or serious, long or very short, cyclamen in the wild or in cultivation, now or in history. The Editor's address is on page 29.

Cyclamen graecum

Peter Moore
(with contribution from Erna Frank)

The name of *C. graecum* was published by Link in *Linnaea* **91** 573 (1834) and is still accepted as correct for the species. However over the years other names have appeared in publications. At the turn of the century Hildebrand listed a series of names, which covered plants from different localties. These were *C. maritimum*, *C. aegineticum* from the island of Aegina, *C. pseudomaritimum* from Turkey and *C. pseudograecum* from Crete. E & N Mutch in 1955 described the species from Crete as *cypro-graecum*. In the Cyclamen Society's Journal XIV 2 Dr Ietswaart proposed an alternative series of names based on Schwarz but with the addition of subspecies *candicum* and *anatolicum*. None of these names has stood the test of time and *C. graecum* remains the widely accepted name for the species. Our own experience, having visited sites in Greece, Crete, Cyprus, Rhodes and Turkey supports the use of *C. graecum* as a valid name, and we have not seen any evidence to justify splitting *C. graecum* into a series of species, subspecies or formas. Although especially on the island of Rhodes you may well feel that a population has a unique character, you continually find many individual plants that are similar to those at most other sites. Only the evidence of a research programme carried out to the same depth as the programmes undertaken by the Cyclamen Society could convince us of any value in splitting the species into subspecies or formas.

The flowers appear either just before or at the same time as the leaves during September/October. They range from pale pink to deep carmine and have a magenta blotch at the base, which extends up the flower. They have violet anthers and sometimes a faint scent. A lovely albino form was found by Mr and Mrs Frank in the Peloponnese in 1980, a great rarity in the wild but now well established in cultivation. After fertilisation the flower stalk starts to curl from the centre or base, unlike any other cyclamen.

The leaves are infinitely variable and are among the most beautiful of all cyclamen. The most notable feature is an appearance of velvet, the most common shape is cordate. The basic colour is dark green, though all shades from black/green through grey/green to lime green can be found. The leaf pattern is usually contrasting blotches or bands of cream, green, grey or silver. The combinations are so numerous that a collection of different leaf forms could be a study in itself. A pure silver-leafed form was found by Brian Mathew at Glyfada near Athens and this now is established in cultivation.

The spherical tuber can be as much as 23 cm (9 in) across and when mature is corky and often fissured. The roots are thick, fleshy and said to be contractile, though we have never seen any evidence of this. The flowers can arise from either a central growing point or many points over the top surface of the tuber.

C. graecum are usually found in sunny exposed sites often of a very rocky nature, predominately terra-rossa soil. Sometimes the sites can be semi-shaded but then the plants often flower poorly and if the shade becomes dense they appear to die out. This can be a misleading impression: the plants are often there and after what would seem to be a disastrous fire, next year they bloom with increased vigour. The sites range from sea level to 1,200 m (3,940 ft).

Cyclamen graecum

The two plates reproduced from paintings by Jenny Brasier show the marked variation of leaf and flower forms that are represented in this species. The plant shown in the top centre is typical of a form which can be found on Monte Smith, Rhodes.

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Cyclamen graecum

While there is often considerable variation in leaf forms in a single population, the plain leaf form shown in the centre left is rather unusual. It can however be found in various places in the southern Peloponnese and on Crete, and many similar plants in cultivation are descended from one found many years ago by Brian Mathew at Glyfada near Athens, the progeny of which breed nearly true. The plant in the lower left corner is typical of the forms imported from Turkey in large numbers and sold through the horticultural trade in the early 1980s.

The distribution of the species is confined to the eastern end of the Mediterranean, and it is found on the Aegean islands, Crete, Cyprus, Greece, Rhodes, Turkey and SW Turkish islands.

Crete

Although *C. graecum* can be found in many sites in Crete, perhaps the Rodopou peninsular is one of the most spectacular. There the many varied patterns, often with a high proportion of silver in the leaves, are superb. The discovery of overall silver-leafed forms and *C. graecum album* made the Rodopou a memorable site. Other sites visited were good but never with the same high proportion of exceptional plants – though a small site near Phurphuras also had some lovely leaf patterns.

Cyprus

I have found *C. graecum* in one site in the north-west of the Turkish area of Cyprus, and as far as I know this is the only recorded site. It is on the coast road between Orga and Liveras. Here in a limited area of terra-rossa there is a strong colony of *C. graecum*. The *Flora of Cyprus* describes the plants as being rather dull. I did not find this and, though it may not be possible to find a "Farrer medal" plant, the leaves were very varied in both shape and pattern and with a small proportion of bright silver markings.

Leaves were collected for the Society's Herbarium and the left-hand painting by Jeremy Brasier in the centre of this issue includes some examples of leaves on plants to be found there.

Peloponnese

The Peloponnese area of Greece is rich in *C. graecum* and two areas are worth a special mention. First, on the eastern side near the mountain village of Prastos, the Cyclamen Society's second expedition to the Peloponnese found *C. graecum* growing at a height of 1,200 m (3,940 ft). We believe this to be the highest recorded site for *C. graecum*, and plants were collected from this site. One plant from this site, grown in a sheltered position in the garden, flowered well last autumn and came through the 1995/6 winter without any damage to the leaves. It is in this area of the Peloponnese that *C. repandum* subsp. *peloponnesiacum* f. *vividum* grows in association with *C. graecum*. The second area is the Mani peninsula in the middle of the southern coast of the Peloponnese. This is a part of Greece that until after the last war was isolated from the rest of Greece through a lack of roads and has developed its own architecture and character. So far tourism has not had a disastrous effect and many of the mountain villages are still unspoilt, if a little dilapidated. Many of the new houses are built in the same style as the old Mani tower houses. The *C. graecum* in the Mani must be the largest area of superb forms that I have ever seen. Many have deep-coloured flowers, and the wealth of good leaf forms, preponderance of silver markings, and the profusion of the plants is nearly overpowering.

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Rhodes

The distribution of *C. graecum* on the island of Rhodes is limited to Monte Smith, which is at the north-west of the town of Rhodes. The site is an exposed windswept cliff with a certain amount of shrub cover. The shrubs grow horizontal to the ground, a sure indication of the power of the wind. The windy conditions have created the most compact cushion form of *C. graecum* often with leaves as broad as they are long. This characteristic feature is passed on to the next generation and maintained in cultivation. Only when completely sheltered from the wind by shrubs do the plants grow in the more usual habit of the species. The leaf patterns are excellent; frequently banding patterns are found, rather than the more common blotch pattern. A good percentage of silver markings is also present.

Turkey

As yet I have not been in the right part of Turkey at the correct time of the year to see *C. graecum*, so I am indebted to Erna Frank for the following paragraphs on *C. graecum* in Turkey.

Whereas the eastern limit of *C. graecum* in Turkey seems to be well defined, in the west it probably merges with the eastern limit of the Greek distribution. Many small islands are sprinkled along the west coast of Turkey; some are Turkish, some are Greek. And the populations of *C. graecum* on these islands are unlikely to reflect the nationality of the human population. But it might be an interesting study to paddle from island to island and investigate *C. graecum* on all of them.

On the mainland of Turkey *C. graecum* follows the southern coastline, accompanying the main road for long stretches. Between Fethiye and Kas there are sizeable populations along the roadside under pines, with strikingly large and deep pink flowers, the petals slender and slightly twisted. In some locations, notably on Baba Dag and in the Bey Dag west of Kemer, *C. graecum* rubs shoulders with *C. trochopteranthum*. About 30 km inland from Kalkan *Crocus mathewii* is scattered among *C. graecum*, which here are not very floriferous, probably because the tree cover is too dense. Between Finike and Elmali at about 1,000 m (3,280 ft) altitude we found a population of *C. graecum* with long narrow leaves.

In the Cilician Taurus *C. graecum* meets another cyclamen species, namely *C. cilicium*. I have never seen them actually intermingled but have seen them less than a stone's throw apart. Just north of Alanya, at Mahmutseydi, for instance, there was only a narrow path between the two species.

Another spectacular population is to be found east of Alanya, where in a very rocky and quite shady spot *C. graecum* has settled in rock crevices, displaying silver leaves of positively artistic designs. And so along for well over 200 km to west of Tasucu to a location which is thought to be the eastern outpost of *C. graecum*. Here the plants grow in a dried-up, very stony river bed. They seem fairly uniform, with flowers of a clear medium pink and barely twisted petals with small auricles, and a tendency for small basal blotches which diffuse a little way into the petals rather than sending up the typical prongs.

There seems to be an enormous variety of forms of *C. graecum* in Turkey, often within one population, although I cannot base my observations on detailed studies like the *C. coum* research programme of the Cyclamen Society. No doubt *C. graecum* will be the subject of a similar programme in the future.

Cyclamen balearicum: the ecology and reproductive biology of natural populations

Laurence Affre, John D Thompson and Max Debussche

In a world where diminishing resources and human impact are taking their toll on the natural environment, **diversity** has become a frequently used word in the language of scientists and conservationists. Evolutionary biologists regard diversity as representing the basis for evolutionary development, and the problem of how this diversity is maintained is the principal issue to be addressed. For conservationists, the maintenance of the diversity within species is the foundation and ultimate objective of a sound conservation policy, and represents the *raison d'être* for the rapidly growing science of conservation biology.

Many features of the genus *Cyclamen* make it a subject of particular interest to both biologists and conservationists. Members of the Cyclamen Society are fully aware that the genus is one of the most well known and most appreciated groups of flowering plants in terms of horticultural importance but, at the same time, our knowledge of the ecology and reproductive biology of natural populations of each of the species is poor. This is rather surprising, as the pattern of distribution of the individual species raises several rather interesting questions and one would expect these to have attracted attention. We have decided to make a biological study of wild populations of cyclamen, starting with one of the rarest species in the genus, *C. balearicum*. We will then widen the scope of our investigations to make comparative studies with other species.

Cyclamen balearicum occurs in Spain and southern France. In Spain, it is found on the Balearic Islands of Majorca, Minorca, Ibiza and Cabrera. On Majorca it is particularly abundant in the hills, and in the past was so plentiful that local people fed the tubers to pigs; it occurs in scattered populations on Minorca and in one area on the eastern side of Ibiza. In southern France, *C. balearicum* occurs in five geographically separate locations, from the Pyrenees to the Rhone valley. In these five regions the cyclamen populations are often fragmented (as a result of the terrain consisting of a patchwork of north-facing valleys), so that each region can be considered to consist of a mosaic of smaller, more local populations. What is more, within each of these local populations, the plants are often arranged in smaller patches, or they may even occur as isolated plants. Thus, in many cases, the local populations, rather than consisting of continuous stands of individuals, may consist of a series of separate patches. The distribution of the species is thus composed of a hierarchy:

"**Area**" (Spain or southern France)
"**Island**" (a true island or a terrestrial island = region)
"**Local population**" (valley)
"**Patch within local population**"

The main goal of our research is to examine how this structure of the natural populations relates to the ecology, the reproductive biology (ie the floral features, pollination and seed dispersal), and the genetic variation present in this species. This survey covers several interesting topics:

- Do the characteristics of the habitat of *C. balearicum* suggest specialised ecological requirements?
- How is *C. balearicum* pollinated? How abundant are the pollinators?
- Which is the most successful in terms of seed production: cross-pollination or self-fertilisation; and could *C. balearicum* be highly inbred?
- How are *C. balearicum* seeds dispersed?

Our initial research has begun to shed some light on these questions and in this paper we present some of the more interesting results.

Ecological characteristics of natural populations

An ecological survey of all the known populations in southern France showed that *C. balearicum* grows almost exclusively on north-facing slopes, shady places which are mainly on stony and rocky basic soils over limestone. These populations occur from 50 to 500 m (160 to 1,650 ft) above sea level, principally on steep slopes, on ledges or at the foot of cliffs. A detailed mapping study of the distribution of plants in a single local population showed that they occur mainly in micro-sites on relatively steep slopes fairly close to cliff faces or in areas where rock outcrops occur. Such sites provide a relatively sheltered and stable foundation for plant establishment and persistence. The vegetation is woody and dense, dominated by small evergreen trees and shrubs such as holm oak (*Quercus ilex*) and box (*Buxus sempervirens*). The understorey is composed of relatively few species, with small *Asplenium* ferns and *Ruscus aculeatus* widespread. The climate is Mediterranean, with dry summers but a wide variation in rainfall (600-1,800 mm, 24-70 in, per year) and heavy rain in autumn. The *C. balearicum* populations experience slight frost each winter and leaves are destroyed when the night temperature falls to about -8°C (18°F).

An ecological survey in the Balearic Islands showed many similar trends in ecological characteristics to those observed in southern France, ie northern exposure, shady places and basic soils. However, the species seems to thrive also in more open vegetation than in southern France and under a much more varied woody vegetation, with dominant evergreen trees and shrubs such as Aleppo pine (*Pinus halepensis*), holm oak and lentisc (*Pistacia lentiscus*). In the driest places (eg in Ibiza), the plant is often restricted to the banks of *wadis*, sometimes with oleander (*Nerium oleander*). On the steep moister northern coast of Majorca, the species can be found under the cover of the dwarf palmetto (*Chamaerops humilis*). The climate is also typically Mediterranean with a large variation of precipitation (300-1,200 mm, 12-47 in, per year) due to the large altitudinal range from sea level almost to the summit of the Puig Major (1,450 m, 4,760 ft) on Majorca, where frost may occur on a few days each year.

Reproductive biology

Four major features of the reproductive biology of natural populations – pollination, self-compatibility, floral biology and dispersal – may play an important role in determining the reproductive success and distributional spread of a given species. We have thus begun experimental work to quantify (a) how *C. balearicum* is pollinated, (b) its ability to reproduce following self-pollination or cross-pollination, (c) the floral biology of the species and (d) how dispersal of the seeds occurs.

Pollination ecology of natural populations

Despite many hours of observations in natural populations in southern France and Majorca, only a single insect visit, by a syrphid species (*Baccha obscuripennis*), was observed.

Could this low level of pollinator activity result in a limitation of pollen transfer, and consequently a low level of seed production on individual plants? To answer this question, in one of the natural populations in southern France, we hand-pollinated 50 flowers which were then marked with a wooden tag; 50 flowers were left untouched for comparison. In the event of an increased seed set in the hand-pollinated flowers relative to those left to be naturally pollinated, this would support the hypothesis that insect pollination is limited. No such trend was observed, suggesting that natural pollination is sufficient to ensure normal levels of seed set in this population.

Our initial observations thus indicate something of a paradox whereby no limitation of pollen was detected, yet no regular or even occasional insect visitors were observed in this population. So, even though cyclamen species are thought to be protandrous – a phenomenon whereby the pollen grains are mature and are liberated before the stigma becomes receptive – and supposedly insect-pollinated (see Grey-Wilson, 1988) we were led to the hypothesis that, at least in the population studied here, *C. balearicum* sets seeds predominantly as a result of selfing. We thus designed an experiment to test this hypothesis.

Does *C. balearicum* reproduce by self-pollination?

In a natural population in southern France, a large number of flower buds was isolated in wire cages covered with a nylon mesh to prevent access by potential insect pollinators. When the flowers opened, we undertook three different treatments on the caged plants, and there was an uncaged control without treatment:

- caged flowers were pollinated with their own pollen
- caged flowers were pollinated with pollen from different plants
- caged flowers were left untouched
- uncaged, untouched flowers were marked to quantify natural fruit set

For each treatment, we recorded the number of flowers that set fruit and the number of seeds produced in these fruits. In all, a total of over 100 flowers were marked. It was found that the flowers in all three of the caged treatments set almost 100% fruit relative to the naturally pollinated uncaged flowers. This result illustrates two interesting features of the reproductive biology of the species. First, the self-pollinated flowers set as many fruit and seed as the outcross-pollinated flowers. Second, the flowers that were untouched, ie left to pollinate on their own, also set almost as many fruit and seed as flowers that were pollinated by hand. The species is thus not only completely self-compatible but is able to set fruit without the action of external agents (ie pollinators). It appears that *C. balearicum* reproduces primarily by self-pollination in the French populations we have studied.

Floral biology

To improve our understanding of the reproductive biology of the species, we quantified the stigma-anther separation, an important floral character that may be

associated with the mating system of a species. To achieve this, 25 mature flowers (at least 5 days old) were collected from 5 populations in southern France and 3 populations on Majorca, Minorca and Ibiza. Style and stamen length were measured on dissected flowers using digital callipers; the stigma-anther separation was calculated by subtracting style length from stamen length.

In all populations, stigma-anther separation was very weak (less than 1 mm) and the French and Minorcan populations showed lower mean values (0.51±0.05 and 0.48±0.05 respectively) than the Majorcan and Ibizan populations (0.65±0.04 and 0.70±0.06 respectively). This almost lack of stigma-anther separation substantiates our suggestion that the species can self-pollinate autonomously as the stigma and anthers are in physical contact. Moreover, the stigma-anther separation is smaller in the fragmented populations in southern France and on Minorca compared to the Majorcan populations. This result suggests that selfing occurs to a greater extent in the French populations [see reviewer's observation at end].

Seed dispersal

Could the very localised distribution of *C. balearicum* in southern France be due to the fact that its dispersal is limited? Indeed, by what means are the seeds of this species dispersed?

In a natural population in southern France, an experiment was designed to discriminate between two possible means of seed dispersal: by ants or by small mammals. This involved four treatments (see Affre, 1992 for more details):

- Six seeds were placed in a small plastic saucer, covered by a cage to prevent access by small mammals
- Six seeds in a plastic saucer surrounded by Tanglefoot glue to prevent access by ants
- Six seeds in a plastic saucer surrounded by glue and covered by a cage to prevent access by ants and small mammals
- Six seeds in a plastic saucer with no protection and thus accessible to both ants and small mammals

This experiment was repeated a number of times; each time the number of seeds remaining in the plastic saucers was recorded after 24 hours had elapsed. We found that the exclusion of ants greatly reduced the number of seeds removed, whereas the exclusion of small mammals had little effect, suggesting that in this population seed dispersal is primarily by ants. During the period of this investigation, we also observed the behaviour of individual ants that collected the seeds. A large number of ants – most of which collected seeds and took them to their respective nests – dispersed seeds over fairly short distances and in a way that could produce a patchy distribution of seedlings. This confirms what has been suspected for a long time, that ants are important in the dispersal of *Cyclamen* species.

Perspectives for our current and future research

The genetic diversity of natural populations

The basic result and take-home message from our work on the reproductive biology of *C. balearicum* is that the species is self-compatible and has a high level of self-pollination in the natural populations in southern France. Given the highly

fragmented character of these French populations, what effects could such marked inbreeding have on the degree of genetic diversity in these populations? If the species is as highly inbred as our results suggest, then one would expect the populations to have become (1) poor in terms of their genetic diversity and (2) very different, due to the random changes in genetic diversity that usually accompany high levels of inbreeding. Currently we are examining these two issues by using modern techniques of protein analysis, starting with a study of the genetic variation in the small, isolated populations of *C. balearicum* in southern France compared with that in the populations on the Balearic Islands where the populations are larger and less isolated (at least on the island of Majorca).

For the initial study, we collected leaf material from isolated French regions, and at several localities on Majorca. Using this material, a number of enzyme systems was examined. Our initial results suggest that individual populations in southern France are composed of plants that are very similar, genetically speaking (ie there is little genetic variation within populations); there is, however, marked variation between the populations. On Majorca the trend is opposite; there is more variation within each population and less difference between the populations.

What does all this mean? Our initial interpretation is very simple. The lack of variation within the French populations suggests that inbreeding is the dominant form of reproduction, while the greater variation of Majorca indicates that, although inbreeding may be widespread, outcrossing does occur occasionally. The fragmentation and isolation on the European continent could thus seem to have caused a greater reliance on inbreeding. Further studies are envisaged to enable us to gain a better idea of the true effects of fragmentation and isolation on the breeding system and the levels of genetic variation present in natural populations.

Evolution in the genus *Cyclamen*

As biologists, our work can be best summed up by one of the most inspiring and dedicated of scientists. Theodosius Dobzhansky, who once said that "nothing in biology makes sense, except in the light of evolution". The genus *Cyclamen* is no exception. Grey-Wilson (1988) has summarised the cytological relationships among the species and groups of species in the genus. How is this classification related to the evolution of the different species? How has isolation, both geographically (eg on different islands) and reproductively (eg between spring- and autumn-flowering species such as *C. repandum* and *C. hederifolium* which, as on Corsica, may occur in the same habitat) contributed to the speciation and spread of this genus? Over the coming years we hope to investigate these issues.

To contribute to our understanding of the evolutionary relationships among the species of cyclamen, one of our long-term research aims will be to examine the reproductive biology of the different species in the genus. This could be combined with molecular analyses to enable evolutionary trees among related species to be constructed. This would help us to understand the evolution of cyclamen species in relation to the biogeography of the Mediterranean basin and to the formation of the numerous islands that are currently the home of different species. In Montpellier we hope to establish a limited but complete collection of species, made up of plants that are of known provenance, which can be used to facilitate such a study. These plants will be accumulated by personal collection, or, as we have already requested, through the help of members of the Cyclamen Society whose plants would also be of known origin. The establishment of such a collection may one day help us to

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understand the evolutionary processes involved in the origin and development of the different species. As an example of this interesting topic, *C. creticum* occurs on Crete, *C. balearicum* on the Balearic Islands and, in between, over a vast area of western Mediterranean, there is *C. repandum* linking these two related species. How did such speciation occur?

Acknowledgements

Many thanks to Maurici Mus, Nestor Torres and Pedro Arguimbau for their help with our observations and collections on Majorca, the Conservatoire Botanique de Porquerolles, The Cyclamen Society for financial aid, and François Bretagnolle for his 'rediscovery' of a local population in southern France.

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Reviewer's observation: The behaviour of many cyclamen in cultivation suggests that selfing is commonplace, particularly if the plants are disturbed while in bloom (such as taking them for a ride in the car to a show!). In the case of species where the stigma slightly exceeds the anthers (as in *C. balearicum*), the relatively heavy pollen (relative to that of wind-pollinated plants, for example) readily falls on to the stigma by gravity without the assistance of insect pollinators. Perhaps pollination is effected mainly by mechanical means, by a physical shaking of the flower by the wind or by a settling insect rather than by transference of pollen by insects (although visiting insects may also be carrying pollen from another flower). Maybe it would be worth adding another treatment to the experiment: caged flowers which were protected from insect visitors and from the wind to see if the seed set was markedly less when movement of the flower was ruled out?

The authors note in response that in a controlled experiment in a greenhouse kept free from wind as well as insects, *C. balearicum* still set seed – more than 80% of the amount set when plants were deliberately cross-pollinated.

* * * * *

The season

Except in the West Country which was rather wet, most places have had less rain than usual in every month from May to October, with many growers facing acute water shortages in June, July and August, and no appreciable amounts of rain until late September. Until then, any rain tended to come as thunderstorms, giving welcome respite to some gardens but often leaving even quite near neighbours dry; and little of this storm water penetrated to the subsoil, so the soil tended to dry out again quickly. Compared with normal British summer weather, this general pattern of rainfall is much closer to the Mediterranean conditions in which most cyclamen grow, and unlike many other garden plants cyclamen generally showed no signs of distress as a result of the dry conditions. However, after a warm spell in early June the summer was not particularly hot, with some cold spells and generally rather

cool nights, and many growers found that the decidedly unMediterranean temperatures were less to their cyclamens' liking. Morever, the effects of the previous poor winter – at some times grey and dull, at others very cold indeed – continued to show in the less sheltered places, with young plants failing to put on as much growth as expected, poor seed set for winter- and spring-flowering species (particularly the *repandum* group), and in the coldest places (especially the north-east) the continuing discovery of plant deaths.

For many, *C. purpurascens* showed that the unusual conditions had been thoroughly to its liking, with an excellent show of flowers outdoors in late June, through July and into August (one or two growers still had flowers at the end of October), and plants under glass (which often look unhappy in summer) really thriving. One of our growers found a record number of self-sown *purpurascens* seedlings in her garden this year.

Most growers found cyclamen slow to go into dormancy, and all have found them slow to ripen seed this year – as much as five weeks later than in 1995. Although seed was late, the eventual crops were generally good. The dry conditions seem to have encouraged mice or shrews to remove part-ripened pods in certainly one and perhaps two gardens; it would be interesting to know whether members have found this a general problem in the last year or two.

The long period of mild relatively cool weather which followed the hot spell of early to mid-June, without any sharply discernible fall in temperature to start autumn, seems to have produced an unusual pattern of regrowth, both under glass and in the open ground. Often, this year's first flowerer has been *C. mirabile*, followed by *C. cilicium* and *C. intaminatum*, though for some *C. intaminatum* has been front runner (flowering as early as June in Devon). *C. hederifolium* has generally showed much later this year than last – September in the earliest places, but more commonly October, staying well in bloom until around the end of the month, when most plants started to fade. Some people had a "false start" with it showing some short-lived flowers in August, then marking time until a longer-lived main flush of October flowers followed rain at the end of September. For some people *C. africanum* came into flower well before *C. hederifolium* this year; *C. cyprium* too has been late for many, though some found it unusually early.

Several people have reported more or less serious losses among *C. hederifolium* outdoors – either from the previous winter's cold on its own, or because plants (particularly young ones) which had been weakened by leaf and even some root loss in the cold were finished off by drought.

In general, *C. graecum* has been a disappointment this year even for growers who can normally be very proud of it. Flowering has been poor, and most flowers have aborted without setting seed; leaf growth however has tended to be good. One grower found that several dozen *C. graecum* outdoors which had lost their leaves in the winter cold put up a second set of leaves in the spring and stayed in leaf all summer – but scarcely flowered at all. *C. rohlfsianum* has at best been about average, though it has flowered reasonably well for those who were able to keep it hot as well as dry through the indifferent summer.

In the relatively cool conditions, most people in the south and midlands have found good late summer and early autumn germination of cyclamen seed sown under glass both this summer and last autumn/winter.

The winter- and spring-flowering species appear to be getting off to a surprisingly early start. For several people, *C. coum* was starting into growth in August, and most found its leaves well developed by late September, with many flower buds under

glass showing colour by October. In the southern half of the country *C. pseudibericum* and *C. trochopteranthum* have also leafed up earlier than usual, as have members of the *repandum* group other than *C. repandum* itself, though in the north all these seem if anything later than usual. *C. persicum* too has come into leaf slightly earlier than last year; the autumn-flowering strain derived from Expedition Israel plants flowered in early September for one grower – much earlier than last year. Two growers found that outdoor plants which lost their leaves last winter leafed up again in the late spring, keeping them through the summer.

From Devon in the West Country, Mike and Mary Saunders report a pattern very different in detail from much of this – to go with their different weather, mild and rather wet. They summarise their plants' behaviour as "normal", with flowering and good seed set at the "correct" times. To pick out two striking points of difference: their *C. hederifolium* started flowering in June ('Ruby Strain' first); and their *C. graecum* have had masses of flower, with hundreds on their bigger plants.

Apart from mouse damage (and a neighbour who chooses the windiest days for weedkilling), there have been no serious pest or disease problems – with cyclamen escaping the widespread whitefly outbreaks. Nemasys H dealt with the one reported vine weevil outbreak. Oak moth caterpillars destroying leaves under glass have been an irritation rather than a problem. One grower has had cyclamen affected by an outbreak of root knot eelworm in an alpine frame, but hopes to eradicate it. Two growers have found silver leaves slightly disfigured by thrips – probably more noticeable on these than on normal leaves, rather than more widespread. A warning note: by the end of October leaf growth of some species under glass was so lush and dense that a mild grey damp winter would bring serious risk of botrytis.

Thanks to our barometer growers Mike and Mary Saunders (Devon), Joan Loraine (Somerset), Jeremy Wood (Wiltshire), Meg Baker (Gloucestershire), Peter Moore (Kent), Erna Frank (Surrey), Stewart and Janet Richards (Worcestershire), R W Evans (Nottinghamshire), Trudi Charlesworth (West Yorkshire) and Ray Johnstone (Tyne & Wear).

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Crete Conference, October 1996

The Society's one-week Conference took place on the island of Crete, and was immensely enjoyed by the 20 members who had been fortunate enough to get places (numbers had to be restricted). It took place in a small and well equipped family-run resort hotel in attractively laid-out grounds on the NW coast, near Platanias a few miles W of Chania. Immaculately and imaginatively organised by Vic and Janet Aspland, with assistance from Melvyn Jope, it was a mix of illustrated evening talks and daytime plant-hunting, with outings by car convoy to many of the sites previously inspected by Expedition teams.

The various excursions showed some breath-taking cyclamen sites. Perhaps the finest was a mainly uncultivated area above Spilia – several acres crowded with *C. graecum* in terra rossa among rocks and low scrub, mostly growing in sun and many with superb leaf patterns. This site was where the first Conference *C. graecum album* plants were found: in all during the Conference, 20 to 30 were spotted in various locations. Another unforgettable site was on the Rodopou peninsula near Astratigos, where gentle to steep slopes in all aspects were again covered with *C. graecum* among low scrub: wonderful leaf patterns, a lot of entirely silver-surfaced

plants – and more *album*. However, what made the site most memorable for many was the discovery that the Presidential car was locked tight, with its single key in the locked boot. Vic Aspland then showed unexpected skills with industrial plastic wrapping tape, breaking into the car so that he and Stewart Richards could dismantle the back seat and retrieve the key.

Many of us were surprised to find that a large proportion of *C. graecum* on Crete were scented – so much so that in sites with a lot of flowers the air itself carried a noticeable fragrance. This was also true of the *C. hederifolium* we saw – the main site was among pine trees around a chapel above Platanias, where big flowers in a good range of colours including a very dark pink were coming up through pine needles among humps of rock, on partly shaded slopes facing mainly SE. Although no leaves were showing yet, these low-altitude flowers had the tender tetraploid-looking "africanum" mainly SE. Although no leaves were showing yet, these low-altitude flowers had the tender tetraploid-looking "africanum" appearance of plants in the S Peloponnese.

C. creticum was not yet in leaf. However (with proper authorisation) collections of a small number of tubers were made from Ag Stephanos and Ag Irini, to investigate the hypothesis that plants at these sites have the untypical chromosome number of 2n=20.

The commonest flowers we saw near and among cyclamen were the cheerful little golden *Ranunculus bullatus* (usually faintly but spicily scented, almost like freesia – plants around Rethymnon and Castelli are more strongly scented), the small pale *Crocus laevigatus* (also sweetly scented), *Colchicum pusillum* (not showy, but quietly charming), the starry white *Narcissus serotinus*, often a few *Allium callimischon* poking through the scrub, and – most abundant of all – the unobtrusive *Scilla autumnalis*. Although a trip to the Omalos plain found fewer *Cyclamen graecum* out yet than had been expected, members were amply rewarded by the glorious mountain scenery, and by the sight of *Daphne sericea* with particularly good tight dark foliage, masses of the crocuses and colchicums including good colour forms, and fine very low-growing forms of the elegant golden *Sternbergia sicula*. It was noticeable that the familiar more goblet-shaped *S. lutea* seemed to be confined to villages and gardens (there was one spectacular display overhanging a retaining wall beside a village cafe where we stopped for coffee).

Two further "off-topic" treats to which John Fielding steered us were the sight of an absolute carpet of *N. serotinus* in a small village-edge almond plot in terra rossa, obviously used as a part-time hen-run and very well fertilised; and a similar wealth of *Colchicum macrophyllum* growing among rocks and lupins in rich deep terra rossa in former olive terraces now used for grazing stock. These colchicums were massive, with very varied flowers, some very broad-petalled, and showed an altogether wider range of colours than is known in cultivation. An albino clone (tentatively christened 'Cretan White' by our President, on the spot) has been secured for propagation.

John Fielding showed a glittering sequence of gorgeous slides to illustrate his entertaining and very instructive talk, mainly on the 1996 Crete Expedition – 10 days of rain, so much hail that the beaches turned white. He emphasised the wide range of sites for *C. creticum*, some very limited: for example, small gullies just a few metres across with plane trees for shade and enough moisture and humus for the cyclamen, but altogether too bright and arid just outside. His pictures of unusually distinctive leaf forms, highly scalloped or well silvered or both, made up for the fact that we were too early to see this species in the flesh – and

demonstrated how big and thick its leaves can get in sheltered sites. His slides of rather naturalised-looking *C. persicum* underlined the impression that this species is not a true native on Crete. More "planting": a bizarre picture of *C. graecum* growing in pockets of a rock in an Ierapetra shop window showed perhaps the only evidence that this species may occur in E Crete. His pictures brought to life many other Cretan specialities, among them the surprisingly long-lasting lovely white *Gagea graeca*; the commonest annual lupin, *Lupinus albus graecus* (actually mainly blue); quite a dwarf form of *Gynandriris* which is common in both E and W Crete in a glorious range of colours; bulbs of *Muscari comosa* on sale as a vegetable especially around Easter for roughly £1 a lb – after being cooked several times to eliminate toxins it has a persistent taste John describes as "aggressively bland"; the bizarre *Aristolochia creticum*, more common in the E than the W; the interesting pale blue endemic *Petromarula pinnata*, common throughout Crete (and hardy in S England); another chasmophyte, a Cretan form of *Oreganum dictamnus* (furry leaves contrasting beautifully with its pink bracts); *Tulipa creticum*, very common especially in the E – small, almost white to quite a deep pink, runs around; the rare native date palm *Phoenix theophrasti* (sadly local nurseries seem to shun this in favour of the common *P. canariensis*); and many other beauties.

Melvyn Jope's enticing talk on spring flowers in southern Greece (and on Crete) also had alluring slides. Among many lovely plants, ones which stay specially vivid in the memory include two glowing *C. repandum peloponnesiacum vividum* from Mt Parnon (one growing with *Fritillaria messanensis*), a white *vividum* from the plateau above Leonidi (more a pale pink in cultivation), an unusually yellow *F. rhodokanakis* on Idra, a sulphury pale yellow *Anemone coronaria* he found on Poros, a showy red/orange *Tulipa goulimyi* growing in a roadside ditch in the southern Peloponnese, and *Crocus sieberi* (including a white form), *C. olivieri* and *Colchicum triphyllum* all growing in snow melt near the snow line. His show ended with a series of pictures which formed part of an ingenious and wide-ranging quiz which he had designed for delegates, enormous fun to stumble through (the prizes he so generously provided were quite magnificent).

Brian Mathew spoke very amusingly as well as informatively about companion plants for cyclamen – again with some memorable slides. It is hoped to include a version of his talk in a future edition of the Journal.

Other memories: ravens croaking, buzzards crying, and six vultures, no bigger than dots, wheeling high over the gaunt crags around one plunging gorge; Cretans in traditional dress assembling by a mountain village church; a passer-by giving Trevor Wiltshire a curious look as (in shorts) he bends double to take a very close-up photograph of an ET-lookalike *Biarum davisii* hiding almost invisibly in carpark gravel and rubble; 16 happy delegates descending into helpless hilarity in an open-air harbourside Chania taverna as they realise those enormous platefuls are meant just for each of them and not for the whole party; five cars stopping in some remote place and their 20 occupants, most draped with cameras, sprinting madly off into the surroundings in the hope of a rare sighting; Hilary Temple studiously deciphering antique Greek chapel inscriptions; Brian Mathew silhouetted against the sky as he skips nimbly up yet another precipice that even the goats avoid; being treated to salted freshly harvested olives as we watch an old lady rhythmically pounding them with a heavy brass cutter – first stage of the curing process; and the touching delight of the Geraniotis family as Melvyn Jope on behalf of the Society presents their hotel with a handsomely framed arrangement of John Fielding photographs of the four cyclamen species found on Crete.

Minutes of the AGM of the Cyclamen Society 5 October 1996 at Wisley

1. Minutes of the last AGM were approved.
2. Matters arising: There were none. The following were elected as Honorary Life Members: Dr D Bent, Mrs H Temple and Mr J Wood.
3. President's report: My thanks to all the Officers and Committee and Sub-committee members who give their valuable time to attend meetings in some cases a long way from home resulting in the need for precious annual leave to be taken. I would like to record with grateful thanks the valuable and diligent service which Jeremy Wood has given to the Society. He joined the Research and Exploration Sub-committee in 1984 and soon became its Chairman, he has now stood down and we wish him all the best in his self-imposed "retirement" from his post. As a mark of our gratitude, the Committee has made Jeremy an Honorary Life Member. This mark of our gratitude has also been bestowed upon David Bent, who has given invaluable service as Assistant Secretary since 1982, and Hilary Temple for her long and active involvement, firstly as Seed Distribution Manager from 1983 and then as our Treasurer since 1988. We are indebted to Melvyn Jope for standing in as Honorary Show Secretary while a replacement for John Fielding is found – please note that we are still looking for a willing candidate for this post. Peter Moore has continued in his invaluable work as both Secretary and keeper of the Expedition plants and we have him to thank for propagating on behalf of the Society *C. coum* forma *albissimum*, the original plant of which was collected on one of the Society's expeditions; to distribute them as widely as possible, 2 plants were sent to each of 12 commercial nurseries and the rest were sold to members at the spring Show, boosting the Society's funds. This seed-raised stock breeds true and has been given the name 'Golan Heights'.

A periodical publication can probably be regarded as the hub of any society where the members are widely scattered and this is certainly the case with the Cyclamen Society, so our thanks go to Alisdair Aird and Helena Wiesner for compiling and editing our excellent Journal, and to all those who contribute to it, for without them there would be no Journal. This, and the Society's superb Seed List, are two of the activities to which all members have equal access wherever they are in the world so they are of the utmost importance to the well-being of the Society, and we are all indebted to Patricia Short for her sterling work on the seed distribution.

Last year I outlined the idea of a Cyclamen Society book and I am pleased to say that this project is under way, albeit rather slowly in view of other commitments. As an initial step the Society is employing the services of one of the younger members – Nigel Rowland, a Reading University botany graduate – to extract the potentially useful material from the Society's Journals under a series of headings roughly corresponding to the perceived chapters of the book. When this is complete a questionnaire will be designed and sent to members, aimed at augmenting and completing any obvious gaps in the information gleaned from the Journals.

The Society's expedition programme continued during the year with the third visit to Crete, completing the field survey of *C. creticum*, recording the distribution, habitat and range of variation within the species on a scale and detail never before undertaken. Plans are under way for an expedition to the Greek Island of Kithira in the spring to continue the survey of the *C. repandum* group. There are few records of *Cyclamen* from the island and it is thought likely that *C. creticum* or *C. repandum* might occur there. In response to a proposal raised at an RHS Committee meeting, the Society is also exploring the possibility of an expedition to south-west Turkey to investigate *C. trochoperanthum* in the field. The Rock Garden Plant Committee's hypothesis is that there are two variants of the species, one occurring at low altitude and another, smaller in all parts, at a higher altitude. Although the primary aim would be to address this perceived taxonomic problem, it is proposed that the opportunity should be taken to make a fuller survey, over a 2-3 year period, of this species which is relatively poorly known in the field. Negotiations are under way to obtain permission from the Turkish authorities for a research visit in April.

In connection with research, we wish Chris Clennett of Kew, who is the Honorary Curator of the Society's Herbarium, all the very best in his M Sc project at Reading University; he is studying *C. coum* and its relatives and will be making use of the Society's observations made on previous

expeditions to Turkey. The R & E Sub-committee is exploring the possibility of developing other collaborative projects of this nature in the future.

Finally, many thanks to our former President Fred Buglass for the gift of a set of his coloured drawings of *Cyclamen* species. Having enjoyed them for a while I have passed them to our Librarian to form part of the Society's valuable and expanding archival and reference material.

The Society is now starting its 20th year. From a small beginning the growth in our activities has been sure and steady. With prudent financial management, a steadily improving Journal, a buoyant seed distribution and an interesting research programme we can look to the future with enthusiasm.

4. Secretary's report: Membership static at approximately 1,400.
5. Treasurer's report: Once again I am pleased to report that the Society's finances are sound. Through the stalwart work of the officers who service the membership in many different ways, our recurrent income again exceeded our outgoings despite spending more on colour printing. In the coming year it is planned to increase the Scientific work.

Members will see that there is additional information on the Society's investments in this year's figures. This is to meet new requirements by the Charity Commissioners which will be fully in force before the end of our next financial year. They require all investments to be valued as at the year end, rather than the more conservative policy we were advised to pursue previously.

6. Election of Officers and Committee: Mr R Ball, Mr J Fielding and Mr M Jope were elected to the Committee. The Officers of the Society were re-elected.
7. Mr P Hill was re-elected auditor. Mrs H Temple expressed her gratitude to Mr Hill for all his help in preparing the Society's accounts.
8. Any other business. Mr M Jope requested that the 1997 Conference be held at the TSB School at Telford. Mrs E Frank suggested that a Certificate should be given when the Show Cups were awarded.

CYCLAMEN GREETINGS CARDS

Reproduced in *full* colour from watercolour paintings by
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