

People like us.....

small-minded
secrecy has long
been an integral
feature of the British
botanical world

A very long time ago, when the world of 'conservation' was younger and so were we, we had dinner with two enthusiastic 'conservationists'. They enthused about the proliferation of pretty plants which had colonised the banks alongside the new British motorways : the large colonies of primroses and cowslips tantalisingly obvious to them as they raced past. Now that roads are no longer fashionable in Britain, they would doubtless decry 'the serious threat' that road-building is currently assumed to be. Decades ago it was the newly created, undisturbed habitats that they saw. "I really think that people like us should be allowed to stop and botanise," one of them said.

"People like us," that neat phrase, which assumed so much, has always stuck in our minds and it came back to us when we received some comments about our criticism of taxonomists who describe new species but conceal the type-localities. The implication in the remarks of those who disagreed with us was that "academics" and "serious workers" ("people like us" perhaps) could have access to such information, if they needed it. As soon as you go down this path,

especially in a field that claims to be a scientific activity, you start to enter the world of small-minded puritanism, 'fundamentalism' and secret societies. Mind you, small-minded secrecy has long been an integral feature of the British botanical world. Think of the last surviving British *Cypripedium calceolus* with its very own committee to advise on its preservation in 'a secret place' to which only a chosen few ("people like us") could be led.

Certainly, it would seem that a desire to belong to an exclusive or elite group is a characteristic of human nature. Accepting this, we want to learn how one qualifies for membership of this new botanical elite who will be allowed access to the sacred herbarium sheets of *Crocus* in the herbarium of the Royal Botanic Gardens, Kew. These are alleged to have the secret texts inscribed upon them. Is being "an academic" enough?

attempting to leave
the country with a
suitcase full of bulbs

We once had a bizarre conversation with an "academic", who attended a talk Jim gave on Turkish plants. While she stood there, clutching a volume entitled 'Flower Fairies', we discussed *Fritillaria kittaniae*. Unprompted by any question from

Jim, she said, "I'll tell you where it grows, if you tell me where you found....." Rising above an infantile situation, Jim said, "I'll be pleased to tell you where we have found....., without you telling me anything." A year or so later, we were told that this particular "academic" had been detained by the Turkish authorities, while attempting to leave the country with a suitcase full of bulbs, including a large quantity of *Crocus mathewii*. Perhaps she had been allowed to have a little peek at the secret texts, in which case not any old "academic" will have a chance in future.

not a slick move

Let us look at this logically : this is a matter only for botanical academics, so only botanists working at a university can see the secret texts. The *Crocus* species concerned only come from Turkey. Kew policy acknowledges the 'rights of indigenous peoples', so perhaps only Turkish botanists from Turkish universities should have access to them.

A few years ago we mentioned the removal of several hundred *Iris paradoxa* from an archaeological site in SE Turkey by a Turkish botanist working at Ankara University. This policy might not be such a slick move after all. Let's just cut the labels off the specimens and be done with it, now.

It's all becoming just too much to bear !

Since we started growing plants for seed ourselves and listing more seed from other specialist growers and collectors, the volume of material we make available each year has grown considerably. We have, from the inception of our fulltime involvement with seeds, long ago in 1983, attempted to restrict our business to knowledgeable specialist growers by relying solely on personal recommendations for new customers. During more than a decade, we have not advertised or set out to publicise this business in any way but we have had a steady inflow of new customers. As we have retained the loyalty of the vast majority of those who have been with us from the beginning, it has all been very satisfying for us and we hope that it has been for you also.

Dealing with a greater volume of business and material has only been possible up till now because we spend much more time at home in the office nowadays and much less time collecting abroad. When we started back in the early 1980's, we were out of Britain for more than six months in the year. Now, we find it hard to get away at all. Though we have no intention of expanding into a less personal concern, the seemingly inevitable increase both of business and the range of

seed needs to be handled more efficiently. This is necessary not only from our point of view but from yours.

Our lists are being issued too late for us to get your order to you at the best time for sowing. The last list was sent out late in September, still in time to sow the seeds in it, but many of you did not receive the seeds for more than a month, by which time it was getting too late for germination in the present winter. That list should have gone out about the end of June, as soon as we knew what was available in 1998 hellebore seed. The present list would ideally have been with you at the end of September. We are now more advanced with packeting, so you should receive your seeds more promptly than from the last one. Things are being moved in the right direction.

Stay with us while we change gear in 1999. We now have help with packeting the seed. We hope to have more help with maintaining the plants next year. We have rethought both the pattern and the practical processes of issuing lists. You may feel it is all a little frenetic in the 1998-99 period. You will receive more lists more irregularly. By 2000, we should have a new regular pattern in place, everything should be tightened up and we can think about even more developments.

Ordering from this list could not be easier

We shall accept your personal cheque in US \$, £ sterling or DM, with two qualifications : cheques in US \$ must be on a US bank account - charges on negotiating cheques on foreign accounts are very high in the USA (foreign banks can sometimes sell you a US \$ cheque drawn on one of their US branches) ; please do not send Eurocheques made out in US \$ - these are unfamiliar to the US banking system. Payments from France can cause problems. While we price in FF, we must ask French customers not to send cheques in FF and especially not to use cheques on 'La Poste'. These have proved very difficult to handle. A Eurocheque made out in £ sterling is excellent ; a Giro payment in sterling is used by many French customers - you can price in FF and have the current equivalent sent to us in £ sterling. FF cash sent by registered letter is also no problem. If fluctuations in exchange rates mean that it is advantageous to select a currency other than your own, please do so - it makes little difference to the operation of our

business. Apart from personal cheques, payments can be made in bank-notes for any of these currencies (please send by registered mail), a bank draft or International Money Order (in US \$ or £ sterling for these please). We do not operate a Giro account to enable direct transfers nor do we accept credit card payments at present. If remitting by sterling cheque, it is a great help both to you and to us, if you send us an open cheque, limited to the total value of your order. Obviously it cannot be made out for more than the limit but it can certainly be made out for less, avoiding annoying credits or refunds - you will only pay for what we have sent after the order is despatched. If you do not wish to do this, a list of some possible substitutes will be very helpful - we shall not use them unless we have to and, if we do, we always try to send more than the value of the items not supplied. We shall not pay in your cheque until after your order has been sent - it is in our interest, as well as yours, to complete your order as quickly as we can.

PLEASE HELP US BY PRINTING YOUR NAME & ADDRESS CLEARLY.

THERE IS NO CHARGE FOR POSTAGE, BY AIRMAIL IF ABROAD, ON SEEDS OR LISTS.

European currency changes

We shall continue to price in DM & French francs during 1999. Any further adjustments to align our pricing structure with the parity of these two currencies will be made as far as practicable. We shall, of course, price in euros in due course but, if, in the meantime, customers find it more convenient to send the equivalent payment in the new currency, it will be acceptable from 1 January, 1999.

New customers please understand

There may be a delay of some weeks before you receive your order. Most orders come in during the first few weeks after we send out a list. We receive orders very much faster than we can despatch them. If you feel your order is too long in arriving, check with your bank to find out if your cheque has been cashed - we do not pay in cheques until orders have been despatched. If it has been cashed, let us know immediately. One or two items are lost or delayed each year. In such an unlikely event, you will find us totally sympathetic. We are glad to say such problems are very rare. Postal services are, on the whole, very reliable. We try to be as reliable ourselves.

Our population reference numbers

The species in our lists are divided into five distinct geographical areas. Within these areas they run in alphabetical order. The numbers appearing before the names run in numerical order (which means we do not much like generic 'splitting'). These numbers refer to particular populations, mainly in the wild, though cultivated material without data is given a number also. Wild collections which cannot be fully identified will be found under a five-digit field number. This number refers to a collection made by us on a particular date only. Both sets of numbers are permanent. The use of population references is to avoid seed from the same population of plants being distributed under a proliferation of field-numbers. In some instances, the same population of plants can be found in our own field-notes under a multitude of field-numbers, when it has been visited by us in different years. When another collector is involved their name or field number is quoted in the data following the plant name.

Identified species from Europe, W Asia & N Africa have six-digit numbers here, though they have an 0. before them on our records and you may sometimes see this on a label. The seven-digit numbers start with a 1. for North America, 2. for South

America, 3. for Southern Africa (S of the Sahara), 4. for Eastern Asia and 5. for Australasia. Garden hybrids and selections (with which we are not much concerned) start with 6.

The names we use in this list will usually be those in the standard, modern floras for the areas concerned or those used in standard monographs of particular genera, (as far as either of these exist). We try to maintain a degree of international objectivity & do not necessarily put nomenclature in line with British horticultural reference publications, such as the 'RHS Dictionary', 'AGS Encyclopaedia' or 'The Plantfinder'. Names used in these or in general horticultural use may be in brackets

Cultivated seed, which has become increasingly evident in our lists, as we build up stocks raised from seed of wild origin, is marked with an asterisk (*). The field-data given in these cases refers to the parents. Almost all cultivated seed was collected in 1998. Much is hand-pollinated but it will not necessarily produce similar-looking seedlings. As our parent-stocks represent samples of wild populations, seedlings will show the variation present in the wild. We attempt to preserve the genetic diversity of the wild plants not to impose our concepts on them.

. welcome to our list

It was a very late spring in the mountains of the American West

and the deep snow from the previous winter lay late into the summer : not a vintage season for collectors like ourselves who were in the field to collect seed from the early-flowering bulbs but hoped to pick up the first of the later-flowering herbaceous plants & alpines towards the end of the visit. Nevertheless, we succeeded in making collections from some important species at middle altitudes in the Great Basin and Colorado Plateau. The wet spring resulted in an outstanding flowering of some of these steppe-species and, though we were able to take advantage of a reasonably good seed-set on several genera, like *Astragalus* and *Delphinium*, which flower & mature their seed quickly, we still had to leave before many, such as *Penstemon*, were ready. As the core of this list is North American material, it is fortunate that several other collectors have been able to add some outstanding main season collections. Bulb experts, Jim and Georgie Robinett, have been more active in 1998 than in the previous two years, so we have several *Calochortus*, *Lilium* and

Triteleia collections from them. John Andrews, the man who likes to reach the parts others cannot reach, has also resumed collecting after a short rest with a few trips to the highest ranges of the Great Basin. It may not be appreciated that John's efforts are not always fruitful and it is difficult for stay-at-home gardeners to appreciate the vast amount of time and energy which has gone into eventually making collections from the Charleston Peak endemics we list, especially the local race of *Aquilegia scopulorum*. His efforts to collect *Primula capillaris* in the Ruby Mts. in 1998 were not rewarded. Other dedicated hikers, Mike and Polly Stone from Scotland, have come up with some fine alpines from the north-central ranges of the Rockies, in Wyoming, Idaho and Montana. On a more regional basis, there are collections of some classic species from the Siskiyou and Klamath Ranges, which divide Oregon from California, by Phyllis Gustafson, and, from Greg Greger, collections in Plumas Co., beyond the sierras in NE California.

A touch of eastern promise

is provided by a few collections made by a Chinese botanist in Gansu. It is early days but we have high hopes that he may come up with a lot more of this interesting material in time. His collections are, we believe, correctly identified & well annotated but he still needs to learn about the (doubtless incomprehensible at present) fads, fashions and enthusiasms of western gardeners.

but let's start nearer to home - for us Europeans at any rate

In this 1998-99 winter list, we are concentrating on North American species but that is not to say that we do not have some interesting seeds from other parts of the world. The first section covers species from Europe, N Africa (N of the Sahara) and W Asia (W from Pakistan N through the Pamirs, the Tien

Shan & the Altai), a distinct floristic area. Nomenclature follows the basic floras, 'Flora Europaea', 'Flora of Turkey' & 'Flora Iranica' with a little editing and updating, if this is felt to be helpful to gardeners. Collections from the republics of the former USSR are usually listed under the names supplied.

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

- 125.205 : ALCEA RUGOSA** * No data. A fine clear-yellow hollyhock with lobed leaves & bristly stems of 1.5m. or more. Well illustrated in Phillips & Rix, Vol. 2, page 41. A very hardy perennial from the steppes of S Russia, SE to Turkmenistan. . . (10+) **B**
- 127.710 : ALKANNA ORIENTALIS** * No data. A bristly perennial, native from S Greece into SW Asia and suitable for a hot, dry, sunny site in the UK. About 40cm. high with undulate, oblong, greyish leaves and dense racemes of yellow flowers. (8) **B**

Allium : onions galore

While it has its devotees, many gardeners do not fully appreciate the qualities of this large & diverse genus, spread throughout the N Hemisphere with its main centre in Europe & W Asia & another in western N America. We offer a range from the latter area later in this list. All listed here enjoy a well-drained site in full sun in the UK. Most tend to be more successful in alkaline soils in the more continental climate of

the E of Britain, rather than in the wetter, more equable climate of the W but this is quite an adaptable genus on the whole. Though strictly speaking winter-growers, many flower & mature their seed late, so they fit in with summer-growing species for winter-sowing. Although many are easily grown, accommodating garden-plants, there are no species listed likely to become aggressive under average garden conditions.

- 130.600 : ALLIUM ATROPURPUREUM** * No data. A handsome, 50cm. high plant from SE Europe & Turkey. Linear basal leaves & many-flowered umbels of starry flowers in deep, rich, red-purple on stems of about 50cm. (15+) **A**
- 131.970 : ALLIUM CAESIUM** * No data. Alan Edward's excellent, bulbil-free form of this Central Asian species, originally received from Tashkent Botanic Garden. A delightful plant about 30cm. high with umbels of many, violet-blue flowers (15+) **B**
- 131.400 : ALLIUM CAROLINIANUM** * No data. Most material in cultivation appears to originate from the KBE 268 coll. at about 4000m. on the limestone of the Razbal Gali pass, Kashmir, in 1983. Attractive & little-known, red-purple species. (15+) **C**
- 131.550 : ALLIUM CHAMAESPETHUM** Greece, Messinia, Pilos. 50m. Open, rocky hillside. B. Mathew coll. (An odd, 30cm. high, autumn-flowering bulb from the limestones of S Greece & Crete. The upper leaf sheathes the stem up to the rounded umbel of cylindrical, white flowers and projects above it in a most distinctive fashion. Possibly for the bulb-frame in the UK.) (10+) **B**
- 131.605 : ALLIUM CHRISTOPHII** (*A. albopilosum*) * No data. Purple-pink stars in showy, rounded umbels about 20cm. across on 50cm. stems. A very hardy plant from N Iran & Turkmenistan & one of the best ball-headed ones for UK gardens. (15+) **A**
- 132.000 : ALLIUM DARWASICUM** Tadjikistan, Varsob valley. (Elegant umbels of upturned, white flowers. 50cm.) (20+) **C**
- 132.810 : ALLIUM INSUBRICUM** * No data. This is "*A. narcissiflorum* of gardens". Both species are closely related and equally local in the wild : *A. narcissiflorum* with sugar-pink, erect flowers in the French Alps ; *A. insubricum* from above Lake Como in N Italy with drooping bells in a lovely soft, dim wine-purple. Choice, slow-growing but not difficult in limestone scree. (10) **C**
- 132.950 : ALLIUM JESDIANUM** Tadjikistan, Seravschan ridge, Shing valley. (A fine, variable, Central Asian, bulbous species, usually about 1m. high & long confused with *A. rosenbachianum*. Janis Ruksans has named a most distinct, early flowering clone, 'Shing', from this valley : extremely dense, dark purple umbels on 70cm. stems & yellowish-green foliage.) (15+) **C**
- 134.060 : ALLIUM MYRIANTHUM** * Turkey, Denizli, Pamukkale. 400m. Ex a N. Stevens coll. (A type-locality coll. of this distinct, E Mediterranean, 80cm. high, plant with dense mop-heads of numerous, tiny, white flowers on purple pedicels.) (20+) **A**
- 134.100 : ALLIUM NARCISSIFLORUM** * France, Hautes-Alpes, Pic de Gleize. 2000m. Unstable, limestone screes along S-facing side of summit-ridge. (In gardens, this name is still frequently applied to *A. insubricum*, its close, equally local relative from N Italy. From "high up in the most awesome shelves of the limestone Alps of Piedmont," this is "the glory of its race" according to Farrer. Close clumps of foliage & 15cm. stems carrying umbels of erect (not drooping as in *A. insubricum*) sugar-pink flowers.) (8) **D**
- 134.410 : ALLIUM OBLIQUUM** * Russia, Siberia, Sajon range. (A fine, ball-headed species distributed through Central Asia into S Siberia. One of the last of the taller species to flower, up to 1m. high with dense, almost spherical, umbels of many, cup-shaped, pale-yellow flowers with projecting yellow stamens. A delicate contrast to the purple usual in this group.) (20+) **C**
- 134.801 : ALLIUM ORIENTALE** * Turkey, Antalya, Irmasan gecidi. 1530m. Openings in *Abies* forest on limestone. (A worthwhile form of this variable, 50cm. high species. Rounded umbels of white flowers with lilac-purple anthers & filaments.) (20+) **A**
- 136.805 : ALLIUM SCHUBERTII** * No data. One of the most spectacular species with enormous rounded heads of purplish flowers up to 40cm. across on 50cm. stems. The flower-stalks vary greatly in length, giving an explosive, starburst effect. As attractive in seed as in flower, it dries beautifully. From Syria & Israel, it is best grown in a bulb-frame in the UK. (15+) **C**
- 137.010 : ALLIUM SENESCENS** * No data. An excellent, hardy garden-plant, spread in the wild from SW Europe E into Siberia. Close clumps with flat foliage send up hemispherical umbels of lilac flowers on stems of about 30cm. (20+) **A**
- 138.900 : ALLIUM STIPITATUM** Tadjikistan, Varzob. (A wild coll. of this imposing Central Asian, summer-flowering bulb. Ribbed stems of a 1m. or more high carry almost spherical umbels of starry, purple flowers with tapering, twisted segments.) (20+) **C**

Species from Europe, W Asia & N Africa : Seeds from Jim & Jenny Archibald

- 139.000 : **ALLIUM SUBVILLOSUM** * No data. A W Mediterranean plant from maritime sands & grasslands, about 50cm. high, with many-flowered, hemispherical umbels of cup-shaped, pure-white flowers. Warm site or bulb-frame in the UK. (20+) **B**
- 138.980 : **ALLIUM SUWOROWII** * No data. A fine, very hardy, Central Asian bulb with stems up to 1m. high carrying hemispherical umbels of many rosy-violet stars with linear segments which reflex & twist after flowering. (20+) **A**
- 155.050 : **ANDROSACE ALPINA** from **COMPACT FORM** * No data. Seed from Jim Almond of an outstanding variant of this calcifuge European high alpine & one sought after by alpine-house specialists as, unlike most forms, which tend to straggle in cultivation at low altitudes, this remains tight. Its origins are obscure but we have seen photographs of compact plants taken in Austria by Lionel Bacon. Apart from its habit, this is quite typical *A. alpina* with rich-pink flowers from green rosettes . . . (10+) **E**
- 157.010 : **ANDROSACE VANDELLII** * No data. A classic alpine-house plant from non-calcareous cliffs in the S Alps, the Pyrenees & the Sierra Nevada. Tight, symmetrical, silvered cushions cover themselves with white, yellow-eyed flowers. (15+) **C**
- 195.073 : **ARUM CONCINNATUM** (*A. nickelii*) * No data. Ex a 1960 Furse & Syngé coll., presumably in Turkey. (Seldom seen in cultivation, this is a robust species. The foliage can be as much as 1m. high in a well-grown plant & the huge, yellowish spathes, often just rimmed with a purple tint, almost 30cm. long. From Mike Tucker's plant which supplied the material for Ann Farrer's painting, Plate 3, in the 'Genus Arum' by P. Boyce. Needs a warm, sheltered site to thrive outside in the UK.) (8) **C**
- 195.150 : **ARUM DIOSCORIDIS** (var. *dioscoridis*) * Turkey, Mersin, NNW of Mersin towards Arslankoy. 500m. Crevices in limestone pavement. (Superb forms here, originally distributed by us in the 1980's as *A.d.* var. *spectabile*, merged in the 1993 P. Boyce revision, along with other S Turkish taxa, into *A.d.* var. *dioscoridis*. Here the very large spathes are often entirely velvety black-purple. Needs a warm, dry site in the UK or is perhaps best grown in the bulb-frame so it can have a summer rest.) . . (10) **C**
- 195.158 : **ARUM DIOSCORIDIS** (var. *dioscoridis*) * Turkey, Antalya, NE of Antalya, Aspendos. Ex a N. Stevens coll. (Another fine form from further west with the spathes spectacularly blotched with dark, red-violet.) (10) **C**
- 195.159 : **ARUM DIOSCORIDIS** (var. *dioscoridis*) Greece, Simi, NW of Emporios. 110m. Among scrub in terra rossa on limestone ridge. M. Denney 612 & 613. (A rare opportunity to acquire material from one of the few E Aegean island populations of this predominantly S Turkish plant. We tentatively list this under the type-race but note that Peter Boyce mentions the disjunct occurrence of *A.d.* var. *cyprium*, otherwise a plant of Cyprus & Syria, on Rhodes & adjacent islands, like Simi (improbably along with *A.d.* var. *dioscoridis*). *A.d.* var. *cyprium* has a black-purple spadix and the pale-green spathes stained purple only in the basal part. We are obviously dealing with a diverse population in this locality, so anticipate considerable variation.) (10) **C**
- 195.950 : **ARUM ITALICUM** from **PURPLE-SPOTTED SPATHE FORM** * Italy, Sicily, SW of Campobello di Mazara. c.20m. Old limestone quarry. Ex a D. Drummond coll. (One of the best forms of *A. italicum* Mike Tucker has seen. Leaves spotted with dark maroon & spathes speckled with purple. A winter-growing species but most races prove good garden-plants in the UK.) (8) **D**
- 196.610 : **ARUM ORIENTALE** (subsp. *orientale*) * No data. Mike Tucker's fine form of the genuine species with extremely large, erect, boat-shaped, dark purple-brown spathes with dull purple spadices and deep-green, floppy leaves. The species as a whole, widely distributed in E Europe & around the N of the Black Sea, is accordingly variable. It is seldom seen in cultivation in any form though most are excellent garden-plants in the UK, being native to similar habitats to *A. maculatum* in cold climates.) (8) **E**
- 197.150 : **ARUM RUPICOLA** var. **VIRESCENS** (*A. conophalloides*) * No data. From several Turkish colls. of this widespread SE Asian species in the form with grey-green spathes, often narrowly purple-bordered, & massive, cylindrical lilac-grey spadices. Withstands very low winter-temperatures but best protected from excess moisture in the UK by a bulb-frame. (8) **C**
- 202.800 : **ASPERULA ORIENTALIS** * No data. A very fine blue-flowered annual distributed in the steppe & oak scrub areas of E Turkey & W Iran, S into Syria. About 25cm. high & as much across with angled stems, whorled with oblong leaves, carrying heads of bright-blue, tubular flowers, surrounded by a ruff of narrow bracts. Will sow itself, if suited in a dryish, sunny site. . . . (50+) **A**
- 220.705 : **ASTRANTIA MAXIMA** (subsp. *maxima*) * No data. An exquisitely lovely meadow-plant from the Caucasus & neighbouring NE Turkey. A little dwarfer with much larger heads than *A. major*, in green-veined, soft rose-pink & carried singly on 60cm. stems over a very long period in summer. The running-clumps with three-lobed, basal foliage enjoy a cool, rich soil (20+) **A**
- 224.105 : **ATHAMANTA MACEDONICA** subsp. **ARACHNOIDEA** * No data. The race of this Balkan member of the *Umbelliferae*, endemic to the Oros Tayetos of the Greek Peloponnese. Tim Ingram describes this slow-growing, 1m. high perennial as "a remarkable plant" with strong clumps of cut, grey, downy foliage erupting into a much-branched woolly inflorescence of numerous umbels of white flowers. Small basal shoots perennate to repeat the process. For a sunny, very well-drained place. (15+) **B**
- 224.270 : **ATHAMANTA TURBITH** subsp. **HAYNALDII** * No data. From the limestones of Albania & adjacent areas, this delightful little perennial for a hot, dry site is highly regarded by Wilhelm Schacht. We used to grow it in Dorset & found it permanent, choice & slow-growing. A filigree of bright-green foliage cut into linear threads with delicate white umbels on 30cm. stems. . . . (20+) **C**
- 224.300 : **ATHAMANTA VESTINA** * No data. Included under *A. cretensis* in 'Flora Europaea' & considered to be an eastern intermediate of it with *A. turbith* subsp. *haynaldii*, to which Tim Ingram compares it as a robust version. Fine filigree mounds of bright-green foliage & many, dainty pure-white, 60cm. umbels. A good, choice perennial for a dry site. (15+) **B**

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- **C** : \$4.00 ; £2.50 ; DM7,- ; FF23.- **E** : \$7.00 ; £4.50 ; DM12,- ; FF41.-
B : \$3.00 ; £2.00 ; DM5,- ; FF18.- **D** : \$5.00 ; £3.50 ; DM9,- ; FF32.- **F** : \$9.00 ; £6.00 ; DM16,- ; FF55.-

- 245.001 : BUPLEURUM ANGULOSUM** * France, Hautes-Pyrenees, Vallee d'Ossoue. 1500m. Steep limestone scree on S-facing slope. (A very choice, slow-growing perennial with neat tufts of narrow leaves & 30cm. branching stems of large, rounded, *Astrantia*-like heads in an exquisite, glaucous jade-green, which always attract much attention & are coveted by flower-arrangers. Not at all difficult to grow in a well-drained site in sun or part-shade but needs some patience to establish.) (15+) C
- 245.090 : BUPLEURUM FRUTICOSUM** * No data. A shrubby, Mediterranean species, the only woody member of this genus in *Umbelliferae* much grown in the UK, where it is just on the borderline of hardiness. About 2m. high, it can be particularly fine on chalky soils & in maritime areas with its umbels of acid-yellow flowers against the leathery, blue-green foliage. (20+) B
- 245.180 : BUPLEURUM SALICIFOLIUM** * No data. Endemic to cliffs at up to 1000m. in the western Canary Islands, this will tolerate a few degrees of frost but must be considered tender in most of the UK. An attractive small shrub with narrow, linear, grey-blue leaves and umbels of green-yellow flowers. Originally from stock grown at the Chelsea Physic Garden, UK. (20+) C
- 250.500 : CAMPANULA ALPESTRIS** (*C. allionii*) * France, Vaucluse, Le Mont Ventoux. 1800m. Loose, limestone screes. (One of the most spectacular of European alpinists with "immense flowers...of the most gorgeous satiny purple." Better grown outside in a scree-bed or trough in the UK than cosseted under glass, though it does well in the summer-heat of Denver.) (20+) C
- 252.700 : CAMPANULA CARPATHA** * Greece, Karpathos. Shady, limestone crevices. Ex a H. & I. Barton coll. (A superlative alpine-house species, seldom without a profusion of its large, elongated bells in soft blue-violet against its downy foliage. Introduced by Peter Davis in 1950 & rapidly lost, this is from the Barton's 1983 re-introduction which we maintain here. This choice long-lived, Karpathos endemic, has been disadvantaged through the similarity of its name to that of the easy *C. carpatica*.) (30+) D
- 257.400 : CAMPANULA LACINIATA** * Greece, Karpathos, WSW of Arkassa, Cape Paleokastrou. Near sea-level. Limestone fissures. Ex a H. & I. Barton coll. (Rosettes of slashed leaves send up a stout stem clustered with shallow bowls in "cold crystalline lavender" with large white centres. "The fairest Campanula in all Greece" wrote Tournefort, its discoverer; "one of the finest monocarpic species known" wrote Peter Davis in 1938. Unique & unrivalled but needs space under glass in the UK.) (30+) D
- 260.210 : CAMPANULA PATULA** subsp. **ABIETINA** * No data. A comparatively dwarf, stoloniferous perennial in an attractive and variable species-group, seldom seen in cultivation but widespread through Europe to the Altai & Caucasus. This race is centred on the mountains of Romania from the Carpathians down into the N part of the Balkan peninsula. Rosettes of bright-green leaves send up wiry stems of about 20cm. bearing several upward-facing, open, starry flowers in rich purple. Rich, gritty soil. (50+) C
- 266.000 : CAMPANULA WALDSTEINIANA** * Croatia, Velebit Planina, Mali Halan between Obrovac & Sveti Rok. 1100m. Fissures in vertical limestone. (Tiny, beautiful Velebit endemic, a few cm. high, with many, wide-open, blue flowers on branching, wiry, fine-leaved stems. Alpine-house, trough or limestone-scrub in the UK; a great success on the rock-garden at Denver.) (50+) C
- 293.170 : CERINTHE RETORTA** * No data. An annual from the SW Balkan peninsula in a small genus of *Boraginaceae*, which is becoming fashionable. About 30cm. high with big violet bracts about the pale yellow & violet flowers. (5) B
- 295.285 : CHAMAECYTISUS HIRSUTUS** * No data. A very variable species, usually with a calcifuge tendency in nature, core of a complex of taxa extending E from central Europe into central Asia. This is a fine, erect-growing form of this neat shrublet, about 20cm. high, with downy leaves & racemes of bunched, rather large, yellow pea-flowers in late spring & early summer. . . . (10+) B

Digitalis : easy-going foxgloves flower fast from seed

- 407.401 : DIGITALIS FERRUGINEA** (subsp. *ferruginea*) * Greece, Trikala, above Panagia to Katara. 1500m. Margins of *Pinus* woodland. (Long, dense racemes of yellowish, orange-brown-netted flowers with projecting lips, on 1.5m. stems.) (50+) A
- 407.804 : DIGITALIS GRANDIFLORA** * France, Alpes-Maritimes, Vallon de Valmasque. 1700m. Among scrub. (Like a dwarfier, soft yellow version of *D. purpurea* but, unlike this, a reliable perennial. Easy anywhere in the UK in light shade.) (50+) A
- 408.300 : DIGITALIS LAMARCKII** * Turkey, Gumushane, Vauk Dagi, Guvercinlik. 1800m. Open, stony slopes. (An outstanding perennial endemic to NE Turkey & perfectly distinct from *D. lanata* in this area. Clumps of narrow, dark-green leaves & 50cm. stems of large, soft-brown, baggy flowers with huge, prominent, white lips. Long-lived in a well-drained site in full sun.) (50+) B
- 408.500 : DIGITALIS LANATA** * Greece, Kavala, Pangeo. 1000m. Open areas in deciduous woodland. (A 1m. high Balkan perennial in Sect. *Globiflorae*, like the preceding. Densely packed racemes of creamy, brown-veined flowers with white lips.) (50+) A
- 409.402 : DIGITALIS OBSCURA** * Spain, Soria, Puerto del Pinar. 1100m. Among limestone debris on open slopes. (A shrubby perennial with narrow, shiny foliage & amber foxgloves, yellow marked with rust-red inside. This population was only 20-30cm. high in the wild but is somewhat taller in cultivation. A most distinct Spanish endemic for a dry, sunny situation.) (50+) B
- 409.610 : DIGITALIS PARVIFLORA** * No data. A leafy, 60cm. perennial from the mountains of N Spain. In the Sect. *Tubiflorae*, like *D. lutea* & *D. viridiflora*, with long, dense, woolly racemes of tubular, red-brown, purple-veined flowers. (50+) A
- 410.000 : DIGITALIS THAPSI** * Spain, Avila, Sierra de Gredos, Puerto del Pico. 1300m. Granite fissures & in loose, granite grit on steep slopes. (Another Iberian endemic, quite close to *D. purpurea* but a good perennial in a sunny, well-drained place or lime-free scree-bed. Leaves & stems all covered in yellowish indumentum & with many, large, downy, sugar-pink flowers.) (30+) B

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
 B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

Species from Europe, W Asia & N Africa : Seeds from Jim & Jenny Archibald

- 412.180 : **DIONYSIA INVOLUCRATA** * Tadjikistan, Pamir-Alai, Khandar river gorge. 1000m. & over. Ex J. Halda colls. (This & *D. aretioides* have proved the most amenable of an intractable genus. Still a plant only for the experienced alpine-house grower. Cushions of sticky-leaved rosettes with umbels of sugar-pink flowers. A little hand-pollinated seed from Jim Almond) (15+) E
- 424.126 : **DRACUNCULUS VULGARIS** (var. *creticus*) Greece, Crete, S of Hania, Therisso. M. Jope 98-14. (A wild collection from the Cretan form of this spectacular aroid, up to 1m. high, with pedately divided foliage & huge, fleshy, brown-purple spathes on maroon-spotted stems. This island race usually has the large divided leaves spectacularly marked with oblique silver slashes. Usually possible in the open garden in the S of the UK & arresting in a hot, dry site but safest in a bulb-frame in colder areas.) (8) D
- 428.250 : **EBENUS CRETICA** Greece, Crete, N of Moni. 125m. M. Jope 97-69 (One of the most outstanding of the chasmophytes endemic to the limestone cliffs & gorges of Crete. Also, in our experience, one of the most growable in this splendid, little genus in the pea family, centred on SW Turkey. Wild seed is not easy to collect & is rarely available. A dwarf shrub, usually more erect & compact in cultivation in the UK, where it seldom exceeds 20-30cm. high, than in nature, with its neat, silky, grey-white foliage & stems providing a perfect setting for the dense racemes of bright-pink flowers, amid papery, silvery bracts in summer.) (5) E
- 432.300 : **ECHIUM RUSSICUM** * No data. A striking plant, almost 1m. high, from the dry grasslands of E central Europe, N into Russia. Spike-like inflorescences of many rusty-red flowers with the stamens exerted on long, red filaments. A bristly, short-lived perennial, evocatively illustrated, growing in Russian *Stipa*-steppe, in Rix & Phillips 'Perennials' Vol. 1., p. 170. (15+) B
- 444.005 : **EREMURUS COMOSUS** * No data. From Central Asia & adjacent N Afghanistan & seldom seen in cultivation. Fascinating rather than showy. Slender racemes of brownish flowers, emerging from papery white bracts, on stems over 1m. high. (10) B
- 444.060 : **EREMURUS HIMALAICUS** * No data. The magnificent NW Himalayan Foxtail Lily with 2m. spires packed with white flowers. Like all these, tolerant of extreme cold when dormant but vulnerable to late frosts if they emerge too early. (10) B
- 444.101 : **EREMURUS SPECTABILIS** * Turkey, Kahramanmaras, SSE of Goksun. 1550m. (Spires of green-white flowers with exerted orange-brown anthers. 1.5m. In spite of its name, not actually so spectacular as some but intriguing.) (10) C

Eryngium : sapphire & steel sea-hollies

- 458.510 : **ERYNGIUM ALPINUM** * No data. Very local in its distribution through the limestone ranges of S Europe, E from SE France. Most distinct in its cylindrical, dome-shaped, blue heads surrounded by a great ruff of finely cut, feathery, steely-blue bracts, which are softly, not sharply, spiny - nor are the toothed, cordate basal leaves. For good, well-drained soil in sun. (15+) B
- 460.210 : **ERYNGIUM CAMPESTRE** * No data. A Central European perennial, actually recorded in S England but very seldom seen in gardens. Cut, spiny, leathery basal leaves & erect corymbs about 50cm. high, "beautifully structured in green-white" writes Mike Tucker, with whom this has proved very slow-growing, taking several years to flower. "Worth the wait", he says. (15+) B
- 461.000 : **ERYNGIUM GLACIALE** * Spain, Granada, Sierra Nevada, towards Pico del Veleta. 2700m. Exposed stony slopes & schistose screes. (An alpine endemic of the Sierra Nevada & High Atlas, this is the smallest perennial species, 5-20cm. high with deeply-cut, spiny foliage & silver-blue stems & spiny bracts. Long-lived & accommodating in sunny scree in the UK.) . . . (15+) C
- 461.500 : **ERYNGIUM MARITIMUM** * UK, England, Devon, Exmouth. Among grass on stable sand-dunes just above sea-level. Ex a M. Tucker coll. (The Sea Holly itself, maybe the loveliest of the genus but little-known in gardens & by no means easy. Spiny basal leaves, stems & bracts all in the same matt bluish-grey, a little paler than the blue flower-heads. Less than 30cm. high & slow-growing, it merits every care in sunny scree or a raised bed, where it never fails to attract attention.) (10+) B
- 462.200 : **ERYNGIUM SPINALBA** * France, Vaucluse, Le Mont Ventoux. 1800m. Limestone scree & stony areas. (A superlative species, local on the limestones of the SW Alps. This originates from our 1984 coll., maintained by Mike Tucker (Somerset, UK), who finds it has proved a neat, "low-growing plant, silvery all over, like a dwarf silver *E. alpinum*." The flowers are an unusual, pale blue-green and the whole plant is seldom more than 30cm. high. Give it as much sun & sharp drainage as possible. (15+) B
- 475.250 : **EUPHORBIA CERATOCARPA** * No data. A tall, 1m. high, perennial from in S Italy & Sicily. Smooth, pointed, lanceolate leaves with many branching flower-stems from the leaf-axils. Needs a well-drained place in full sun in the UK.) (10+) C
- 479.001 : **EUPHORBIA MACROSTEGIA** * Turkey, Icel, NE of Gulnar. 1200m. Fissures on large limestone boulder. (An odd saxatile plant, about 30cm. high with highly polished foliage, which we have only seen growing in limestone fissures in the Gulnar area but which is proving a good garden-plant. It is illustrated in Phillips & Rix 'Perennials' Vol. 2, growing in Jack Elliott's garden (Kent, UK) from our 1985 coll., captioned *E. kotschyana* but bears as little resemblance to the taller, narrower leaved, widespread *E. kotschyana*, as it does to the robust, purple-tinged, SW Iranian forms of *E. macrostegia*. It needs a distinguishing name.) . . . (8) D
- 479.500 : **EUPHORBIA MARSCHALLIANA** Turkey, Artvin, Ardanuc to Ardahan. N. Stevens coll. (Described by Norman as a small, procumbent version of *E. rigida* with more rounded, fleshy, grey leaves & red-tinted seed-heads, this would be most likely to be *E. marschalliana* on distributional grounds but the seeds (the most important diagnostic character) are not quite right. However, this remote NE corner of Turkey has several local members of Subsection *Myrsiniteae* & field studies are non-existent.) (8) D

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

- 481.503 : EUPHORBIA RIGIDA** Turkey, Antalya, Bey Da., between Kemer & Ovacik. N. Stevens coll. (Much esteemed member of Subsect. *Myrsinitae* with erect, sculptured stems of spirally arranged, pointed, fleshy leaves, about 30cm. high. In spring, its flat acid-yellow heads stand out against the blue-grey evergreen foliage. In this area of Turkey it often has the raylet leaves flushed with orange and pink in bud and again later, as they mature. Usually perfectly hardy in a hot, dry site in the UK.) (10+) C
- 515.050 : GENTIANA ACAULIS** * No data. From a fine garden-form in the *G. acaulis* group. A classic rich-blue trumpet gentian, reliably floriferous with Alan Edwards in Surrey, UK. Most cultivars in British gardens, grown under this blanket-name, seem closest to *G. dinarica* from the eastern limestones & may be of hybrid origin. Good, rich, well-drained soil in sun (50+) A
- 515.400 : GENTIANA ANGUSTIFOLIA** * France, Hautes-Alpes, Pic de Gleize, NNW of Gap. 1900m. Steep limestone slopes. (A spectacular, rich-blue trumpet gentian, limited to the of the SW Alps. Narrow-leaved clumps, which can dry up almost completely in summer, and huge trumpets on short stems. Very distinct & of special importance in warm, dry, limy gardens.) (30+) C
- 515.652 : GENTIANA ASCLEPIADEA from PALE BLUE FORM** * From a beautiful paler, turquoise-blue form of the elegant willow gentian, one of the loveliest of autumn-flowering, herbaceous plants. Slow from seed but gradually builds up clumps of 60cm. stems. Blue trumpets cluster in the axils of the pointed, lanceolate leaves from late summer until the frosts. A species of the moist mountain woodlands of central Europe, E along N Turkey to the Caucasus & well-suited to semi-shade in UK gardens.) . . (50+) B
- 516.720 : GENTIANA BURSERI** (subsp. *burseri*) * No data. The type-race, endemic to the Pyrenees, one of the robust perennials in Sect. *Gentiana*, possibly closest to the Alpine *G. purpurea*. Rosettes of pointed leaves send up stems to about 50cm., carrying large clusters of yellow, bell-shaped flowers, often dotted with brown. A good, permanent, hardy plant but little-grown.) (50+) B
- 518.400 : GENTIANA GELIDA** * Turkey, Gumushane, Kop Dag. 2300m. Moist to dryish turf. (A handsome, late-flowering species, superficially rather like *G. septemfida* but with creamy yellow flowers, deeper yellow striped with green outside. Not too easy to grow but but successful with some. This seed is from Dinah Batterham who grows it well outside in Dorset, UK.) (20+) D
- 519.500 : GENTIANA PARADOXA** * Georgia, Abkhazia. (A relict surviving in a few places on the limestones between Sochi & Sukhumi at around 1300m. Unlike any other. Erect, 20cm. stems, clothed in linear, verticillate leaves & each bearing 1 or 2 trumpets, olive-green outside with pale-blue plicae & lobes. Not too difficult outside but choice enough for the alpine-house.) (50+) C
- 526.400 : GERANIUM MADERENSE** * No data but our stock is traceable back to original material sent from Madeira by Major Pickering to our old friend Trevor Crosby, at that time Curator of the Leeds University Botanic Garden., before it had been described as a new species. At about 1.5m. high, the largest *Geranium*, with trunk-like stems, propped up by the old, reflexed leaf-stalks, bearing an immense mound of purple-pink flowers. Essentially a winter-growing plant, it is really safest, frost-free under glass in the UK but we grew it well outside in Dorset for a time & it is certainly worth attempting in milder coastal areas. (10+) B
- 526.630 : GERANIUM PALMATUM** (*G. anemonifolium*) * No data. The other Madeiran endemic in Sect. *Anemonifolia*, sometimes confused in cultivation with the preceding, this lacks the trunk-like stem & persistent, propping leaf-stalks of *G. maderense*. Slightly smaller, it still forms massive rosettes of fleshy divided leaves with inflorescences, over 1m. high, with hundreds of purple-rose flowers on stems covered with purple, glandular hairs. Possible in a sheltered site outside in S & W Britain. (10+) B
- 527.000 : GERANIUM PSILOSTEMON** * Turkey, Artvin, Genya Dag. 1700m. Wet meadow in *Picea* woodland. (Our favourite among the larger ones with its stunning, luminous, magenta flowers, darkly veined & with glossy black centres. About 1m. high with large, cut, basal leaves, which emerge from shiny, crimson sheaths in spring & colour to orange & scarlet in autumn.) . . . (10+) B
- 528.220 : GERANIUM SANGUINEUM** * No data. Mainly from Max Frei's selected clone 'Elsbeth'. A long-flowering, reliable species, widespread through Europe to the Caucasus, usually in dryish, limestone habitats but does not resent our acid soil in a wet climate. A bushy growth of much-branched stems, clad in deeply cut leaves, with a profusion on bright magenta-pink flowers. . . . (10+) A
- 528.500 : GERANIUM SYLVATICUM** * Greece, Drama, Falakro. 2200m. Moist meadow. (From a fine form of this widespread European species. Good rose-pink flowers with large white centres on erect, leafy plants, about 1m. high.) (10+) B
- 565.005 : HEMEROCALLIS LILIOASPHODELUS** Russia, near Tomsk. (Wild-collected, Siberian seed of this elegant species, long-cultivated but rarely seen in gardens, though it is the only European species in an otherwise E Asian genus. Occuring sporadically eastwards from NE Italy, it very seldom sets seed in SE Europe. As the species is self-sterile, one suspects most western colonies are derived from single clones. Much more graceful than the bloated hybrids of unscented *H. fulva* with lily-like, bright yellow flowers on 1m. stems. It has "an unforgettable fragrance" and "great quality and charm" according to G.S. Thomas.) (15+) C
- 582.510 : INULA MAGNIFICA** * No data. A splendid 2m. high Caucasian, which needs space in moist, rich soil. "Superb and dignified" with "heads of brown buds opening to large, vivid deep-yellow daisies" writes Graham Stuart Thomas. (20+) B

Iris : both wild & bearded and smooth & elegant

Almost all the following fall into two groups of this diverse genus : the bearded irises (Section *Iris*), most of which can be grown in a well-drained site in full sun outside in the UK but some of the Turkish species are not so easy & merit bulb-frame conditions ; the spurias (Series *Spuriae*), which usually make

good, easy garden-plants in most of Europe & N America. The latter tend to be plants from areas with cold winters & hot, dry summers, though often from habitats which are very wet in spring, as well as in scrub & grassland. The best reference for all the species is 'The Iris' by Brian Mathew.

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
 B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

Species from Europe, W Asia & N Africa: Seeds from Jim & Jenny Archibald

- 583.900 : IRIS ATTICA** (Sect. *Iris*) * Greece, Viotia, Oros Parnassos. 1200m. Clay in limestone pockets. (Mainly from pale yellow forms with some blues & purples. The dwarfest bearded iris, ideal for an alpine-house pan with frequent repotting.) (8) C
- 588.020 : IRIS GRAMINEA var. PSEUDOCYPERUS** (Ser. *Spuriae*) * No data. A robust race of this easy S European plant. Fine, red-purple flowers, white-pencilled & yellow-shaded, nestle in the 30cm. clumps of broad, rich-green, glossy foliage. (10+) B
- 590.100 : IRIS JUNONIA** (Sect. *Iris*) * Turkey, Antalya, Gidengelmez Dag, S of Madenli. 1900m. Fissures on limestone-cliff. (A very local bearded iris from high altitudes in the Taurus. Here, in the W of its distribution it inclines towards the W Turkish *I. purpureo-bracteata*, in its somewhat inflated, purple-tinged bracts. Pale yellow, tinged with purple in this form. 30-40 cm. high.) (5) C
- 590.210 : IRIS KERNERIANA** (Ser. *Spuriae*) * No data. An elegant N Turkish endemic forming clumps of very narrow leaves, above which rise creamy-yellow flowers on stiff, slender, 30cm. stems. Choice but reliable in a sunny, well-drained site.) (10+) C
- 590.405 : IRIS LACTEA** (Ser. *Ensatae*) Russia, near Tomsk. (Wild, Siberian seed of this widespread species, the only member of its series. Distributed through Central Asia, S to the Himalayas & E to NW China & Korea, this is variable and rejoices in many synonyms (this seed was collected as *I. biglumis*). Clumps of tough, narrow foliage and several, fragrant, purple-blue flowers on stems of about 30cm. in early summer. A very hardy, drought-resistant species, usually easy in an open site.) (15+) B
- 591.350 : IRIS ORIENTALIS** (Ser. *Spuriae*) (*I. ochroleuca*) * No data. An easily grown, imposing species of 1m. or more, native to saline marshes from NE Greece into Turkey. Pure-white flowers with striking yellow blotches on the rounded falls (15+) A
- 597.810 : IRIS SENTENISII** (subsp. *sintenisii*) (Ser. *Spuriae*) * No data. Balkan & NW Turkish species, about 30cm. high & an excellent garden-plant. Clumps of grassy leaves & rich violet-blue flowers, rather like large versions of *I. reticulata*. (10+) B
- 599.205 : IRIS SUAVEOLENS** (Sect. *Iris*) * Greece, Edessa. Ex an A. Edwards coll. (From both purple & yellow forms) (5) C
- 599.610 : IRIS SUBBIFLORA** (Sect. *Iris*) * No data. Bearded iris, about 30cm. high, from Portugal. Upright leaves and flowers in a silky, imperial violet. Said to be satisfactory outside in the UK but we give it a warm summer-rest under glass here. (8) B
- 599.805 : IRIS TAOCHIA** (Sect. *Iris*) * Turkey, Erzurum, N of Tortum. 1600m. Steep, open, stony slopes. Ex a R. & R. Wallis coll. (A choice, compact, local iris from igneous slopes in a small area NE of Erzurum. Prominent, broad foliage & branched stems reaching about 30cm. with flowers in pale yellow or dusky purple with yellow-haired beards. From both colour forms.) (5) D
- 600.099 : IRIS TROJANA** (Sect. *Iris*) * Turkey, Mugla, N of Mugla. Edge of woodland. Ex an A. Edwards coll. (A bearded iris with distinctive, bicoloured flowers. Pale blue standards & red-purple falls with beards of white, yellow-tipped hairs. 60cm.) (5) B
- 618.800 : LATHYRUS JAPONICUS subsp. MARITIMUS** UK, England, Suffolk, near Aldeburgh. Sea-level. Shingle beach. D. Stephens coll. (A 'classy' rhizomatous perennial with procumbent stems, clad with pale glaucous-green, pinnate leaves & carrying many stalked racemes of up to 12 purple flowers, fading to blue. The species as a whole occurs from Japan to both the N Pacific & N Atlantic coasts of America, hence to the shores of NW Europe but in the UK it is known only from a few sites in SE England, around Aldeburgh, where the local population is said to have survived starvation in 1555, by eating its seeds.) (10+) B
- 619.710 : LATHYRUS TINGITANUS from PINK FORM** * Morocco, near Tangier. (Fine, seldom-seen form of this, usually purple-flowered, annual from S Spain & NW Africa. Climbing to over 1m. it sows itself in Harry Hay's Surrey garden.) (10+) A
- 619.860 : LATHYRUS VERNUS from PINK & WHITE FORM** From the form with bicoloured, pink & white flowers, called 'Alb-roseus', which can be expected to come quite evenly from seed. This compact, early-flowering perennial, about 30cm. high, is far too little grown. An adaptable delight with other early spring flowers & with tidy clumps of foliage later in the season. (10+) A
- 627.801 : LEUCANTHEMOPSIS RADICANS** (*L. pectinata*) * Spain, Granada, Sierra Nevada, SE of Pico del Veleta. 3000m. Open, stony areas on schist. (Endemic to the Sierra Nevada & one of the choicest of alpine *Compositae*. Tight mats of tiny, much-cut, greyish leaves produce sulphur-yellow daisies, which flush crimson as they age. To Farrer, it was "a treasure to be much desired" and to Giuseppi, who probably introduced it in 1933, "one of the prettiest plants in existence...a difficult plant to grow but more than worth the trouble it gives." Try it in a Spartan, acid scree-mix in full sun in the alpine-house or a trough.) (possibly 20+) E
- 632.600 : LILIUM CANDIDUM** * Greece, Lakonia, W of Sparti. 500m. Steep, limestone slopes among *Euphorbia*, *Phlomis*, etc. (Incomparable, pure-white lily. Older cultivated stock is sterile & full of virus. This is from stock maintained here by hand-pollination from our 1983 wild seed coll. It survives outside in our wet climate but we grow it under glass for seed.) (15+) C
- 633.950 : LILIUM LEDEBOURII** * Iran, Gilan, Talish. 1700-1900m. Openings in degraded *Fagus* forest. Ex an A. Ala coll. (A very local species, known from one site in the Caspian forest of Iran & one or two in neighbouring Azerbaijan. A superlative plant, now well-established & proving accommodating in several British gardens from Anne Ala's original coll. in the 1970's. Stems about 1m. high with up to 15, white flowers, banded with yellow-green & lightly speckled with purple, with deep orange anthers.) (15+) E
- 634.030 : LILIUM MARTAGON** Russia, near Tomsk. (An interesting Siberian wild coll. of this very variable & usually easily grown species. The race from this area has been considered a distinct taxon & separated at specific, subspecific and varietal levels, the last possibly, if any, being the most acceptable, as *L.m. var. pilosiusculum*, apparently distinguished by its narrower leaves and sparsely spotted, vinous-purple flowers, covered outside with long hairs and opening from cobwebby buds.) (15+) C

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
 B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

- 634.040 : LILIUM MARTAGON *** No data. From a wide range of forms of this widespread Euro-Siberian turkscap lily. Stems of about 2m., whorled with dark leaves carry speckled, pendant flowers in pale pink to maroon. Easy in UK in light shade. (20+) **A**
- 634.050 : LILIUM MARTAGON f. ALBUM *** No data. From some fine green-tinged whites. Usually comes 'true'. (20+) **B**
- 635.220 : LILIUM SZOVITSIANUM *** No data. One of the best garden-plants in the genus. Doubtfully consistently separable from *L. monadelphum* & others in this intergrading group of beautiful, fragrant, pale yellow Transcaucasian lilies, mainly distinguished by the dimensions & proportions of their flowers. All are worthwhile & likely to appear distinct in the garden.) (15+) **B**
- 673.005 : MELITTIS MELISSOPHYLLUM** (subsp. *melissophyllum*) * UK, England, Sussex, S of Horsham. Ex an R. Wallis coll. (A handsome, shade-loving, hardy perennial member of the *Labiatae*, surprisingly neglected by British gardeners, though it is an uncommon British native. About 60cm. high with wrinkled, coarsely toothed leaves & verticillasters of fragrant, long-tubed white flowers with large, pale-purple lips. The species occurs locally in Europe with other subspecies in the south & east.) (10+) **B**

Paeonia : fresh from Azerbaijan, Georgia & Russia

Where we can, we list fresh 1998 seed collected both from cultivated plants & from natural populations in the republics of the former USSR, as well as elsewhere, but, even if sown promptly, this may not show leaf-growth until spring, 2000. These are plants for the dedicated and patient grower. Always keep ungerminated seed. It is large enough to check that it is sound. Like some lilies, many peonies will germinate hypogeally, forming a root-system underground during the first cool period before sending up true leaves the following season. While we should like to list a complete range of this genus regularly every year, peony-enthusiasts will appreciate, these are all too often unpredictable opportunities. Most species are very local in nature, occurring, sometimes in large numbers, in

isolated colonies. It can be a lot of trouble to arrange to collect seed from them, especially as the anarchic situation in most of these areas compounds both the difficulties of collection and the unreliability of communication & transport. With the collapse of the Russian economy, the latter two problems are currently becoming insurmountable. While it is still possible to deal with Moscow, this is not relevant as far as most seed-collections are concerned. An almost complete collapse of banking, telecommunications & postal services in the more distant districts appears to be taking place. Our thanks to Will McLewin for his painstaking efforts to continue collaboration with the botanists in the republics of the former USSR, who have made many of these collections. It is not at all easy.

- 745.802 : PAEONIA ANOMALA** Russia, Khakassia, Shirinsky district. (A central Siberian coll. of this fine species, widespread in the colder areas of N Asia. Foliage cut into narrow segments, beautiful even without the flat flowers, up to 9cm. across, in deepest rose-pink. Well depicted in the wild in Rix & Phillips, Vol. 1. We do not know how much this varies in different sites.) (6) **C**
- 745.950 : PAEONIA BIEBERSTEINIANA** (*P. tenuifolia* complex) Russia, Stavropol district. (Possibly from the open grassland-habitat illustrated as that of "*P. tenuissima*" on p.93 of Rix & Phillips 'Perennials' Vol. 2. Much dissected leaves but less finely cut than *P. lithophila* foliage & bright red flowers. Distinct from the others in this geographically disjunct complex in its greyish, hairy foliage. Like the Georgian populations, this seems to be a rather local plant, which it may not be possible to list again.) (6) **F**
- 746.100 : PAEONIA CAMBESSEDESII *** The dwarfest species, endemic to the limestones of the Balearic Islands and best with some protection, in cyclamen-conditions, in the UK, though most of this seed is from a plant grown outside in Hampshire. About 30cm. high with beautiful, smooth, grey-green foliage, crimson beneath, & big, rosy flowers, up to 10cm. across in spring. (6) **C**
- 746.130 : PAEONIA CARTHALINICA** (*P. tenuifolia* complex) Georgia, Dampalo hills, Kartli. An obscure entity & a very local plant indeed, only known from the one colony this area. Apparently the most robust of the *P. tenuifolia* complex, described as over 1m. high with bright red flowers & foliage less finely cut than some of the others. We have only a little seed. (6) **F**
- 746.150 : PAEONIA CAUCASICA** (*P. mascula* complex) SE Georgia, Daba area. (The fine Caucasian representative of the widespread & variable *P. mascula* complex, distributed through S Europe eastward to N Iran. About 50cm. high with dissected, flat, smooth foliage, glaucous beneath, & big rosy-red flowers with woolly follicles & purple filaments to the yellow anthers.) (6) **C**
- 746.305 : PAEONIA CORIACEA** (*P. mascula* complex) Spain, Granada, near Alhama de Granada. (Only known in Europe from S Spain, though it extends into Morocco & Algeria. We do not know the peonies in this locality, only the *P. broteroi* colonies in the Sierra Nevada, about 60km. to the E. There should be no confusion as the two are utterly distinct in foliage & in fruit. *P. coriacea* has fewer, much broader, rather smooth, leathery leaflets & usually only 2 glabrous follicles with attenuate tips (whereas *P. broteroi* has up to 4 densely woolly follicles). It can be easily confirmed as soon as the first true leaves appear. A fine species with beautiful, rose-pink flowers set against distinct, lead-green foliage. Moroccan material we have cultivated was very slow-growing.) (6) **E**
- 746.500 : PAEONIA DAURICA** (*P. triternata*) (*P. mascula* complex) Ukraine, Krim (Crimea). (Close to *P. mascula* but distinct in its few, rounded leaflets with undulate margins. This name has been applied to plants in SE Europe & Turkey which approach the Crimean ones but for the purist this is the only 'real thing'. The valid name is an unfortunate misspelling of "*P. taurica*".) (6) **D**
- 746.640 : PAEONIA LITHOPHILA** (*P. tenuifolia* complex) Ukraine, Krim (Crimea). (The Crimean race, which probably constitutes most plants cultivated in the west as "*P. tenuifolia*", is distinct in its light-green, much dissected leaves finely cut into a mass of filiform segments. Glossy, brilliant red bowls hold bright yellow stamens in early summer on compact plants, about 50cm. high. Maybe the most striking of this complex and possibly the most numerous in the wild, this is the race we grew as "*P. tenuifolia*" in our Dorset nursery years ago from seed received from what was then the Nikita Botanic Garden in Yalta.) (6) **D**

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

Species from Europe, W Asia & N Africa : Seeds from Jim & Jenny Archibald

- 746.680 : PAEONIA MACROPHYLLA** (*P. wittmanniana* complex) * Georgia, Bakhmaro area. Woodland. (A little cultivated seed of this rather distinct plant grown from wild-collected stock in the Bakuriani botanic garden. Creamy white flowers.) (6) **F**
- 747.001 : PAEONIA MASCULA subsp. RUSSI** Italy, Sardinia, Monti del Gennargentu. 1580m. (A 1998 wild seed coll. of this beautiful subspecies from the main mountain-massif of east-central Sardinia. Distinctive, smooth, red-backed foliage, which is usually just expanding as the glorious purple-pink, bowl-shaped flowers open. At 20-45cm. high, the dwarfest race of the *P. mascula* group. Like the other Mediterranean island species, this will need a sheltered site if attempted outside in the UK.) (6) **E**
- 747.110 : PAEONIA MLOKOSEWITSCHII** * No data. "A sovereign among Paeonies" according to Farrer. Few would disagree. Large, pale lemon-yellow flowers with deeper yellow stamens above 60cm. clumps of rounded, greyish-green leaves. In the soft climate of the UK, the crimson-tinted, young foliage sometimes develops early and can be scorched by cold winds but that is the fault of our climate not the species. We have some particularly good batches of cultivated seed this season (6) **C**
- 747.150 : PAEONIA OFFICINALIS** (subsp. *officinalis*) Croatia, Istria. We are told this is a very fine pink form of this variable South European species. We have tentatively placed this under the type race until we can see the foliage & flowers. (6) **D**
- 747.210 : PAEONIA OFFICINALIS subsp. BANATICA** * No data. This eastern race, mainly from Romania but extending into E Hungary & E Serbia, is sufficiently distinct to be recognized at subspecific level in 'Flora Europaea', keyed out on the much less divided foliage. Deep red, cup-shaped flowers hold the multitude of stamens with red filaments. (6) **D**
- 747.720 : PAEONIA PEREGRINA from ROMANIAN FORM** (*P. romanica*) * No data. We have not seen this form from the eastern end of the species distribution but it is unlikely to differ substantially from other races of this magnificent plant, which does not vary greatly over its wide range, from Italy through the Balkans. One of the most distinct & spectacular in the genus with large, glossy flowers in eye-burning scarlet over deeply cut, shiny, bright-green foliage. Usually trouble-free in UK gardens. (6) **E**
- 747.850 : PAEONIA STEVENIANA** (*P. wittmanniana* complex) (possibly the same as *P.w.* var. *nudicarpa*) Georgia, Bakuriani area. (Likely to be wholly different to *P. mlokosewitschii*. Maybe with paler flowers, just tinged with citron-yellow, holding stamens with reddish filaments, over larger, more wrinkled foliage. Will McLewin thinks these may give deeper yellows than *P. mlokosewitschii*. We still know little of the variation of these Caucasian populations & suspect that Russian 'splitting' is justified.) (6) **E**
- 747.851 : PAEONIA STEVENIANA** A high altitude form coll. at 2000m. in the Caucasus of SE Georgia. (6) **F**
- 747.852 : PAEONIA STEVENIANA** Selected forms with reddish stems & leaves from the same 2000m. locality. (6) **F**
- 747.900 : PAEONIA TENUIFOLIA** Georgia, Igoeti area. Steppe. (The different populations segregated by Russian botanists as this, *P. carthalinica* & the more western *P. biebersteiniana* & *P. lithophila* are separated on foliage characteristics, height & colour, though we doubt if the latter two features are consistent. This type-race should have rich-green, glabrous foliage, less finely cut than *P. lithophila*, & crimson flowers. This collection is from a very small isolated colony at the SE extremity of the distribution of this group & it is described by the Georgian botanist as 'scarce', which probably means that there is only a handful of plants.) (6) **F**
- 747.960 : PAEONIA TOMENTOSA** (*P. wittmanniana* complex) Azerbaijan, Lerik, Sinabad, Talysh. (Very little-known. Plants from seed collected in the Iranian Talysh in the 1960's (as *P. wittmanniana*) were compact with white flowers & most distinct.) (6) **F**
- 747.961 : PAEONIA TOMENTOSA** The preceding is seed collected in the Talysh range, which runs from SE Azerbaijan on into Iran. This is from a locality up towards Armenia, in the the main body of the Caucasus, in NE Azerbaijan. (6) **F**
- 748.109 : PAEONIA WITTMANNIANA** * Georgia, Abkhazia. (A little cultivated seed of this splendid pale-yellow species, core of the complex populations of yellow and cream Caucasian peonies, collected from stocks of wild origin, growing in the Tblisi & Bakuriani botanic gardens. The natural habitat is not currently accessible due to complete anarchy prevailing in Abkhazia.) (6) **E**
- 748.110 : PAEONIA WITTMANNIANA from PINKISH WHITE FORM** Seed from plants grown in Bakuriani Botanic Garden. This sounds like a natural hybrid, most likely to be with *P. caucasica*. See the last section in this list for garden hybrids. (6) **E**
- 751.202 : PAPAVER BRACTEATUM** * Turkey, Hakkari, W of Semdinli. 1600m. Steep, stony slopes. (Sumptuous, big oriental poppies in crumpled scarlet silk with glossy black centres, on bristly 60cm. stems from stout, perennial clumps.) (50+) **A**
- 752.300 : PAPAVER PAUCIFOLIATUM** * Turkey, Kars. From an E. Pasche coll. (AHEP 83-65). (A slightly more slender version of *P. orientale* with unblotched, brick-red flowers. A Transcaucasian plant, just entering Turkey in the NE corner.) (50+) **B**
- 761.000 : PETROMARULA PINNATA** * Greece, Crete, Hania, Platanias. Ex M Jope 95-50 (One of the strangest Cretan endemics, a monotypic genus of the *Campanulaceae*, perhaps nearest to *Asyneuma* or *Phyteuma*, only found on the island's limestone cliffs. Saxatile it may be but it is too tall for most rock-gardeners & is most likely to appeal to hardy-plant enthusiasts, growing it in a raised-bed or other well-drained site, where it seems hardy & accommodating. Robust rosettes of deeply cut, long-stalked, smooth, dark leaves produce a stem almost 1m. high with a few side-branches - "practically from top to bottom this is one mauve raceme of hundreds of small starry flowers - the effect is striking, as they all seem to open at once" wrote Peter Davis.) (30+) **C**
- 784.121 : POTENTILLA NITIDA** * No data. From the splendid selection 'Rubra' with rich, deep pink flowers, exquisitely studding tight pads of silvered foliage. An endemic of the limestones of the E Alps & one of the loveliest European alpiners. (20+) **B**

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

- 808.020 : RAMONDA MYCONI** * No data. A beautiful Pyrenean endemic, with flat rosettes of wrinkled, hairy leaves. Some seed from whites as well as the classic violet ones. By far the easiest of this trio of relic members of the *Gesneriaceae* & the best for garden-purposes, unrivalled in a N-facing dry-stone wall. Though utterly hardy, these have not forgotten their tropical ancestry & are best raised from their very fine seeds sown, like *Rhododendron*, uncovered on the surface of a sterile, peaty soil, in gentle warmth, watered from below, and covered with a pane of glass or kept in a plastic bag.) (100+) **B**
- 808.022 : RAMONDA MYCONI from PINK FORM** * No data. Exquisite shell-pink flowers. (50+) **C**
- 808.401 : RAMONDA SERBICA** * Greece, Ioanina, Farangi Vikou. 800m. Limestone fissures. (Least well-known & reputedly the most temperamental of the three species in cultivation. Usually considered to be best grown in the alpine-house in shade though this seed is from plants, growing happily here in a trough outside in a NW-facing corner. Rosettes of rather greyish, hairy leaves & more bell-shaped, violet flowers, approaching those of *Jankaeca* in form, with distinctive dark purple anthers.) (50+) **D**
- 820.200 : RHAPONTICUM HELENIIFOLIUM** (*Centaurea heleniifolia*, *Leuzea rhapontica* var. *heleniifolia*) * France, Hautes-Alpes, Pic de Gleize, NNW of Gap. 2000m. Limestone talus on S-facing side of summit-ridge. (Clumps of large, undivided, dentate leaves, white tomentose beneath, send up stalwart, 1.5m. stems with massive heads of pale rosy-purple flowers, appearing from an involucre of papery, silvery bracts. A slow-growing, big, bold, statuesque plant, needing good drainage & resenting disturbance.) . . . (10+) **D**
- 823.000 : RHODODENDRON UNGERNII** * Turkey, Artvin, Genya Dag above Artvin. 1600m. *Picea* woodland with *R. ponticum* undergrowth. (Grown from seed we collected in 1986, this will be at least as 'pure' as wild seed, as there are no other species in flower here in late July & early August, when its big trusses of white bells appear - in nature a month after the other Turkish species are over. A most distinct species, up to 7m. high with large, spectacular foliage, felted beneath. Hardier than *R. ponticum*, which it replaces in frost-pockets & on colder slopes. Uncommon on this mountain but dominant around Tiryal Dag.) (30+) **D**
- 836.110 : RUPICAPNOS AFRICANA** * No data. A choice, saxatile member of the *Fumariaceae*, widespread & variable in Morocco, though our cultivated stock is probably, *R.a.* subsp. *decipiens*, the local European race from limestone cliffs near Cadiz in S Spain. Racemes of spurred, pale-pink, ruby-tipped flowers beautifully set against cut, filigree foliage in grey-blue. Easy & long-lived in the alpine-house in the UK, if grown hard. If overfed & overwatered, it grows out of character & is short-lived.) (10+) **C**
- 844.201 : SALVIA CYANESCENS** * Turkey, Bolu, W of Goynuk. 800m. Loose, exposed shale slopes. (A delightfully airy perennial with flat rosettes of felted leaves and diffuse, branching stems, about 50cm. high, of lovely pale-violet flowers. One of several species now well-established in Colorado gardens from collections we made in the early 1980's. Hot, dry site in the UK.) (20+) **B**
- 845.201 : SALVIA HYPARGEIA** * Turkey, Adana, N of Saimbeyli. 1200m. Open rocky areas. (Neat clumps of narrow, grey-green, wool-backed leaves & 50cm. herbaceous stems whorled with lilac-blue flowers. Now a standard plant in Denver garden-centres but quite accommodating in the UK with good drainage in full sun - used to do well on the RBG Edinburgh rock-garden.) . . . (20+) **B**
- 879.005 : SCOPOLIA CARNIOLICA** Slovenia, SE of Ljubljana, near Grosuplje. c.400m. Woodland at bottom of doline. W. McLewin 98-11. (A fascinating woodland plant in the *Solanaceae*, recorded in very local, widely separated colonies through central Europe, from Lithuania to the Ukraine. Big horizontal rhizomes, like flattened potatoes, spread slowly on the surface of the earth and in early spring send up stout stems of cylindrical bells, hanging on thready pedicels, before the leaves expand. Though the flowers open near the ground, the stems elongate to about 50cm. to carry large potato-leaves in summer. Typically, the bells are a delicately veined, lurid violet-red-brown but in a handful of sites in the karst country of Slovenia, of which this is one, a beautiful, translucent yellow colour phase occurs with the dark reds. This has been called *S.c.* subsp. *hladnikiana*, a name sensibly disregarded by 'Flora Europaea', though useful for gardeners to distinguish it. Both colours occur here so expect both from the wild seed.) (10+) **D**
- 911.300 : SESELI PALLASII** (*S. varium*) No data. A member of the *Umbelliferae*, from E central Europe. An excellent plant for a hot, dry situation with Tim Ingram in Kent, UK. Attractive silver-grey, finely cut foliage forming neat clumps to about 30cm., followed by myriads of white umbels of tiny white flowers in branching heads to about 60cm. (20+) **B**
- 950.010 : THALICTRUM AQUILEGIFOLIUM** * No data. A splendid, 1-2m. tall, herbaceous plant, spread from W Europe, E across Asia. Branching stems rise above the smooth, cut foliage to carry wide panicles of fluffy, pale to deep lilac-pink flowers, whose colour comes from the broad filaments & anthers, not petals. Hardy & easy in any good soil, which does not dry out. (15+) **A**
- 950.011 : THALICTRUM AQUILEGIFOLIUM var. ALBUM** * From the beautiful, creamy-white version. (15+) **A**
- 980.200 : VERBASCUM ARCTURUS** (*Celsia arcturus*) * Greece, Crete, Rethimno, near Selia. Ex an A. Edwards coll. (Long-flowering & long-lived, woody-based chasmophyte, endemic to Cretan limestone gorges. Downy, grey foliage & 30cm. stems of bright-yellow flowers with violet filaments. Easy if protected from wetness - sows itself in our unheated greenhouse.) . . . (50+) **B**
- 981.300 : VERBASCUM LEVANTICUM** (*Celsia glandulosa*) * North Cyprus, Kyrenia, castle walls. Ex an A Edwards coll. (Another chasmophyte, close to *V. arcturus* but distributed at low altitudes in the Lebanon & Israel, though the type-locality is in Cyprus. Hairy, pinnatifid, basal leaves and dense inflorescences of many, yellow flowers, with hairy, cream or purple filaments.) . . (50+) **B**
- 982.950 : VERBASCUM WIEDEMANNIANUM** * Turkey, Gumushane, WNW of Bayburt. 1600m. Stony clay in fallow-fields. (An outstanding purple-flowered exception among over 200 yellow-flowered Turkish *Verbascum* spp. A very local N Turkish endemic without any close relatives, still sadly confused in gardens with the widespread *V. phoeniceum*. Monocarpic or a short-lived perennial, with stout, narrow spires, up to 2m. high, packed with scented, violet-purple flowers with the filaments covered in purple hairs. Successfully grown widely by several plantsmen in North America & from Wales to Cambridge in the UK but it can be temperamental and we suspect will always remain a connoisseurs' plant. It needs a long cold period to germinate well.) . . . (50+) **C**

A : \$2.00 ; £1.50 ; DM4,- ; FF14.- C : \$4.00 ; £2.50 ; DM7,- ; FF23.- E : \$7.00 ; £4.50 ; DM12,- ; FF41.-
B : \$3.00 ; £2.00 ; DM5,- ; FF18.- D : \$5.00 ; £3.50 ; DM9,- ; FF32.- F : \$9.00 ; £6.00 ; DM16,- ; FF55.-

Most seeds listed here were collected by ourselves during June, July and August, 1998. There is also a substantial number of 1998 collections made by others, as well as quite a lot of our cultivated seed. A few species are offered from our seed-bank, when a collection is of outstanding significance and is either unlikely to be repeated or is from a locality particularly difficult to access. The year of collection is given with seed-bank material. All seed collected prior to 1998 has been stored in low humidity under refrigerated conditions.

Nomenclature for Californian species follows 'The Jepson Manual', published in 1993, in most cases. This is "good in parts" but no way approaches the outdated 'A Californian Flora' by Munz & Keck (1959), which remains our primary reference. The incomplete but superlative 'Intermountain Flora', 'A Utah Flora' (Welsh, 1987) 'Vascular Plants of Wyoming' (Dorn, 1988) & 'Flora of the Pacific Northwest' (Hitchcock & Cronquist, 1994) are used for taxa occurring within their areas. We edit with gardeners' interests in mind.

- 1.005.005 : ACHLYS CALIFORNICA** Oregon, Jackson Co., N of Prospect. 1130m. P. Gustafson 98-0831. (One of two N Americans (another is Japanese) in this small genus in *Berberidaceae*, neither of which we have ever seen grown in the UK. Rhizomatous, herbaceous perennials about 40cm. high. from moist, shady places in coniferous forest whose dense spikes of flowers, composed only of creamy stamens, are hardly spectacular but whose large pale-green leaves, each with 3 fan-shaped leaflets, carried on long, 25cm., petioles will certainly appeal to those who appreciate beautiful foliage. Should be easily grown in the UK.) (5) C
- 1.011.010 : ACTAEA ALBA** (*A. pachypoda*) * No data. From eastern woodlands, this is surely the finest of fruiting herbaceous plants. The small, fluffy racemes of white flowers, rising to about 60cm. above elegantly cut foliage, are followed, in autumn, by a display of striking white fruits, 'doll's eye' fruits on thickened red pedicels. Slow-growing but permanent in a shady site.) (10) B

Allium : it's worth getting to know the western onions

With about 50 species, western North America (California in particular) is an important secondary centre for this genus. Most of these Americans are little-known in cultivation but many should be no trouble in a dry, sunny, raised bed or in a bulb-frame in the UK. The more recalcitrant ones will be no more difficult than many other N Americans and there are many dwarf, montane species worthy of the alpine-house. As with the

Eurasian species, their tendency is to flower a little later than most of the spring-flowering bulbs, often after leaf-growth is fully developed but there are some very early-flowering, snow-melt bulbs among them. For an overview of the genus in the West and its cultivation, see the article by Jim & Georgie Robinett, who are responsible for many of the following collections, in the 1993 issue of 'Herbertia' (Vol. 49).

- 1.030.300 : ALLIUM BISCEPTRUM** * Cal., Plumas Co., N of Seneca. 1070m. Stony clay in clearing of coniferous forest. (Open, 3cm. umbels of starry pink flowers. Occurs on the higher ranges across to Idaho & Utah.) (15+) B
- 1.030.451 : ALLIUM CAMPANULATUM** Cal., Fresno Co. 1700m. Sandy, granitic soil in open woodland. J. & G. Robinett coll. (Rose-pink, spreading, starry flowers in loose umbels, 4-5cm. across, on 15-20cm. stems.) (15+) B
- 1.030.701 : ALLIUM DICHLAMYDEUM** * Cal., Sonoma Co., Stewart's Point. 10m. Coastal rocks. (One of the best of the larger species with fine, bright-pink heads on 20cm. stems. Very satisfactory & trouble-free in a frame in UK.) (15+) B
- 1.030.805 : ALLIUM FALCIFOLIUM** Oregon, Josephine Co. Serpentine scree in full sun. J. & G. Robinett coll. (Red-purple umbels on flat, 1-5 cm. stems between two little, thick, falcate, blue-green leaves. A choice little plant ideal for scree.) (15+) B
- 1.031.050 : ALLIUM FIMBRIATUM** var. **PURDYI** Cal., Lake Co. 635m. Gravelly serpentine clay in full sun. J. & G. Robinett coll. 1995 (White to pale lavender, open, 3-4cm. umbels. A local plant, occurring in a few dense colonies in a small area.) (15+) B
- 1.031.500 : ALLIUM HYALINUM** Cal. J. & G. Robinett coll. (A characteristic species of the western foothills of the Sierra Nevada, up to 1500m. Stems of 15-30cm. carry open umbels of white to pale pink flowers, becoming membranous as they age.) .. (15+) B
- 1.031.800 : ALLIUM LEMMONII** * Cal., Modoc Co., N of Canby. 1500m. Among volcanic debris on open, clay 'flats'. (Hardy, 20cm. high species in pink to white from the cold, dry uplands of the north all the way across to Idaho.) (15+) B
- 1.031.900 : ALLIUM MEMBRANACEUM** Cal. J. & G. Robinett coll. (An uncommon species, closest to *A. bisceptrum* & *A. campanulatum*, occurring sporadically up to about 1400m. in the foothill *Pinus ponderosa* woodland of N & central California. Stems of 15-30cm. carry rounded umbels of pale-pink flowers with spreading segments turning papery in fruit. (15+) C
- 1.032.499 : ALLIUM PENINSULARE** Cal. J. & G. Robinett coll. (A widespread, lower altitude Coast Range plant with fine open umbels of red-purple flowers on 30cm. stems. Quite easy & very worthwhile in a bulb-frame in the UK.) (15+) B
- 1.032.601 : ALLIUM PLATYCAULE** Cal., Modoc Co., Warner Mts., Cedar Pass. 1600m. Steep, loose, gravelly slopes. (Round umbels of deep rose with dark anthers on short flat stems between two thick, falcate leaves. A spectacular 'tumble- weed' species, resembling the SW Asian Sect. *Acanthoprason*, flowering very early, just after the snow has melted. Not too easy to germinate and grow on, it needs cold winters & is all but impossible with the Robinetts in low-altitude, W California. Not nearly so much of a problem in the UK, where it fits in well with those from similar climates in E Turkey, Iran & Central Asia.) (10+) D

- 1.032.800 : ALLIUM SANBORNII** (var. *sanbornii*) Cal., Yuba Co. 635m. Serpentine scree in full sun. J. & G. Robinett coll. (Bright pink flowers in dense umbels on 15-40cm. stems. A local serpentine plant & usually the last Californian to flower.) (15+) C
- 1.033.005 : ALLIUM SISKIYOUENSE** Oregon, Jackson Co., Siskiyou Mts., S of Ashland. 1220m. Vernal wet, rocky serpentine slopes. P. Gustafson 98-0835. (Umbels of deep rose-pink flowers sit, almost stemless, between two flat falcate leaves. A desirable local endemic of the ranges along the state line, close to *A. falcifolium* but narrower leaved & even dwarfier.) (15+) D
- 1.033.602 : ALLIUM VALIDUM** * Cal., Placer Co. 1400m. Wet mountain-meadow. Ex a J. & G. Robinett coll. (A big wet-grower, up to 75cm. high, with dense, pale-pink umbels in summer. No trouble outside in the UK.) (15+) B
- 1.048.210 : AMSONIA TABERNAEMONTANA** var. **SALICIFOLIA** * No data. Doubtfully sustainable, narrow-leaved variant of this species, widespread but local in wooded areas of SE North America, E to Kansas & S into Texas & Georgia. An elegant, woody-based, willow-leaved perennial up to 1m. high with cymes of starry, pale-blue flowers with darker blue tubes. (10+) B
- 1.050.405 : ANEMONE DELTOIDEA** Oregon, Jackson Co., S of Ashland. 1220m. P. Gustafson 98-0832 (A lovely rhizomatous perennial of W coast coniferous woodland at altitudes up to 2000m. Pristine white flowers face upwards on the 20cm. stems, ringed with a ruff of three hairy leaves, in early spring. Another western woodlander strangely absent from UK gardens) (10+) B
- 1.055.800 : ANTENNARIA SOLICEPS** Nevada, Clark Co., Spring Mts., Charleston Peak. 3350m. Limestone talus & fissures. J. Andrews coll. (A prostrate, mat-forming endemic of this range, to the NW of Las Vegas. Symmetrical, angular rosettes of grey leaves, with a black dot on each one, & felted, creamy flower-heads. Possibly not previously in cultivation.) (15+) C
- 1.060.000 : AQUILEGIA BARNEBYI** Colorado, Rio Blanco Co., above Piceance Creek NW of Rio Blanco. 1980m. Steep-sided gully in loose fragmented shale. (Endemic to moist 'seeps' in the oil-shale 'barrens' of the Uinta Basin & discovered by Ripley & Barneby in 1948. Glauous leaves & sticky, 30cm. stems of pink & cream flowers. Growing here easily under glass.) (20+) D
- 1.060.210 : AQUILEGIA CHAPLINII** * New Mexico, Eddy Co. Ex a S. Walker coll. (A close relative of *A. chrysantha*, endemic to the Guadalupe Mts., E of El Paso on the border of Texas & New Mexico, where its delicately cut, ferny foliage sheets the moist cliff-faces around Sitting Bull Falls. Long-spurred, pale yellow flowers on stems of around 30cm.) (20+) C
- 1.060.804 : AQUILEGIA FORMOSA** Oregon, Josephine Co., E of Takilma. 900m. Loose talus on steep, N-facing slope. (The most widespread western columbine of moist habitats, Many scarlet flowers dance on branching 60cm. stems.) (20+) B
- 1.061.200 : AQUILEGIA LARAMIENSIS** * Wyoming, Albany Co., Laramie Mts. above Friend Creek. 2280m. Granite fissures. (Pure white flowers with short, incurved spurs. Narrow endemic, 10cm. high, closest to the Rocky Mt. *A. saximontana*.) (15+) D
- 1.061.300 : AQUILEGIA MICRANTHA** Utah, San Juan Co., above Bluff. 1550m. Seepage lines on shady, sandstone cliffs. (Many, small, palest blue, cream or white flowers on sticky, 50cm. stems. A Colorado Plateau endemic.) (15+) C
- 1.061.350 : AQUILEGIA** aff. **MICRANTHA** Colorado, Montrose Co., Dolores River Canyon NW of Uravan. 1700m. Sandstone detritus on steep, shaded slope. (From a very beautiful colony we found in 1989. Perhaps the result of hybridization between *A. micrantha* and *A. elegantula* but maybe another is involved. Not very variable in the flowers - soft, creamy yellows with long spurs tinged with apricot - but leaves and the 30-50cm. stems vary greatly in their glandular pubescence.) (20+) C
- 1.061.800 : AQUILEGIA SCOPULORUM** Utah, Garfield Co., above Butch Cassidy Draw. 2600m. Loose limestone talus on steep slopes. (Exquisite bluish foliage and flowers with very long spurs, wholly in a deep gentian-blue. A taller form, 20-30cm. here, easier to grow & more suitable for a very sunny site in a raised bed or the rock-garden than the next two tiny variants.) (15+) D
- 1.061.849 : AQUILEGIA SCOPULORUM** Nevada, Clark Co., Spring Mts., Charleston Peak. 3550m. Limestone talus & fissures. J. Andrews coll. (This & the next are the ones the alpine-plant specialist will demand. Reduced races occur near the summits of a few of the highest limestones of the Great Basin. Collecting seed from these is acutely difficult & it has very seldom been available in our lifetimes. We grew one many years ago from a Carl Worth coll. It remained compact in cultivation with imbricate, blue-grey foliage & long-spurred flowers on stems of a few cm. Worth tried unsuccessfully to collect this race, which has been called *A.s.* var. *perplexans*. John has also tried unsuccessfully several times before this, making a round-trip hike of over 25km. (16 miles) to find all the seed-heads have been eaten by deer. At last, a little seed from a few capsules the deer have missed. Long-spurred flowers here vary in colour from blue, cream & purple to red & sit in on cushions, which can often be quite large & ancient.) (10+) F
- 1.061.850 : AQUILEGIA SCOPULORUM** Nevada, White Pine Co., Snake Range. 3440m. Exposed limestone talus up to the summits. Refrigerated seed from a J. Andrews 1995 coll. (Another reduced alpine variant from a range near the Utah border on the other side of the Great Basin. Flowers, on stems of only a few cm., are entirely rich-blue and long-spurred.) (10+) E
- 1.068.000 : ARCTOMECON CALIFORNICA** Nevada, Clark Co., SE of Valley of Fire. 500m. Exposed ridgetops on eroded clay & gravel hills. (An extraordinary Nevadan poppy enthused over by Dwight Ripley in 1942: "bluish leaves, clothed in long pale hairs" and 25cm. "smooth stems, almost leafless, each branching into a corymb of fabulous gold poppies." Strictly for the sunniest, best ventilated alpine-house in cold, wet climates - may be ungrowable but worth every effort.) (20+) D
- 1.068.050 : ARCTOMECON HUMILIS** Utah, Washington Co., Bloomington Hills S of St. George. 920m. Tops & sides of ridges on eroded clay hills. J. Andrews coll. (To Dwight Ripley this was "one of the most startling plants in all Utah." Rosettes of lobed, blue leaves, clad in long, soft, white hairs; up to 70 white poppies on branching stems to 20cm. but usually 10cm. "Threatened" here by a housing-development and 'off-road' vehicles. Unpredictable in germination and so far proving very "difficult".) (15+) E

A : \$2.00 ; £1.50 ; DM4,- ; FF13.- C : \$4.00 ; £2.50 ; DM6,- ; FF21.- E : \$7.00 ; £4.50 ; DM12,- ; FF40.-
 B : \$3.00 ; £2.00 ; DM5,- ; FF17.- D : \$5.00 ; £3.50 ; DM9,- ; FF30.- F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

- 1.070.201 : **ARENARIA HOOKERI** Utah, Emery Co., Molen Reef E of Moore. 1930m. Sandstone detritus & rock-slabs. (Seldom seen in cultivation but with a classic, dense, hard, green cushion, covered with fine, stemless, white flowers.) (15+) C
- 1.078.700 : **ARNICA CORDIFOLIA** Idaho, Custer Co., Salmon River Mts. M.& P. Stone 98-7 (A handsome daisy, widespread from Alaska to Nebraska, usually in coniferous woodland, to over 3000m. elevation. Distinct, cordate leaves on long petioles and 1 to 3 heads with yellow rays, on stems of around 30cm. in height. Should do well in part-shade in the UK.) (15+) B
- 1.075.301 : **ARGEMONE MUNITA** var. **ARGENTEA** Cal., Inyo Co., White Mts. 2000m. Stony, gravelly banks. (A monocarpic Prickly Poppy best sown direct in a hot, dry site. Masses of diaphanous, white *Romneya*-like flowers. 60cm.) (20+) A
- 1.084.201 : **ASARUM HARTWEGII** Cal., Plumas Co., E of Greenville, along Lights Creek. 1280m. G. Greger coll. (A weird, shade-loving member of the *Aristolochiaceae*, forming low clumps from a deep rhizome. Decorative cordate leaves, marbled with white along the veins, below which lurk the flowers surrounded by large, brown-purple calyces with 3 long-attenuate lobes. Inside these are white, striped with maroon and with bands of copious white hairs. Not difficult in dryish part-shade in the UK.) (15+) C

Astragalus : woolly pads & pods of the sagebrush steppes

This very large and complex genus, monographed by Barneby for N America with 368 species there, has great potential for the skilled specialist. Since we started listing a wide range, in 1989, several have been successfully grown to flowering and have even set viable seed in the UK. While Elizabeth Neese's suggestion that the formation of an 'Astragalus Society' would

be appropriate has not yet been taken up, they have their dedicated cultivators. In our experience germination is seldom a problem but chipping and soaking prior to sowing are often suggested. We find they usually come up very quickly, so delaying sowing till spring might obviate winter losses. Most of those listed belong to the mat-forming Section *Argophylli*.

- 1.100.800 : **ASTRAGALUS ASCLEPIADOIDES** (Sect. *Pachyphyllus*) Utah, Emery Co., Molen Reef SE of Moore. 2130m. Eroded clay slopes. (Erect stems, 30cm. high with simple, rounded leaves seem to mimic *Asclepias cryptoceras*, with which it grows. A localised, specialised endemic of selenium-rich soils in the Colorado Basin. The most singular in a genus of eccentrics.) . . . (10+) C
- 1.101.501 : **ASTRAGALUS CALYCOSUS** (Sect. *Scaposi*) Nevada, Eureka Co., W of Eureka. 2100m. Exposed, bare alkaline 'flats' with sparse *Juniperus*. (A widespread, variable species, always difficult to collect as ants remove seed quickly. Here in a very compact form. Pads of tiny, grey-white trifoliate leaves. Often blue-purple with white tips but not seen in flower here.) . . . (10+) E
- 1.101.800 : **ASTRAGALUS CHAMAELEUCE** (Sect. *Argophylli*) Utah, Uintah Co., WSW of Maeser. 2000m. Open, sandstone slopes. (Tiny grey tufts with huge, spongy, purple-mottled pods, following the loose racemes of pale lavender flowers.) (10+) D
- 1.102.100 : **ASTRAGALUS COCCINEUS** (Sect. *Argophylli*) Cal., Inyo Co., White Mts., near Toll House Springs. 1980m. Loose, stony, clay slope. (An incredible species, unsurpassed in the brilliance of its elongated, glowing scarlet flowers against the low tufts of woolly white foliage. Amazing, horned, white-velvet pods. It has been grown, flowered and exhibited in the UK.) (10+) D
- 1.105.500 : **ASTRAGALUS LOANUS** Utah, Sevier Co., E of Glenwood. 1950m. Igneous gravel. (A condensed narrow-endemic of the Sevier Valley. Silky silver leaves. White, lavender-tipped flowers. Beaked pods, red-tinted & shiny with long hairs.) . . (10+) D
- 1.105.600 : **ASTRAGALUS LUTOSUS** (Sect. *Lutosi*) Colorado, Rio Blanco Co., NW of Rio Blanco. 2000m. Exposed slopes of loose, fragmented shale. (The famous, extremely local Dragon Milkvetch, narrowly endemic to these oil-company owned, oil-shale 'barrens'. Its fate is destined to be decided by the price of oil. Tight mats of little, fascinatingly pleated, greyish leaves & large, shiny, papery, red-blushed pods. A most distinct plant, the only member of its very own section.) (10+) E
- 1.106.050 : **ASTRAGALUS MOLLISSIMUS** var. **THOMPSONIAE** (Sect. *Mollissimi*) Colorado, Mesa Co., SW of Whitewater. 1800m. Stony, sandstone slope with sparse junipers. (A lovely plant, almost confined to the Colorado Plateau sandstones. Woolly white tufts send up many-flowered racemes of purple-pink flowers followed by densely white-hairy pods.) (10+) C
- 1.106.700 : **ASTRAGALUS MUSINIENSIS** (Sect. *Argophylli*) Utah, Emery Co., E of Moore. 2100m. Heavy, stony clay on eroded shale hills. (Tiny tufts of grey, trifoliate leaves produce racemes of pink and purple flowers on short, 3cm., stems, followed by the exquisite, inflated, papery, pink-velvet pods. A most distinct endemic of the Canyonlands area of central Utah.) (10+) D
- 1.106.900 : **ASTRAGALUS NEWBERRYI** var. **CASTOREUS** (Sect. *Argophylli*) Utah, Millard Co., E of Garrison. 1500m. Steep, loose, stony slope. (Showy Great Basin race of this fine, wide-ranging species with larger flowers and leaves.) (10+) D
- 1.108.500 : **ASTRAGALUS PURSHII** (var. *purshii*) (Sect. *Argophylli*) Wyoming, Sweetwater Co., SW of Farson. 2010 m. Openings among *Artemisia*. (The northern type-race, usually white or cream flowers on grey mats. White-felted pods.) (10+) C
- 1.108.550 : **ASTRAGALUS PURSHII** var. **GLAREOSUS** (Sect. *Argophylli*) Idaho, Butte Co., NE of Carey. 1520m. SE-facing slope of stony ridge. (Snake & Columbia Basin race with rather larger, usually pink flowers before the woolly pods.) (10+) C

- 1.108.650 : ASTRAGALUS PURSHII var. TINCTUS** (Sect. *Argophylli*) Cal., Kern Co., E of Mt. Pinos. 2530m. Open granite-gravel slope. (The Western race, usually in vivid purple-pink, with the same marvellous woolly pods as the others.) (10+) C
- 1.109.201 : ASTRAGALUS SPATULATUS** Wyoming, Sweetwater Co., Mackinnon. 1900m. With sparse *Juniperus* on steep sides of shale 'barrens' (In dainty Sect. *Drabellae*. Tightest of little tufts of silver, linear leaves & rich purple-pink flowers.) . . . (10) D
- 1.110.100 : ASTRAGALUS UNCIALIS** Utah, Millard Co., N of Sevier Lake. 1460m. (Barneby writes : "one of the most ornamental" "silvery 3-5 foliolate leaves" and "narrow, long and showy purple flowers which seem quite disproportionately large".) . . . (10+) C
- 1.110.200 : ASTRAGALUS UTAHENSIS** (Sect. *Argophylli*) * Utah, Salt Lake Co., Parley's Canyon E of Salt Lake City. 1400m. Open, gravelly areas. (Marcus Jones, pioneer of Utah botany, thought this the most beautiful flower in the state. Mats of white-felted leaves, brilliant carmine-purple racemes and pods clad in long, shaggy silver-white hairs. One of the least difficult in the UK & now well-established & being maintained by quite a few growers. Alpine-house or a very well-drained raised bed, dry in winter.) . . (10+) C
- 1.124.250 : BESSEYA WYOMINGENSIS** Montana, Madison Co., Gravelly Range. 2830m. M. & P. Stone 98-29 (An odd genus in *Scrophulariaceae*, close to *Synthyris* & once included in it. A plant of exposed but moist sites on ridges & high meadows in the northern Rockies. Crenate basal leaves & dense bottlebrushes of violet-purple filaments on stems of around 15cm.) (15+) B
- 1.130.150 : BLOOMERIA CROCEA var. AUREA** * Cal., San Luis Obispo Co. 170m. Among grass on open, heavy clay slope. (The central Coast Range race of this species in a small genus of seldom-seen corms near *Brodiaea* & *Triteleia*. Wide umbels of delicate, golden stars on 20-40cm. stems. A really pretty thing, well worth growing in the bulb-frame in the UK.) (20+) B
- 1.140.009 : BRODIAEA APPENDICULATA** Cal., Yuba Co., N of Marysville. J. & G. Robinett coll. (A handsome plant from heavy clays below 600m. in the Californian Central Valley grasslands. Now, like so many species from this densely populated & heavily cultivated habitat, very restricted & uncommon. About 30cm. high with umbels of rich violet-purple flowers.) (15+) C
- 1.140.100 : BRODIAEA CALIFORNICA** Cal., Yuba Co. 630m. Serpentine scree in chaparral. J. & G. Robinett coll. 1995 (Largest of the genus, about 50cm. here, with loose umbels of spectacular, violet flowers with contrasting white staminodes.) (20+) B
- 1.140.400 : BRODIAEA ELEGANS** * Cal., Shasta Co., S of Shingletown. 1000m. Among grasses in open areas. (Northern species with blue-violet flowers on stems of about 30cm. Rather *Triteleia*-like but a true *Brodiaea*.) (20+) B

Calochortus : we make a start to bring you home-grown seed

The scope and diversity of this amazing genus is still little appreciated by the skilled growers of Eurasian bulbs, who have developed in recent decades. We can again include material from Jim & Georgie Robinett. Their knowledge of the Californians in their natural habitats is extensive and they add to the vast amount of composite knowledge, shared by such enthusiasts as John Andrews, Wayne Roderick, Stan Farwig & the late Vic Girard, David King, Frank Callahan and Boyd Kline, to make this list possible. Most of the winter & spring growing species from the western USA are here, though we lack the summer-growers which extend south through Mexico to Guatemala. We were in the USA too early in the very late 1998 season to collect as much as we should have liked ourselves but we have an increased amount of cultivated seed. Though most seed was collected in 1998, we have included a few older collections. *Calochortus* seed stores very well if dried thoroughly & refrigerated. Unusually for us, we do not see an advantage in quoting the sections of the genus against each species. Cultivation can be better learned from noting the habitats of each collection. There are no generalisations to be made about cultivation, in spite of some dreadfully reprocessed 'received

wisdom' we have seen published. Dr. Sylvia Martinelli's recent accounts in several UK publications are the most reliable available but it must be remembered that she writes from experience of a relatively restricted number of mainly Californian species. The early-flowering, low altitude Fairy Lanterns fit in best with the Mediterranean growth-cycle of many Eurasian bulbs. The late-flowering Mariposas might be compatible with such groups as the *Oncocyclus* & *Regelia* Irises. The species from the cold, dry climates of the Great Basin and further east are proving the most difficult. We suspect they may be best left unwatered until later winter. Even the later Californians may be best left until mid-winter before watering. We are also provisionally convinced that these need little, if any, further watering after the first buds open. The quality of the bulbs will be much better. We shall try to establish as many as possible in cultivation and already we have home-grown seed of a few available. We appreciate that the range listed is rather daunting but we cannot overstress their variation. For those new to the genus, a worthwhile 'starter collection' is offered at the end of this section, as well as two other special collections to encourage wider cultivation.

- 1.150.001 : CALOCHORTUS ALBUS** * Cal., Tuolumne Co., NE of Columbia, Italian Bar. 750m. Steep scrub-covered slopes. (The Sierran foothill race of this Fairy Lantern with pendant, globular, pearly-white flowers on 20cm. stems. A widespread, variable Californian endemic, extending S in the Coast Ranges from near San Francisco almost to the Mexican border, and, in the N, entering the Sierran foothills. Usually a plant of shaded woodland habitats & consequently an easy plant to grow in the UK.) (20+) B
- 1.150.002 : CALOCHORTUS ALBUS** Cal., San Luis Obispo Co., W of Paso Robles. 550m. Steep banks in deciduous woodland. (Variable here from ruby to opalescent pinks and whites. This population grades into the York Mt. reds : 1.150.100.) (20+) B
- 1.150.005 : CALOCHORTUS ALBUS** Cal., San Mateo Co., W of San Jose, Portola valley. J. & G. Robinett coll. (A coll. from much further N on the Coast Range than we have listed before. This collection is likely to have white flowers) (20+) B

- 1.150.050 : CALOCHORTUS ALBUS : DWARF COASTAL FORM** Cal., San Luis Obispo Co. 660m. Steep, windswept, N-facing serpentine slope. A few stored from J. & G. Robinett 1995 colls. (A reduced, apparently stable, ecotype from a few sites exposed to the Pacific gales. We have all tried to collect seed of this but those with drooping capsules are very difficult to gather. Mounds of nodding pink-blushed, pearly globes, virtually on the ground, the whole plant only 5-10cm. high. A sensation.) (10+) E
- 1.150.100 : CALOCHORTUS ALBUS var. RUBELLUS *** Cal., San Luis Obispo Co., W of Templeton. 400m. Steep, stony, shaded banks. (From a famous & outstanding population, on York Mt. in the Coast Range, with translucent, ruby-pink lanterns. The name is not sustainable botanically but is useful for gardeners for denoting this colour phase. Like the other forms, this fits in with Mediterranean species & is now being grown well in the UK. It was awarded a P.C., when shown there in 1995.) (20+) C
- 1.150.500 : CALOCHORTUS AMABILIS *** Cal., Solano Co., NW of Vacaville, Mix Canyon. 550m. Steep, scrub-covered slopes. (Another Fairy Lantern. Branching, 20-30cm. stems with nodding flowers in clear, deep yellow with widespreading outer and incurved inner segments. A Coast Range species, certainly one of the easiest to grow under glass in the UK.) (20+) B
- 1.151.000 : CALOCHORTUS AMOENUS** Cal., Tulare Co., NE of Springville. 1100m. Among scrub on steep granite slopes. (Like the preceding, in Subsect. *Pulchelli* but with purple-rose nodding flowers. Limited to the western foothills of the central & southern Sierra Nevada, this is not so easy as some of its close relatives but has been very well grown & exhibited in the UK.) (20+) B
- 1.151.004 : CALOCHORTUS AMOENUS** Cal., Fresno Co., near Pine Flat Reservoir (Sierra Nevada NE of Fresno). c.300m. J. & G. Robinett coll. (We are not sure how much this varies but this is from much further north than the preceding.) (20+) B
- 1.151.500 : CALOCHORTUS ARGILLOSUS *** Cal., San Luis Obispo Co., NE of San Luis Obispo. 180m. Among grasses in heavy clay on open slope. (The Reservoir Canyon population listed in 1989 under "*C. simulans*". We now feel that it is more correctly placed here, though it does not quite match the following more northern, typical colony. Extremely 'growable' with us, setting seed well. A lovely, rather dwarf, white Mariposa, more or less flushed lilac, with variable dark basal stains & markings.) (20+) C
- 1.151.502 : CALOCHORTUS ARGILLOSUS *** Cal., San Benito Co., Arroyo Dos Picachos. 350m. Meadow in heavy clay. (Californian-grown seed from Hoover's type-locality for this very local, obscure and much misunderstood species. White flowers, flushed purple with central red-brown 'eyes' in yellow zones on the inner segments, often pink or lavender basally.) (20+) D
- 1.152.000 : CALOCHORTUS AUREUS** Arizona, Coconino Co., WSW of Kayenta. 1980m. Open areas among *Artemisia*. Our 1995 coll. (Superb yellow, clump-forming, tetraploid southern race of *C. nuttallii*. A Colorado Plateau endemic, distributed across N Arizona into NW New Mexico & just entering S Utah. Like the other Mariposas in Subsect. *Nuttaliani*, not likely to be easy in more temperate areas, though growing on here. Rich soft-yellow 'tulips' with maroon-purple crescents above the nectaries.) (20+) D
- 1.153.000 : CALOCHORTUS BRUNEAUNIS** Cal., Inyo Co., White Mts., Westgard Pass. 2230m. Openings among *Artemisia*. (Near the more eastern *C. nuttallii* but distinct in its green-striped segments. Pure solid-white with clean purple spots.) (20+) C
- 1.154.000 : CALOCHORTUS CATALINAE** Cal., Los Angeles Co., Santa Monica Mts. 540m. Coastal chaparral. J. & G. Robinett coll. 1995 (Erect, white flowers edged with lavender & with dark basal blotches. Once widespread in the seaward-facing canyons around Los Angeles, little of its habitat, some of the most valuable land on earth, remains. Not too difficult.) (20+) C
- 1.155.002 : CALOCHORTUS CLAVATUS** Cal., Los Angeles Co., Santa Monica Mts. 520m. In clay among grasses in open woodland. J. & G. Robinett coll. 1995 (A big Mariposa, local on the coastal serpentines. Large, golden-yellow bowls, red-brown lined & hairy inside on zig-zag stems of 30-50cm. Variable but always sumptuous and not usually difficult to grow.) (20+) C
- 1.155.200 : CALOCHORTUS CLAVATUS var. AVIUS** Cal., El Dorado Co., ENE of Pollock Pines. 1280m. S. Farwig & V. Girard coll. (Seed from a historic flowering of this disjunct race, local on the granites of the Sierra Nevada & thought to be all but extinct, until it exploded into flower in 1993. Umbel-like inflorescences of huge, butter-yellow bowls on stems of up to 1m.) (20+) D
- 1.156.001 : CALOCHORTUS CONCOLOR** Cal., San Diego Co. 1060m. Sandy soil in chaparral. J. & G. Robinett coll. 1995 (The huge Goldenbowl Mariposa from the far south. Big bright-yellow 'tulips' marked inside with dark red, up to 7 on 20-40cm. stems. These southerners have been little tried but will need full light and a warm rest in summer, under glass in the UK.) (15+) C
- 1.158.000 : CALOCHORTUS EURYCARPUS *** Idaho, Butte Co., W of Craters of the Moon. 1520m. E & SE-facing slopes of stony ridge. (Wiry, 30-50cm. stems carry elegant, bowl-shaped flowers in white or lilac-pink, neatly blotched with maroon and striped with green. A steppe species, in Subsect. *Nitidi*, spread around the N rim of the Great Basin from E Oregon to Montana - covered with snow all winter and not very warm in summer. Much easier to grow in the UK than other Great Basin species.) (20+) B
- 1.158.009 : CALOCHORTUS EURYCARPUS** Nevada, Elko Co., Ruby Mts., SE of Lamoille, along Thomas Creek. 2300-2500m. Among grasses in meadow. J. Andrews coll. (A type-locality coll., though it is much less common here than further N in Idaho & in a much moister habitat than in many sites, though we saw it growing in woodland in Idaho in 1998.) (20+) C
- 1.158.500 : CALOCHORTUS EXCAVATUS** Cal., Inyo Co., Owens Valley S of Bishop. 1350m. Among *Rosa* & *Salix* scrub in clay (dry in summer). (An extremely local mariposa from a few vernal damp sites in this winter-cold area, hot & dry later in summer. In Subsect. *Nuttaliani* with up to six, widely bell-shaped flowers in pale lavender to white, dark purple at the base.) (20+) D

- 1.159.000 : CALOCHORTUS FLEXUOSUS** Cal., Inyo Co., Amargosa Range, Daylight Pass. 1315m. Along dry gullies. (A very strange, desert Mariposa, local but widespread here & there all the way across to SW Colorado. Sinuous stems, 30-40cm. long if straightened, twist and spiral. Up to 6 erect, white, lilac-tinged flowers, purple-spotted & yellow-banded inside.) (20+) **D**
- 1.159.005 : CALOCHORTUS FLEXUOSUS** Utah, Millard Co., SSE of Garrison. 1900m. Calcareous gravel. J. Andrews coll. (An eastern coll. from an extremely dwarf form near the NE limit for the species. Worth cossetting in the alpine house.) (15+) **E**
- 1.163.001 : CALOCHORTUS HOWELLII** Oregon, Josephine Co., Eight Dollar Mt. SW of Selma. 500m. Among sparse *Arctostaphylos* scrub on open, S-facing slope. (Utterly distinct until *C. umpquaensis* surfaced. Beautiful, erect flowers on 30-50cm. stems : white, covered with hairs and darkening centrally to smokey brown. C. Grey records that he found this "very satisfactory in cultivation" in the UK in the 1930's. Slower to progress than some, it is growing well & setting seed with us now.) (15+) **D**
- 1.163.500 : CALOCHORTUS INVENUSTUS** Cal., Ventura Co., Mt. Pinos. 2680m. Alpine steppe, in granite grit. (Only 15cm. high here, with 1-2, erect, pale lavender flowers, basally stained deep purple. A montane species in Subsect. *Nuttalliani*.) (20+) **B**
- 1.164.000 : CALOCHORTUS KENNEDYI** Cal., Inyo Co., SW of Gilbert Summit. 1620m. Open stony slope with sparse *Artemisia*. (Incomparable & quite unrivalled in the brilliance of its colour - here tending to luminous orange. In California, a plant of high, cold steppe. Intolerant of superfluous water at any time but is has been flowered from seed in the UK.) (20+) **B**
- 1.164.200 : CALOCHORTUS KENNEDYI var. MUNZII** Cal., Inyo Co., Panamint Range. 2130m. Among *Artemisia* in gravelly soil. (The high altitude race from over 1850m. in the Clark, Providence & Panamint Mts. Just as spectacular as the preceding : intense yellow with black-purple basal markings and anthers. Possibly a great challenge but virtually untried in cultivation.) (20+) **D**
- 1.164.506 : CALOCHORTUS LEICHTLINII** Cal., Plumas Co., N of Greenville. 1100m. G. Greger coll. (A cold-climate mariposa distributed locally on the granite gravels of coniferous forest-openings from the high Sierra Nevada N to Modoc Co. A beautiful plant with white flowers, sometimes tinged pink or smoky-blue & with a striking black blotch above the yellow base.) (20+) **C**
- 1.164.507 : CALOCHORTUS LEICHTLINII** Cal., Placer Co., Monumental Ridge. 2060m. Granite. J. Andrews coll. (20+) **C**
- 1.166.000 : CALOCHORTUS LUTEUS** Cal., Lake Co., N of Clear Lake. 410m. Among grasses on open slope. (Clear yellow, tinged green basally and with extremely variable brown internal markings. One of the most easily grown mariposas.) (20+) **A**
- 1.166.001 : CALOCHORTUS LUTEUS** Cal., Sonoma Co. 50m. Gravelly clay meadow in full sun. J. & G. Robinett coll. (Citron-yellow variously marked with red-brown, often with an eye-spot above the gland in this locality. 20-35cm. high.) (20+) **A**
- 1.166.100 : CALOCHORTUS LUTEUS X SUPERBUS** Cal., Lake Co., Walker Ridge. 600m. Open grassy area, in heavy clay. (Some fine ivories, creams and soft yellows to deep yellow, very variably marked inside.) (20+) **B**
- 1.167.005 : CALOCHORTUS MACROCARPUS** Canada, British Columbia, N Okanagan Valley. 625m. C. Bailey coll. (A widespread species, extending from NE California across the interior of Oregon & Washington into Canada, Idaho into Montana. Very much a plant of volcanic soils in extreme continental climates, it has no close relatives and is placed alone in Subsection *Macrocarpi*. About 50cm. high with large, elegant, erect, purple flowers with median green stripes on the segments.) (20+) **C**
- 1.168.001 : CALOCHORTUS MONOPHYLLUS** Cal., Butte Co. 550m. J. & G. Robinett coll. 1996 (The only yellow in Subsect. *Eleganti*. A plant of openings in coniferous woodland in the N Sierra Nevada & S Cascades, often with the allied *C. tolmiei*. A little 'sweetie', a few cm. high with bright yellow Cat's Ears. A 'must' for a pan in the alpine-house but keep it cool.) (15+) **D**
- 1.169.503 : CALOCHORTUS NUDUS** Cal., Trinity Co., W of Mt. Eddy. 2080m. Wet mountain-meadow. J. Andrews coll. 1995 (Another dainty, little plant, like *C. uniflorus* in Subsect. *Nudi*. About 15cm. high with erect, lavender flowers, pencilled with purple basally. In a few moist alpine-meadows on the high serpentines of the N, where seed ripens late, superlative rich blue-purple populations, such as this, occur. This will insist on a cool, moist summer - grow it like *Crocus scardicus*.) (15+) **E**
- 1.169.600 : CALOCHORTUS NUDUS X MINIMUS *** Cal., Plumas Co., N of Spanish Ranch. 1220m. Coniferous woodland. (Like pinkish versions of *C. minimus*. In seed their capsules droop, whereas wetter-growing *C. nudus* has upright ones.) (15+) **C**
- 1.170.003 : CALOCHORTUS NUTTALLII** Colorado, Mesa Co., SW of Whitewater. 1800m. Among *Artemisia* on stony, sandstone slopes. (This & the next are our attempts to secure the amazing, early-flowering sugar-pink forms from this area & the Uintah Basin of Utah. We have collected seed here before but have never seen them in flower : photographs by others inspire us.) (20+) **C**
- 1.170.004 : CALOCHORTUS NUTTALLII** Utah, Uintah Co., WSW of Maeser to Lapoint. 2000m. Sandstone. (20+) **C**
- 1.170.500 : CALOCHORTUS OBISPOENSIS *** Cal., San Luis Obispo Co., NE of San Luis Obispo. 150m. Fissures on loose, serpentine cliffs. (In Sect. *Cyclobothra*, Subsect. *Weediani* but unlike anything else in the genus. Many small flowers on stiff, branching, 30cm. stems. Hairy-tufted, purple-tipped yellow segments, like a piece of miniature, feather millinery. Our own cultivated seed of this very local plant, raised from our 1989 coll. & now growing well under glass with no special treatment.) (15+) **D**
- 1.171.000 : CALOCHORTUS PALMERI *** Cal., Los Angeles Co., San Gabriel Mts., Bandido Camp. 1770m. Open slopes with *Artemisia* & sparse *Pinus*. (A dainty, little mariposa from the ranges E of Los Angeles, where its flowers look like grass pinks in a European meadow. Pink with occasional whites, brown-spotted & yellow-haired inside. About 30cm. high) (15+) **D**
- 1.171.101 : CALOCHORTUS PALMERI var. MUNZII** Cal., Riverside Co. 1300m. Sandy clay in open woodland. J. & G. Robinett coll. 1995 (Lacks the stem-bulbils of the type-race. Little-known and very local with bright lavender-pink flowers.) (15+) **E**

- 1.171.500 : CALOCHORTUS PANAMINTENSIS** Cal., Inyo Co., Panamint Mts. 2300m. Stony openings among *Pinus* & *Juniperus*. Our own 1995 coll. (The real thing, an isolated endemic in Subsect. *Nuttaliani*, closest to *C. bruneanus*, stranded on the top of this desert range. Immaculate, white flowers, green-striped externally. A coll. unlikely to be repeated & a challenge.) (15+) **E**
- 1.171.510 : CALOCHORTUS aff. PANAMINTENSIS** Cal., Kern Co., W of Walker Pass. 1650m. Open stony areas among *Artemisia*. (A puzzling population from the SE limits of the Sierra Nevada, directly WSW of the Panamints but separated by about 120km. of desert. Unspotted, white, green-striped flowers key-out as *C. panamintensis* but a few are flushed rose or lavender.) (15+) **E**
- 1.173.504 : CALOCHORTUS PLUMMERAE** Cal., Riverside Co. 580m. Dry chaparral. J. & G. Robinett 1995 coll. (Superlative, large, late-flowerer in Subsect. *Weediani*. Its habitats around Los Angeles are diminishing. Great pink bowls, densely golden hairy inside, on branching 60cm. stems. Not difficult with Stan Farwig & Vic Girard in California & Boyd Kline in Oregon.) . . (20+) **C**
- 1.174.500 : CALOCHORTUS PULCHELLUS** Cal., Contra Costa Co., Mt. Diablo NE of Danville. 520m. Steep, wooded slopes. J. Andrews coll. (A charming, 20cm., bright lemon-yellow Fairy Lantern, only known from Mt. Diablo. Distinct from *C. amabilis* in its greener leaves and larger, spherical flowers but just as easy to grow in the bulb-frame or alpine-house in the UK.) (15+) **C**
- 1.175.800 : CALOCHORTUS SIMULANS** Cal., San Luis Obispo Co. 660m. Among chaparral on gritty clay bank. J. & G. Robinett 1995 coll. (The true plant this time. Confused by us with *C. argillosus* (both taxa were described by Hoover in 1944), which grows on heavy clays. This inhabits, usually granitic, sands in a very limited, hot, dry zone of the inner S Coast Ranges. Flowers are superficially similar to *C. catalinae* with dark nectaries but can vary to pale yellow edged with rose-pink.) (15+) **E**
- 1.176.000 : CALOCHORTUS SPLENDENS** * Cal., Ventura Co., off Lockwood Valley Road. Openings among *Artemisia* in sandy clay. (Beautiful, soft lavender mariposa with white, wispy hairs and dark anthers. Easily grown in our experience.) (20+) **A**
- 1.176.001 : CALOCHORTUS SPLENDENS** Cal., Lake Co., Walker Ridge. 600m. Openings in scrub over serpentine. J. & G. Robinett coll. (From near the northern limit for this species, in a lovely form, marked basally with deep purple. 30-50cm. high.) . . . (20+) **B**
- 1.176.004 : CALOCHORTUS SPLENDENS** Cal., San Diego Co. 1000m. Clay in open woodland. J. & G. Robinett coll. 1995 (Southern form separated as *C. davidsonianus* on account of its wholly basal white hairs. Lavender-pink.) (20+) **B**
- 1.176.500 : CALOCHORTUS STRIATUS** Cal., Los Angeles Co., N of Lancaster. 760m. Open, level sites among desert scrub. (Distinct mariposa endemic to a few alkaline seeps in the Mojave. Many, pale-lavender flowers veined with maroon-purple, just like the petals of *Geranium* 'Ballerina'. Probably difficult but growing on here quite well so far, though not yet flowered.) (15+) **D**
- 1.177.000 : CALOCHORTUS SUPERBUS** * Cal., Mariposa Co., NNW of Hell Hollow. 700m. Open, stony, serpentine slope. (From the type-locality of this classic Mariposa, distinct from *C. venustus* in its linear, inverted V-shaped gland. Almost invariably white here with purple-brown blotches & basal markings. Easy to grow with us and now setting seed well.) (20+) **B**
- 1.177.006 : CALOCHORTUS SUPERBUS** Cal., El Dorado Co., N of Placerville. 720m Openings among *Pinus*. J. & G. Robinett coll. (From a famously spectacular & infinitely variable colony with lilac, lavender & purple flowers, rich shades of faded antique fabrics, beautifully & intricately marked inside. A stand now sadly becoming depleted by 'ranchette development'.) (15+) **D**
- 1.177.500 : CALOCHORTUS SYNTROPHUS** Cal., Shasta Co., N of Montgomery Creek. 580m. Among sparse *Quercus* on open clay slope. (A small, isolated population given status as a species by Frank Callahan in 1993 (*Herbertia* Vol.49). In Subsect. *Venusti* & defined by Callahan by comparison to *C. superbus*. The superficial impression to us was of a splendid version of *C. leichtlinii*, a species of much higher altitudes to the E & S. Seeds are different to both but, whatever its ancient affinities, it seems distinct with large, solid-white flowers, yellow & hairy at the base & with neat chestnut-brown blotches. Growing well with us.) (15+) **E**
- 1.178.007 : CALOCHORTUS TOLMIEI** Oregon, Douglas Co., above Callahan Creek. 460m. Openings among *Pinus* on serpentine slope. (The 1998 seed-set on this early-flowering Cat's Ear was unusually poor almost everywhere. The late, wet spring really upset it. Around 15cm. high with a succession of very hairy, lavender flowers. Usually quite easily grown in the UK.) (20+) **B**
- 1.178.020 : CALOCHORTUS TOLMIEI** Cal., Humboldt Co. 900m. Open, grassy meadow. J. & G. Robinett coll. (A beautiful violet centred form of this little Cat's Ear, the most widespread and arguably the most variable species in this genus.) (15+) **C**
- 1.179.001 : CALOCHORTUS UMPQUAENSIS** Oregon, Douglas Co., above Callahan Creek. 460m. Steep, open, serpentine slope. (From a different locality to the Robinett 1995 coll. but still in the upper drainage of the Umpqua. A very local serpentine-endemic, described in 1989. Closest to *C. howelli* and not unlike it in its very hairy flowers, creamy white with a large maroon-black centre, but substantially different in its large, drooping seed-capsules. Very striking and not too difficult so far in the UK.) (10+) **E**
- 1.179.500 : CALOCHORTUS UNIFLORUS** * Cal., Lake Co., NE of Middletown. 290m. Open meadow in heavy clay. (A dwarf, lilac flowered member of Subsect. *Nudi*, easily grown in Europe, where it fits in with Mediterranean bulbs. In this site, it grows mixed with *C. vestae* but has dropped its seeds and gone dormant before the latter flowers : quite different growth-cycles.) (15+) **B**
- 1.179.501 : CALOCHORTUS UNIFLORUS** * Oregon, Josephine Co., SW of O'Brien. 550m. Wet depressions among sparse conifers. (From one of the northern populations : the species has a very wide range well into Oregon, always in vernal wet places. This grows easily with us under glass & may be possible outside in the UK. Lilac with purple markings above the nectaries.) (15+) **B**

- 1.180.507 : CALOCHORTUS VENUSTUS** Cal., Fresno Co. (Sierra Nevada NE of Fresno). 1740m. Sparsely wooded slope in sandy, granitic soil. J. & G. Robinett coll. (This widespread species, distinguished by its rather square nectary, is the ultimate in variability of ground-colour and markings. Most commonly found with a white ground-colour, this population exceeds imagination in shades of pink, purple, red and orange with every combination of these and of the complex blotches and basal markings.) (15+) **D**
- 1.180.550 : CALOCHORTUS VENUSTUS *** Cal., Kern Co., Cuddy Valley. 1840m. Openings among *Pinus*. (A famous, restricted & unique colony in a series of subtle red shades, like scarlet velvet, faded to varying degrees. The basal markings are lost but the golden hairs stand out strikingly. The limited habitat here is heavily grazed by horses but it flowered well in 1998.) (15+) **D**
- 1.181.500 : CALOCHORTUS VESTAE** Cal., Mendocino Co., SW of Covelo. 390m. Among grasses on heavy clay slope. (Double crescent nectaries & a different chromosome number distinguish this from *C. superbus* & *C. venustus*. Spectacular, solid-white flowers with big brown-purple blotches in yellow zones & purple-pencilled bases. A splendid northern mariposa.) (20+) **B**
- 1.182.003 : CALOCHORTUS WEEDII** (var. *weedii*) Cal., San Diego Co. 750m. Chaparral, in rocky clay. J. & G. Robinett coll. 1995 (A big, southern *Cyclobothra* in Subsect. *Weediani*, unlike any other here, except *C. plummerae*. Up to 6, erect, rich-yellow bowls, variably brown-tinted at the rim & intricately marked at the base, filled with long, yellow hairs. 40-80cm.) (15+) **C**
- 1.182.200 : CALOCHORTUS WEEDII** var. *VESTUS* Cal., Monterey Co., Monterey Range, Lottie Potrero. 700m. Serpentine outcrops. J. Andrews coll. 1995 (An odd, little-known, northern disjunct race, thought to have affinities to *C. obispoensis*. Squarish bowls in creamy, brown or purplish shades with dark hairs instead of yellow ones. Little known & seldom collected.) . . . (15+) **E**
- 1.182.500 : CALOCHORTUS WESTONII** Cal., Kern Co., S of Alta Sierra. 2050m. Coniferous woodland. (A little subalpine Cat's Ear stranded a long way from any relatives, on top of the Greenhorn Mts. at the S end of the Sierra Nevada. About 15cm. with hairy, lilac-tinged bells. We saw this grown very well by Mike Tucker (Somerset, UK) this year &, in spite of its restricted habitat, it is possibly easier than many in the UK, where it is less likely to be upset by hot, dry summers.) (15+) **E**

CALOCHORTUS : COLLECTION No. 1 : FAIRY LANTERNS & CAT'S EARS

Eight members of Section *Calochortus*. If you grow Mediterranean bulbs, you can grow these : *C. albus*, *C. albus rubellus*, *C. amabilis*, *C. amoenus*, *C. nudus*, *C. pulchellus*, *C. tolmiei*, *C. uniflorus* List value at least \$20.00 or £17. - for only \$15.00 or £10.

CALOCHORTUS : COLLECTION No. 2 : MARIPOSAS

Eight members of Section *Mariposa* : *C. argillosus* (1.151.500), *C. clavatus*, *C. luteus*, *C. splendens*, *C. superbus*, *C. venustus* in two variants, including the Cuddy Valley reds, & *C. vestae*. List value at least \$20.00 or £17. - for only \$15.00 or £10.

CALOCHORTUS : COLLECTION No. 3 : INTERMOUNTAIN SPECIES

For the serious enthusiast & to encourage those who wish to push out the boundaries of our knowledge of cultivation, nine collections from the cold deserts and steppes between the Sierra Nevada and the Rockies. The species from this climate of extremes are proving the most difficult to grow in cultivation : *C. aureus*, *C. bruneaunis*, *C. eurycarpus*, *C. excavatus*, *C. flexuosus*, *C. invenustus*, *C. kennedyi*, *C. kennedyi munzii* and *C. nuttallii* List value at least \$37.00 or £25. - for only \$20.00 or £15.00

- 1.184.100 : CALTHA BIFLORA** Idaho, Idaho Co., Clearwater Mts., Gospel Hump. M.& P. Stone 98-22A (A characteristic plant of wet, montane habitats from Alaska, S through the Rockies. The northern version of *C. leptosepala* : sometimes included under it. White flowers, 2 on each 15cm. stem, as the snow melts & before the rounded, 50cm. high leaves are fully developed.) . . . (20+) **B**
- 1.191.101 : CAMASSIA QUAMASH** Oregon, Douglas Co., S of Tiller. 460m. Along gully on serpentine slope. ("Jepson" throws almost this whole genus of bulbs under this species - not a lot of help to gardeners with plants from 20cm to 1m. high in anything from white to deep blue. The 'Flora of the Pacific Northwest' maintains 3 species with 6 subspecific taxa. We have not seen this coll. in flower so this name is the best we can provide. 30-50 cm. here. Recalling *Eremurus* in their spires of starry flowers (but in pale to deep violet-blues), this should be growable in the wetter climate of UK gardens, in a well-drained, sunny border.) (20+) **B**
- 1.200.051 : CASTILLEJA ANGUSTIFOLIA** Cal., Inyo Co., SW of Gilbert Summit. 1620m. Open, stony slope with sparse *Artemisia*. (Brilliant Paintbrush in the superlative *C. chromosa* complex, one of which we have flowered well here. These can be grown with skill & luck. Liquid feeding in sterile composts can compensate for lack of partners. David Joyner in Salt Lake City sets up mini-ecosystems and grows an amazing & unique collection. Erect spikes with eye-burning, scarlet bracts. 20-30cm.) (30+) **B**
- 1.200.750 : CASTILLEJA SCABRIDA** (var. *scabrida*) Utah, Emery Co., Molen Reef E of Moore. 1930m. Sandstone detritus & fissures on rock-slabs. (A superb, usually saxatile, dwarf perennial of the Canyonlands sandstones. Twiggy, 5-15cm. stems, set with linear, downy leaves, rise from a woody base to carry brilliant orange-red inflorescences. Apart from its compact habit, this often grows with no obvious associates, making it one of the most desirable with which to experiment in the alpine-house.) (20+) **E**
- 1.211.050 : CEANOTHUS INTEGERRIMUS** var. *CALIFORNICUS* Cal., Plumas Co., Indian Falls. 1220m. G. Greger coll. (A variable, deciduous shrub, about 3m. high. "One of the most elegant" writes Bean, "producing its long, graceful panicles in great profusion" in mid-summer. Colour can grade from white through to blue or occasionally pink. Seed from a cold area.) (30+) **A**

A : \$2.00 ; £1.50 ; DM4,- ; FF13.- C : \$4.00 ; £2.50 ; DM6,- ; FF21.- E : \$7.00 ; £4.50 ; DM12,- ; FF40.-
B : \$3.00 ; £2.00 ; DM5,- ; FF17.- D : \$5.00 ; £3.50 ; DM9,- ; FF30.- F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

- 1.213.005 : CEANOTHUS PROSTRATUS** Cal., Lassen Co., N of Westwood. 1580m. G. Greger coll. (A prostrate, evergreen shrub, forming wide mats, usually in open pine-forest. With its little, toothed holly-leaves & clusters of flowers in pale to deep blue, it has been described as "one of the most showy & desirable of alpine shrubs". Temperature-hardy but needs a hot, dry site.) . . . (20+) **B**
- 1.231.810 : CLEMATIS VIORNA *** No data. A semi-woody, pinnate-leaved, eastern species, climbing to 2-3m. Little, nodding, leathery, narrow-mouthed bells with recurved tips to the sepals, in red-purple, followed by feathery, brown seed-heads. . . . (15+) **B**
- 1.259.550 : CORNUS NUTTALLII** Cal., Tehama Co., WSW of Lake Almanor. 1220m. G. Greger coll. (The Pacific dogwood, "noblest" of the genus & one of the most beautiful of small trees. It can reach more than 15m. in nature, though it is rarely more than a large shrub in the UK. Heads of tiny flowers surrounded by whorls of about 6, large, petal-like, creamy-white, pink-flushed bracts wreath the branches in early summer & in autumn the leaves flame to yellow & scarlet. Flowers when quite young.) (10) **B**
- 1.264.000 : CRYPTANTHA ABATA** Nevada, Eureka Co., W of Eureka. 2100m. Gravelly 'flats' with sparse *Juniperus*. J. Andrews coll. (A caespitose, tap-rooted perennial, from gravelly soils in SW Utah & adjacent Nevada, with grey, hair leaves and clusters of white flowers on prostrate stems. Thisgenus, in the *Boraginaceae* & closely allied to *Eritrichium*, includes many worthwhile species for the alpine-house but growing them well & in character in the UK still remains a challenge.) (10+) **C**

Delphinium : the scarlet & gold larkspurs take to cultivation

At last we seem able to maintain a good range of *Delphinium* species. Since we first visited California in 1989, we hoped to be able to strike it lucky with seed but it was not until 1995 that we managed a wide variety. We now list cultivated seed from some of these supplemented by new 1998 collections. Collecting a wide range is more a matter of luck than planning or skill. Of course, there are many gaps here - less than half the Californians are listed - but the range this season is truly representative of the immense & unique variation of this genus in the American West. All here are more or less summer-dormant perennials, retiring underground to a variety of rootstocks when it is hot and dry. The wet-growers, *D. glaucum* and *D. trollifolium*, are likely to remain growing longest in a UK summer but even most of the dry growers will remain active and in flower for much longer in cooler, moister climates than they do in the wild. The latter could be grown in bulb-frame

conditions in summer-wet climates but because of their size the larger ones will have to be attempted in the open garden. Choose as well-drained and as sunny a site as possible for most. Though we have never experienced any difficulties personally, seed-germination has given problems to some in the past. We suggest that they require quite a long cool period. A few degrees above freezing for a couple of months or so should be enough for most. Those from colder areas may need longer. Putting the pots outside in the UK has worked for us. If they do not come up the first year, they come up the next, as with most summer-dormant species. Taxonomically, the genus is difficult with many hybrids. Like many genera with their centre of diversity in California, it is in a very 'fluid' state. We have found Michael Warnock's account in the new 'Jepson' very workable and realistic so far and the nomenclature used here, for the Californians, follows his assessment of the genus.

- 1.300.000 : DELPHINIUM ANDERSONII** (var. *andersonii*) Nevada, White Pine Co., NW of Ely. 2200m. Openings among *Juniperus* in gravelly clay. (From the winter- cold, interior steppes. Rich pure-blue flowers. 30-50cm.) (20+) **C**
- 1.300.700 : DELPHINIUM CARDINALE *** Cal., Ventura Co., NW of Ojai. 650m. Among scrub on steep slope above dry stream-bed. (Truly breathtaking when we saw it in flower for the first time in 1995. This has no affinities with *D. nudicaule*, in spite of its red flowers. A big plant, well over 2m. here, from a massive rootstock, with a much branched stem carrying a long succession of opulent flowers in brilliant, eye-burning scarlet-red. Endemic to the S Coast Ranges just into Mexico, it is recorded up to 1500m. and seems reasonably hardy in the UK, though it is liable to wind-damage here & if foliage appears early, it may need protection.) . . . (20+) **D**
- 1.300.850 : DELPHINIUM DECORUM** subsp. **TRACEYI** Cal., Siskiyou Co., SW of Castle Lake. 1580m. Openings among scrub on steep, stony slopes. (Dwarf, montane N Californian race with blue-purple flowers. 10-20cm. Cool summer rest.) (20+) **D**
- 1.300.900 : DELPHINIUM DEPAUPERATUM *** Cal., Sierra Co., SE of Sierraville. 1870m. Open, gravelly areas among sparse *Pinus*. (Our 1989 coll. 10949 & 1992 coll. 12728, distributed as *D. nuttallianum* but it seems to fit in better with this. A very pretty, summer-dormant species with flights of rich purple flowers on branching 20cm. stems over a long period in spring.) (20+) **C**
- 1.301.201 : DELPHINIUM GEYERI *** Wyoming, Lincoln Co., N of Opal. 2050m. Among grasses in gravelly soil. (Spread from NW Utah to E of the Rockies, often painting the grassland with rich blue purple. May merge into the *D. virescens* complex of the Great Plains. Used to extremely cold winters, this should be hardy almost anywhere. About 50cm. tall here.) (20+) **C**
- 1.301.505 : DELPHINIUM GLAUCUM** Oregon, Jackson Co., W of Applegate Lake. 1370m. Streamside. P. Gustafson 98-10107 (A tall, robust wet-grower, distributed in western mountain meadows from Alaska south to the San Gabriels behind Los Angeles and likely to prove an excellent garden-plant in the UK. A massive, soundly perennial rootstock sends up large deeply cut leaves with pointed lobes & several, branching stems about 2m. high with packed with numerous, rich purple-blue flowers.) (20+) **C**

- 1.302.500 : DELPHINIUM LUTEUM** * Cal., Sonoma Co., SW of Bodega. Ex a W. Roderick coll. (A species hovering on the verge of extinction, known from two small populations on seasonally wet cliffs near the coast NW of San Francisco. It is essential that we maintain this unique species in cultivation. Not usually generous about setting seed in cultivation, even when several clones are grown. None matured under glass with us. This listing is from D. Hoskins (Hampshire, UK) & D. Batterham (Dorset, UK) gathered from plants grown in the open garden in what was a cold, wet early summer in the UK. Learn the lesson : like many plants from the chilly, misty Californian coast, it does not enjoy hot weather. How temperature-hardy it will be outside in a severe UK winter, however, is yet to be established. A truly beautiful plant when well grown - the only really yellow N American. Branching stems, of about 30 -50cm., packed with large, waxy, shining, clear-yellow flowers in early summer. Dormant in late summer.) . . . (20+) E
- 1.302.700 : DELPHINIUM NUDICAULE** Cal., Plumas Co., S of Greenville. 1370m. Among conifers on steep, gravelly, clay slope. (A high altitude inland form, about 30cm. high, of this scarlet-orange species. It will be much hardier than coastal ones.) . . (20+) C
- 1.302.750 : DELPHINIUM NUDICAULE** * Cal., Mendocino Co., Etsel Ridge ESE of Covelo. 1980m. Among rocks on serpentine outcrop. (A similar form, growing in a precisely similar habitat to the next, which we collected in 1989 in the Lassics N of Zenia and have never been able to relocate. Apparently, an unrecognized, distinct, tall race endemic to these high, inaccessible serpentines on the inner N Coast Ranges. Up to 1m. high with the long-spurred, brilliant scarlet flowers held out on long pedicels.) . . . (15+) D
- 1.302.751 : DELPHINIUM NUDICAULE** * Cal., Trinity Co., N of Zenia. 1660m. Serpentine outcrop. (From our 1989 coll., made about 80km. NW of the preceding, grown successfully as a border-plant outside by Dinah Batterham (Dorset, UK)) (15+) D
- 1.303.100 : DELPHINIUM PARISHII** Cal., Inyo Co., SW of Gilbert Summit. 1620m. With sparse *Artemisia* on open, stony slope. (Cold-desert species with 50cm. racemes of downy, white-eyed flowers in a beautiful pale azure-blue.) (20+) C
- 1.304.300 : DELPHINIUM TROLLIIFOLIUM** Cal., Humboldt Co., SSW of Willow Creek. 1070m. Steep, moist, part-shaded banks. (A magnificent wet-grower distributed in the N Coast Range from Humboldt Co. N into W Oregon, which we first saw in flower here in 1989 & have been trying to collect seed from ever since. Every year up till now, it has been grazed off by deer coming to drink at the nearby spring. About 2m. high with large, laciniately lobed leaves & spires of rich, deep blue flowers. This should be an important species for gardeners in the UK, where it should be easily grown in any good, rich moist soil.) (20+) C
- 1.304.311 : DELPHINIUM TROLLIIFOLIUM from PINK FORM** Field-data as for 1.304.300 (From a single plant, tagged in bloom, with flowers in a soft lilac-pink. Pollinated by blues, so how 'true' seedlings will be remains to be seen.) (15+) D
- 1.304.500 : DELPHINIUM VARIEGATUM** (subsp. *variegatum*) * Cal., Mendocino Co., SW of Covelo. 390m. Heavy clay on open, grassy slope. (A spectacular species around 50cm. high with racemes of flowers in rich, deep royal-blue. This has grown very well with us, flowering for a very long period & setting seed well. It should be easy in a bulb-frame anywhere in the UK or perhaps even in a well-drained sunny site outside, providing a unique colour in late spring & early summer.) (20+) C
- 1.306.305 : DICENTRA FORMOSA** subsp. *OREGANA* Cal., Del Norte Co., Little Jones Creek Road. P. Gustafson 98-0858 (Merged under *D. formosa*, in current floras, but most distinct in its 'pure' form, narrowly endemic to serpentine scree along the California-Oregon line. Dwarf (15-20cm.) with much cut blue-grey leaves and shallowly cordate cream, rose-tipped flowers.) (20+) C
- 1.308.300 : DICHELOSTEMMA IDA-MAIA** * Cal., Humboldt Co., NNE of Orleans. 180m. Stony slope at woodland margin. (A startling endemic *Brodiaea* of the N Coast Range. Over 1m. high when well grown, with pendant, tubular flowers in pure glowing red with greenish-cream segments surrounding the white staminodes. Easy under glass but will grow outside in UK.) (20+) C
- 1.309.101 : DISPORUM HOOKERI** var. *OREGANUM* Wash., Whitman Co., Kamiak Butte, SW of Palouse. 1000m. Coniferous woodland on N-facing slope. (Demure woodlander with pendant, creamy bells followed by bright orange fruits. 50cm.) (10) B
- 1.309.299 : DISPORUM SMITHII** Oregon, Jackson Co., S of Galice. P. Gustafson 98-0848 (A refined plant of moist W Coast woodlands from California N into British Columbia. Drooping, cream, tubular flowers & orange fruits on 30cm. stems.) (10) B
- 1.310.500 : DODECATHEON CLEVELANDII** * Cal., Santa Barbara Co. 1150m. Serpentine meadow in full sun. Ex a J.& G. Robinett coll. (Splendid summer-dormant plant for the bulb-frame or alpine-house. Showy pink flowers with yellow noses.) (20+) B
- 1.310.600 : DODECATHEON CLEVELANDII** subsp. *INSULARE* * Robust race from the Channel Islands off the Californian coast. Distinguished from the type-race by its maroon-black anther connectives. A splendid thing for the bulb-grower) (20+) C
- 1.310.625 : DODECATHEON CLEVELANDII** subsp. *PATULUM* Cal., Tehama Co., W of Red Bluff. 200m. Vernal wet areas. P. Gustafson 98-0401 (A splendid little, summer-dormant shooting-star, about 15 cm. high, with white flowers accentuated by the maroon-black anther-cone. This area has an extreme continental climate with very high summer temperatures and cold winters, so the species is ideally suited to year-round alpine-house cultivation in the UK. Dry in summer but keep it wet in spring.) . . . (20+) C
- 1.310.705 : DODECATHEON CONJUGENS** Montana, Madison Co., Gravelly Range. 2620m. M.& P. Stone 98-25 (A species of seasonally wet sites in the drier, colder interior ranges from BC to Alberta, in the N, & NE California to Wyoming, in the S. Smooth, rounded basal leaves & 20cm. stems with umbels of up to 7, magenta flowers, usually with black pollen-sacs.) (20+) B
- 1.311.000 : DODECATHEON HENDERSONII** Cal., Plumas Co., S of Greenville. 1370m. Among conifers on steep, stony slope. (Characteristic species of northern woodlands. Summer-dormant but from cooler areas. Magenta to deep lavender.) (20+) B
- 1.311.200 : DODECATHEON JEFFREYI** * Cal., Trinity Co., Scott Mt. Summit. 1650m. Open, wet meadow in coniferous forest. (Always in marshy meadows & along streams in the mountains : easy in UK. Varying shades of lavender pink.) (30+) B

A : \$2.00 ; £1.50 ; DM4,- ; FF13.- C : \$4.00 ; £2.50 ; DM6,- ; FF21.- E : \$7.00 ; £4.50 ; DM12,- ; FF40.-
 B : \$3.00 ; £2.00 ; DM5,- ; FF17.- D : \$5.00 ; £3.50 ; DM9,- ; FF30.- F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

- 1.311.700 : DODECATHEON SP.** Oregon, Josephine Co., SW of O'Brien. 500m. P. Gustafson 98-068. Clay pockets on level serpentine slabs, briefly wet in spring. (A distinct, bright, little plant, known to Boyd Kline & other local plant-people as 'Illinois Valley Dwarf'. We should not hazard a guess as to its affinities. Narrow-leaved and only 10cm. in seed.) (15+) **D**
- 1.312.500 : DRABA QUADRICOSTATA** Cal., Mono Co., N of Conway Summit. 2300m. Rock fissures on volcanic ridge. J. Andrews coll., 1995 (Narrow Sierra Nevada endemic, separated into *Cusickiella quadricostata* in 'Jepson'. One of the most densely caespitose of Californian cushions with pale yellow flowers. Enthusiastically recommended by John.) (20+) **D**
- 1.315.450 : EPILOBIUM RIGIDUM** Oregon, Josephine Co., SW of O'Brien. 700m. Open, stony areas on serpentine. P. Gustafson 98-09102. (An outstanding species, the finest in the genus, & choicest of the trio centred on *E. obcordatum*. Like so many other fine plants, this is confined to a few sites on the serpentines along the California-Oregon line. A tiny, woody-based perennial with extremely large, rich-pink flowers, borne for a long period in late summer, over neat, fleshy, blue-green leaves. Not at all impossible to grow in an alpine-house pan, or even a sunny trough, in the UK but difficult to propagate, though it has set a few seeds with us in cultivation. Very difficult indeed to collect in any quantity but fortunately it usually germinates quickly & well.) (5) **E**
- 1.315.500 : EPILOBIUM SISKIYOUENSE** Cal., Siskiyou Co., Mt. Eddy. 2630m. Exposed, serpentine slope. J. Andrews coll. 1995 (Now sensibly separated from *E. obcordatum* in 'Jepson', this is very local on the high serpentines in this area and is more or less intermediate between *E. obcordatum* & *E. rigidum* - a superlative trio of alpinists for the specialist. Caespitose, woody-based & compact, about 10cm. high, it covers itself with comparatively huge flowers of intense rose-purple.) (10+) **E**
- 1.320.200 : ERIGERON ARGENTATUS** Cal., Inyo Co., Westgard Pass. 2230m. Openings among *Artemisia* in gravelly soil. (One of the best medium-sized species. Generous, lilac-blue daisies from narrow-leaved, silvery-grey clumps. 20cm.) (20+) **B**
- 1.320.400 : ERIGERON COMPACTUS** Nevada, Eureka Co., W of Eureka. 2100m. Exposed, bare alkaline 'flats' with sparse *Juniperus*. (Firmly compacted, round hummocks cover themselves with daisies on 5cm. stems - usually white, sometimes lilac-pink, and red on the reverse of the rays. Described by Dwight Ripley as "one of the choicest of its race.") (15+) **E**
- 1.323.720 : ERIGERON UNCIALIS var. CONJUGANS** Nevada, Clark Co., Spring Mts., Charleston Peak. 3450m. Limestone fissures. J. Andrews coll. (The tiniest in the genus, a compact, tap-rooted, alpine cushion-plant with hairy basal leaves and little daisies on stems under 5cm. high. The purplish discs are surrounded by many rays in rose, pale lavender or white. The species occurs in the desert ranges of E California with this downier race on the high limestones of Clark & Nye Counties in Nevada.) ... (15+) **E**
- 1.330.250 : ERIOGONUM CAESPITOSUM** Cal., Mono Co., White Mts. 2300m. Open, stony, limestone slope. (One of the best & also one of the easiest to grow among the tightly pulvinate ones. A widely distributed species forming compact mats of tiny, spatulate, white-felted leaves. Clustered yellow heads, opening almost stemless, flush to red as they mature.) (20+) **C**
- 1.330.850 : ERIOGONUM HOLMGRENII** Nevada, White Pine Co., Snake Range. 3400m. Exposed limestone talus. J. Andrews coll. 1995 (Endemic to this range & not previously in cultivation. In Sect. *Capitata* with raspberry-pink heads.) (15+) **E**
- 1.330.950 : ERIOGONUM KENNEDYI var. ALPIGENUM** Cal., Ventura Co., Mt. Pinos. 2600m. Granite grit of exposed summit. Our 1995 coll. (Wide hard, silvery white mats. Stemless heads of rosy flowers, maturing to rust-red. Stays tight with us.) . (15+) **E**
- 1.331.500 : ERIOGONUM OVALIFOLIUM** Cal., Mono Co., White Mts., Westgard Pass. 2230m. Gravelly steppe. (Woody mats of oval, grey-white leaves with many 10cm. stems with round heads of flowers, creamy-white maturing to pink here.) (20+) **C**
- 1.332.500 : ERIOGONUM SISKIYOUENSE** Cal., Trinity Co., Mt. Eddy. 2070m. J. Andrews coll. 1995 (Narrowly endemic to the Mt. Eddy serpentines. Tight, woody-based mats of woolly-backed leaves, rather like a compressed version of *E. umbellatum*. Slender stems of about 5 cm. with a whorl of bracts below the heads, which open yellow & age to red.) (15+) **D**
- 1.332.600 : ERIOGONUM SOREDIUM** Utah, Beaver Co., Frisco (WNW of Milford). 2010m. Limestone slopes. (Densely pulvinate, firm, woolly, grey-white mounds, up to 50cm. across, with almost stemless heads of white, sometimes pink-flushed, flowers. Only ever found above the ghost-town of Frisco, on the E side of the Wah Wah Valley. Try in full sun in the alpine-house) (15+) **E**
- 1.335.550 : ERIOGONUM UMBELLATUM var. SPECIOSUM** Oregon, Jackson Co., W of Applegate Lake. 1220m. Dry, rocky, S-facing serpentine slope. P. Gustafson 98-0859 (A local race from N California & adjacent Oregon & one of the most spectacular variants of this widespread species. A robust, dwarf shrub, about 30cm. high with big, rich-green leaves, massed with compound inflorescences of brilliant yellow flowers which mature in intense scarlet to rust-red shades. For sunny, lime-free scree.) ... (15+) **C**
- 1.372.800 : GAILLARDIA SPATHULATA** Utah, Emery Co., SE of Moore. 1980m. Loose, stony clay in saline desert scrub. (The sweetest, little plant, probably the dwarfest in the genus, but unlikely to be easy to grow in wetter, more temperate climates. Endemic to E central Utah, around the San Rafael Swell, and only 10-15cm. high. Rather thick, grey-green basal leaves and comparatively huge, short-stemmed daisies with a few (7-10), notched, pale-yellow rays surrounding the big, domed, yellow disc.) (15+) **D**
- 1.373.900 : GENTIANA SETIGERA** Oregon, Josephine Co., W of Cave Junction. 400m. Bogs & streamsides. P. Gustafson 98-0885 (Endemic to wet places in NW California & SW Oregon with stems of about 20cm. carrying long, narrow, rich-blue bells, with white throats & green-speckle inside, in late summer. A lovely thing which should be growable outside in the UK.) (30+) **C**

- 1.375.100 : GILIA AGGREGATA** (*Ipomopsis aggregata*) Colorado, Mesa Co., SW of Whitewater. 1800m. Among *Artemisia* on stony sandstone slope. (Always a spectacular species. Monocarpic with flat rosettes of exquisitely cut rich-green leaves. Branching, 50cm. stems massed with starry trumpets in scarlet-red. It will do well outside in the UK, if there is a hot summer.) (15+) A
- 1.375.700 : GILIA CAESPITOSA** Utah, Wayne Co., SE of Teasdale. 2450m. fissures on sloping, white sandstone outcrops. (A very little 1998 seed of one of the few N American chasmophytes. Only known from this area, it is a bit like a mound of *Saxifraga cochlearis* with long-tubed, *Dionysia*-flowers in a distinctive, soft orange-scarlet, on thready, 5cm. stems. Earlier 1993 & 1995 colls. have seen it tenuously established & propagated vegetatively in the UK. For experienced alpine-house growers only.) (10) F
- 1.376.500 : GILIA FORMOSA** * New Mexico, San Juan Co., NW of Aztec. 1900m. Ridgetops of eroded clay hills. (Close, woody-based tufts of tiny, hair-thin, bright-green leaves send up wiry-stemmed panicles of long-tubed flowers in clear pink shot with violet-blue. "The special glory of Aztec...known only from here and as beautiful as it is rare" wrote Dwight Ripley in 1943. Being successfully grown under glass from our 1993 & 1995 colls. & we hope we can now maintain this very local species.) (15+) E
- 1.378.500 : GILIA SPICATA** Wyoming, Sweetwater Co., Mackinnon. 1900m. Among sparse *Juniperus* on steep sides of shale 'barrens'. (A dwarf, tap-rooted perennial with rosettes of hairy, linear or segmented basal leaves and erect inflorescences, about 15-20cm. tall, close-packed with little, white flowers. Local but widespread across to Kansas & down to New Mexico.) (10+) C
- 1.378.900 : GILIA STENOTHYRSA** Utah, Emery Co., Molen Reef, E of Moore. 1930m. Sandstone detritus & fissures on rock-slabs. (A local species distributed from the Uintah Basin S into the San Rafael Swell. If he had travelled through Utah, Farrer might have enthused about this instead of *Saxifraga florulenta*. Monocarpic with an exquisitely cut, flat, basal rosette of overlapping, pinnatifid, grey-felt leaves exploding into an erect, 30cm. cylindrical spire of white to lavender-blue flowers. Possibly difficult.) (10+) D
- 1.400.050 : HAPLOPAPPUS ACAULIS** var **GLABRATUS** Nevada, Eureka Co., W of Eureka. 2100m. Gravelly bare-patches among sparse *Juniperus*. (A classic cushion-plant of the drier, interior areas of the American West, growing here with other hummocks, like *Lepidium nanum*, *Erigeron compactus* & *Leptodactylon caespitosum*. Hard, woody-based mounds of compacted rosettes with prickly, rich-green leaves & almost stemless orange-yellow 'daisies'. Doubtless difficult to cultivate 'in character'.) (15+) D
- 1.425.900 : HORKELIA HENDERSONII** Oregon, Jackson Co., Siskiyou Mts., S of Ashland. 2130m. P. Gustafson 98-0879 (A very local, high alpine member of the *Rosaceae*, endemic to exposed granite flats on a few summits in the Siskiyou on both sides of the California-Oregon line. Tight mats of grey, silky foliage and dense heads of small pinkish flowers on 5cm. stems. Should be well worth the attention of the alpine-house enthusiast and deserves some effort to maintain it in cultivation.) (10) E
- 1.428.100 : HULSEA NANA** Cal., Siskiyou Co., Mt. Eddy - S side. 2600m. Loose serpentine talus. J. Andrews coll. 1995. (High alpine of distinction with mounds of fascinating, pinnately lobed, woolly foliage and huge, many-rayed, yellow 'daisies' on stems of under 15cm. Not easy but we have grown & flowered it in the past. Maybe best outside in scree.) (10+) D

Iris : endless permutations of the pacific coast rainbow

These Pacific Coast irises (Series *Californicae*) exemplify better than any other genus how much speciation is proceeding actively in this area : variation, intergradation and hybridization are considerable. Lee Lenz's 1958 classification (adopted by Munz, by Brian Mathew in 'The Iris' and more or less by "Jepson") is a brilliant and acceptable compromise but do not imagine his taxa are always clearly defined units in the wild. In gardens, much material is of hybrid origin &, while this is

frequently the case in nature as well, remember that most wild plants are likely to be both less showy and less easy to grow than the garden hybrids. Most grow wild in light woodland or among scrub, usually on steep slopes : they need excellent drainage and a neutral to slightly acid soil. A site in sun, in N Europe, might be preferable to half-shade. Lime-free scree will suit some small ones. A few, such as *I. hartwegii columbiana*, *I. fernaldii* and *I. munzii*, might be best in a bulb-frame.

- 1.460.000 : IRIS BRACTEATA** Oregon, Josephine Co., Waldo Hill. 650m. Open, stony, serpentine areas, among scrub. (From near Howell's 1884 type-locality for this very local & distinct species. Thick, broad, leathery leaves & large, showy flowers, always in pale yellow, veined with maroon or brown, in the 'true' species. We doubt if much, if any, cultivated stock is 'pure'.) (15+) C
- 1.460.009 : IRIS aff. BRACTEATA** Cal., Del Norte Co., SW of Oregon state line. 1040m. P. Gustafson 98-0853 (From an outstanding colony of dwarf irises possibly derived from the larger *I. bracteata*, described by Phyllis as "really beautiful small plants, usually with 2 flowers on each 10-15cm. stem, in cream and white with red, purple or violet-blue markings." We have not seen this population but Phyllis enthuses over these and tells us "even Roy Davidson" agreed they are among the very finest.) (15+) D
- 1.460.202 : IRIS DOUGLASIANA** Cal., Sonoma Co., Irish Hill. 150m. grassy slopes with coastal exposure. (Tough & vigorous, although a low-altitude, coastal plant. Rich purple forms here. Easy with no particular soil preferences in UK gardens.) (15+) B
- 1.460.600 : IRIS HARTWEGII** subsp. **COLUMBIANA** * Cal., Tuolumne Co., NE of Columbia. 650m. Steep, stony slope. (Only known from around the type-locality here and "much more attractive" than the type-race according to Victor Cohen. Virtually, a pale-yellow version of splendid *I. munzii*, which grows 225km. to the S. Well established with us under glass.) (15+) C
- 1.460.701 : IRIS HARTWEGII** subsp. **PINETORUM** Cal., Plumas Co., near Greenville. 1100m. Openings in coniferous forest. G. Greger coll. (A Plumas Co. endemic, though some record the type-race in this area as well : they may intergrade. Much dwarfer than the long-stemmed type-race, it often opens two of its creamy yellow flowers simultaneously. A very cold area here.) (15+) C

- 1.460.791 : IRIS INNOMINATA** Oregon, Josephine Co., SW of Galice. (Tufts of very narrow, glossy leaves & 20cm. stems with butter-yellow flowers in this classic form (the colour is diagnostic as far as the "Jepson" account is concerned) (10+) C
- 1.460.800 : IRIS INNOMINATA** Oregon, Curry Co., N of Agness. 400m. Steep, stony slopes, facing E & SE, in coniferous zone. (Victor Cohen described this population on the divide of the Rogue & Coquille Rivers, in 1965, as "rich golden-yellow & orange" to "pale apricot or light creamy buff." Galen Burrell visiting here in 1993 tells us these are "a beautiful orchid color".) (10+) C
- 1.461.150 : IRIS MISSOURIENSIS** Washington, Whitman Co., Steptoe Butte. 1020m. N-facing slope with sparse *Pinus*. (The only one here not from Series *Californicae*. In *Longipetalae* and very widespread. This is an unusual habitat, growing with *Erythronium* through low scrub, & an extremely dwarf form, not more than 30cm. high. Should be pale-blue to lavender-blue.) (15+) C
- 1.461.300 : IRIS MUNZII** Cal., Tulare Co., E of Springville. 520m. Among boulders on sides of scrub-filled gully. (Largest flowered of the group, limited to a few colonies above the Tule & Kaweah Rivers in the S Sierra Nevada. Broad, evergreen leaves & 60cm. stems. Described by Cohen as "pale powder-blue...lavender to purple... delicately veined in violet or turquoise-blue.") (15+) D
- 1.461.800 : IRIS THOMPSONII** Cal., Del Norte Co., SW of Gasquet. 530m. Stony openings among *Arctostaphylos* & sparse conifers. P. Gustafson 98-0850 (From one of two places where Boyd Kline considers the 'true' plant grows. We're not worried if you call this *I. innominata* 'Dwarf Purple Form'. The smallest iris we have seen in this series : tight tufts of leathery, grassy leaves & very short stems. Not seen in flower by us but Boyd & Phyllis say it ranges through rich, deep blues & purples.) (15+) D
- 1.470.150 : KALMIOPSIS FRAGRANS** (*K. leachiana* Umpqua form or LePiniec form) Oregon, Douglas Co., W of Diamond Lake. 450m. P. Gustafson 98-09100. (Recently elevated to specific status, the Umpqua River valley race of *K. leachiana* is a scarcer plant in nature and possibly more desirable horticulturally than the type-race from Curry Co. There may be many more plants in cultivation than in nature. Not difficult to grow in the UK in peaty soil in a pot or trough and no problem from seed for those experienced in handling tiny ericaceous seedlings. Masses of little pink kalmia-flowers on twiggy, compact, 15cm. shrubs.) (50+) E
- 1.492.000 : LEPIDIUM NANUM** Nevada, Eureka Co., W of Eureka. 2100m. Gravelly bare-patches among sparse *Juniperus*. (A poor seed set on 1998 on this classic Great Basin endemic. "Its hummocks look like those of some extra tight *Dionysia*, of a peculiarly intense shade of sap-green... this is the *Draba* to end all *Drabas*..." wrote Dwight Ripley in 1944. Now being successfully grown, it becomes more compact as it ages in cultivation and can produce its stemless, straw-yellow flowers quite generously.) (20+) E
- 1.493.600 : LESQUERELLA TUMULOSA** Utah, Kane Co., SE of Cannonville. 1500m. Shale ridges. (Another pulvinate-caespitose crucifer, perhaps the most condensed of the genus, forming dense hard mounds of downy leaves with yellow flowers on 1-4cm. stems. Extremely local on "white bare shale knolls" in this small area of Kane Co. near Kodachrome Basin.) (15+) E
- 1.495.000 : LEUCOCRINUM MONTANUM** Nevada, White Pine Co., SE of Little Antelope Summit. 1980m. Open areas among *Artemisia*, in loose, calcareous clay. (A very beautiful, dwarf member of the *Liliaceae*, in a genus on its own, distributed sporadically through the sagebrush-steppe of the cold deserts in the American West. Tufts of linear leaves, rising from a clump of deep, fleshy, roots, & big, starchy, fragrant, white flowers on long tubes. Try growing it like a choice Turkish tulip in a deep pot.) (5) E

Lewisia : aristocrats of the high granites & serpentines

- 1.496.400 : LEWISIA COTYLEDON** (var. *cotyledon*) Cal., Siskiyou Co., Deadwood Lookout Road, W of Yreka. 1750m. Serpentine fissures along summit ridge. (The classic saxatile plant, occurring here & there in the northern ranges. Flat rosettes of succulent, spatulate leaves & panicles of flowers, usually white or pale-pink, striped with pink or red but not seen in flower here.) . . . (20+) B
- 1.496.500 : LEWISIA COTYLEDON** var. **HECKNERI** Cal., Trinity Co., N of Junction City. 1640m. Fissures on vertical, shaded, serpentine cliffs. (A distinct taxon limited to this area. Wide panicles of the largest, most sumptuous flowers, twice the diameter of the type-race, in white richly striped pink. The race which has given size to the garden-hybrids : grow the real thing!) (20+) D
- 1.496.700 : LEWISIA KELLOGGII** Cal., Placer Co., Monumental Ridge above Yuba Gap. 2060m. J. Andrews coll. (A very local species (almost all are) mainly from the decomposed granites of the N Sierra Nevada above 2000m. Dense rosettes of leathery, spoon-shaped leaves, withering in summer, on which sit the stunning, large, pink or white flowers on 3cm. stems.) (15+) E
- 1.496.801 : LEWISIA LEANA** Cal., Shasta Co., Castle Crags, SW of Castle Lake. 1700m. Gravelly areas between serpentine outcrops on open slopes. (Rosettes of succulent, linear leaves with many-flowered 15cm. high panicles, mainly in bright magenta-pink. A plant of high altitude serpentines, up to 3300m. in N California & SW Oregon. Mature seed is dark-brown, not black.) . . . (15+) E
- 1.496.900 : LEWISIA NEVADENSIS** Cal., Humboldt Co., SSW of Willow Creek. 1420m. Open area among *Pinus*, in gravelly turf. (One of the easiest to grow. A summer-dormant plant of vernal wet sites. Usually white but some shell-pinks here.) (20+) B
- 1.497.000 : LEWISIA OPPOSITIFOLIA** * Oregon, Josephine Co., Waldo Hill. 600m. Among serpentine detritus along gully. (A type locality coll. of this pretty, summer-dormant species. In its 'pure' form an Illinois Valley endemic. Narrow, blunt, succulent leaves and 15cm. umbels of up to 6, rounded, white flowers, occasionally pink in the bud, with red-fringed sepals.) (20+) D

- 1.497.200 : LEWISIA REDIVIVA** * Wyoming, Albany Co., E of Centennial. 2700m. In granite grit of open, stony 'flats'. (Perhaps the most beautiful and thrilling of all N American plants. The tiny clusters of fleshy, linear leaves are hardly noticeable under the huge, diaphanous, water-lily flowers, appearing successively on the shortest of stems, generally in rich pinks here.) (20+) C
- 1.497.202 : LEWISIA REDIVIVA** Idaho, Butte Co., NE of Carey. 1520m. E & SE-facing slopes of stony ridge. (We have never seen this colony flowering in the wild but all the seedlings which have so far flowered with us have been white, rather similar, in fact, to the Californian plants separated as var. *minor*. There may be at least two distinct taxa included under *L. rediviva*.) (20+) D
- 1.497.301 : LEWISIA REDIVIVA var. MINOR** Cal., Kern Co., Mt. Pinos. 2680m. In granite grit in summit area. (A high altitude race, worth at least subspecific rank, most distinct where we have seen it, though ignored by "Jepson" and others who only know their plants as herbarium sheets. Local on the drier interior ranges from the San Bernadinos through the White Mts. into W Nevada. An exquisite little plant, altogether a reduced version with rounded, pearl-white flowers and bronze sepals.) (20+) D
- 1.497.610 : LEWISIA TWEEDI** * No data. The famous endemic of the Wenatchee granites, in Washington. Rosettes of smooth, fleshy leaves and immense, silky flowers in palest tea-rose shades of salmon, apricot and cream. Not difficult with care. (20+) C

Lilium : beautiful but temperamental

Seed ripens late from mid-September into October, long after we had left California 1998. Most of the following are from Jim & Georgie Robinett, who know this genus well and can be relied on to collect top-quality, correctly named material. The species fall very roughly into two groups : the dry-growers with ovoid bulbs with longer, unjointed scales and the wet-growers with rhizomatous bulbs with shorter, jointed scales. In the latter group, *L. pardalinum*, the equivalent of the eastern *L. superbum*, is the focus of a number of taxa. These have been placed under it at subspecific level by Mark Skinner in "Jepson"

but we keep them at specific level here, as we feel this is of more use to gardeners. The wet-growers are going to be much more amenable to the open-garden in cool temperate climates, seldom needing the very wet conditions of their natural habitats. These are well-suited to the peat-bed or similar humus-rich conditions. The dry-growers are more of a challenge. In all cases, the westerners are plants of lime-free soils. Seed sown in winter should give no problems. We had great success from sowing refrigerated, seed-bank seed so the few collections made pre-1998 need give no concern.

- 1.498.100 : LILIUM BOLANDERI** Cal., Humboldt Co. 1200-1500m. In chaparral on serpentine. J. & G. Robinett coll. (Maybe the most beautiful & maybe the most difficult. We have seen photographs of splendid plants grown from seed in the UK - so it can be done. A N Coast Range, serpentine-endemic, it can reach 1m. with up to 7 flowers but is often dwarf : a single huge flower on a 15cm. stem! Stems whorled with thickish, blue-grey leaves carry funnel-shaped flowers in muted crimson (though it can vary to salmon & brick shades), glaucous outside & purple-dotted inside, with dark purple anthers & orange pollen.) (15+) D
- 1.498.500 : LILIUM COLUMBIANUM** Cal., Humboldt Co. 500 m. J. & G. Robinett coll. (The spectacular lily of the redwood glades, extending N from here into Canada, often in large stands. Up to 30 golden orange turkscap flowers, speckled with maroon on stems as much as 2m. high. Segmented bulb-scales but not a plant of really wet sites, often out in the open on N slopes.) (15+) B
- 1.498.900 : LILIUM HUMBOLDTII** (subsp. *humboldtii*) Cal., Yuba Co. 550m. J. & G. Robinett coll. 1995 (Local northern race of this dry-grower from the N Sierra Nevada. Up to 40 strongly recurved, maroon-speckled flowers in orange-yellow. 2m.) (15+) D
- 1.499.200 : LILIUM KELLOGGII** Cal., Humboldt Co. 800m. J. & G. Robinett coll. (A beautiful dry-grower from around the California-Oregon line, usually in openings among conifers. Can have 15-20 fragrant, turkscap flowers in pink, striped yellow on the basal third of each segment & speckled purple along the edges. Narrow, greyish, crinkled leaves. Usually under 1m.) (15+) D
- 1.499.701 : LILIUM PARDALINUM** Cal., Plumas Co., W of Canyon Dam. 1370m. Among *Salix* & grasses in wet meadow. G. Greger coll. (Most widespread wet-grower, very variable but distinct in its very long filaments & capacity to form wide clonal rhizomatous mats. Red-orange turkscap flowers with maroon spots margined with yellow towards the recurving segment-tips.) (20+) B
- 1.499.703 : LILIUM PARDALINUM** Cal., Placer Co. 11350m. Open, wet mountain meadow. J. & G. Robinett coll. (From a very variable Sierra Nevada population, differing in both height & colour. Perhaps with some influence of *L. parvum*.) (20+) B
- 1.500.000 : LILIUM PARVUM** Cal., El Dorado Co. 1800m. Wet meadow. J. & G. Robinett coll. 1995 (The high altitude wet-grower of the N Sierra Nevada. Upward-facing, bell-shaped flowers, mostly in orange shades here : it tends to vary to yellows lower down and reds higher up. The stems, whorled with leaves can be 2m. high with 40 flowers but are usually a lot less.) (20+) C
- 1.500.400 : LILIUM RUBESCENS** Cal., Humboldt Co. 500m. Edge of woodland. J. & G. Robinett coll. (An exquisite dry-grower with stems up to 2m. high, carrying 20 or more wide, upward-facing, extremely fragrant trumpets, opening white with minute purple dots, which suffuse over the surface until it is wine-coloured. Whorls of grey-green leaves with crinkled edges.) (15+) D
- 1.500.500 : LILIUM SHASTENSE** Cal., Shasta Co. 1400m. Wet meadow, along a creek across old lava-flow. J. & G. Robinett coll. (Wet-grower, currently placed as a subsp. of *L. pardalinum* but does not increase clonally to the same extent. Nearest to *L. vollmeri* with similar two-toned, red-orange flowers but has yellow to orange pollen. Up to 1.8m. with 30 flowers.) (20+) C
- 1.500.900 : LILIUM VOLLMERI** Oregon, Josephine Co. 500m. Along wet ditch. J. & G. Robinett coll. (Wet-grower near the preceding but has purple anthers & red pollen. A really splendid, 2m. high population here. A local serpentine-plant.) (15+) C

- 1.501.002 : LILIUM WASHINGTONIANUM** (subsp. *washingtonianum*) Cal., Plumas Co., N of Greenville. 1220m. G. Greger coll. (Marvellously fragrant, great flaring white trumpets, up to 12cm. across, face out or nod slightly on stems of 40-120cm., whorled with crinkled, grey-green leaves. A dry-grower, usually in open scrub or woods, and reputedly difficult to grow well.) (15+) **D**
- 1.501.003 : LILIUM WASHINGTONIANUM** (subsp. *washingtonianum*) Cal., Shasta Co. 580m. J.& G. Robinett coll. . . . (15+) **D**
- 1.622.001 : MIMULUS CARDINALIS** Oregon, Josephine Co., near Galice. 270m. Moist sites. P. Gustafson 98-0849 (A glandular-hairy, rhizomatous perennial with a multitude of striking, long-tubed, orange-scarlet flowers streaked with darker red. An eye-catching, hardy (it grows up to 2400m.) wet-grower, surprisingly seldom seen in Europe. 50-90cm. high here.) (100+) **B**
- 1.624.009 : MIMULUS LEWISII** Cal., Placer Co., Monumental Ridge above Yuba Gap. 2000m. Streamside on granite. J. Andrews coll. (A long succession of rich, luminous carmine-pink flowers on erect, leafy stems about 60 cm. high in summer. A showy, very hardy, wet-growing perennial, extending up into Alaska & the Yukon. Does well in the UK in any good, moist soil.) (100+) **B**
- 1.649.000 : NOTHOCHELONE NEMOROSA** Oregon, Jackson Co., W of Applegate Lake. 1500m. Humus-rich soil in shade. P. Gustafson 98-0863. (A handsome, 50cm. high, herbaceous perennial. A monospecific segregate from *Penstemon*, near *Keckiiella* but not shrubby & with woolly anthers. Panicles of *Penstemon*- shaped flowers, in lavender-pink in this colony.) (20+) **B**
- 1.650.500 : OENOTHERA CAESPITOSA** (var. *caespitosa*) Nevada, Eureka Co., SSE of Eureka, Pinto Summit. 2250m. Open, stony slope. (Tufts of deeply notched leaves, tending towards *O.c.* var. *marginata* (division into infraspecific taxa is rather arbitrary) and profuse stemless, white flowers on long tubes, flushing to wine as they age. All variants of this species are superlative.) . . . (15+) **B**
- 1.650.600 : OENOTHERA CAESPITOSA** var. **CRINITA** Utah, Millard Co., SSE of Garrison. 1600m. Steep, loose, stony slope. (The most important race of this spectacular & variable species for the alpine-house grower. The dry climate development with downy, grey leaves, this remained in character with us, whereas other races can be more exuberant. A succession of long-tubed, white flowers mature to rosy shades. Will take all the warmth & sun going under glass in the UK.) (15+) **C**
- 1.650.800 : OENOTHERA CAESPITOSA** var. **MARGINATA** Cal., Inyo Co., White Mts. 1980m. Stony clay on loose slope. (A better one to try outside in sunny scree - some prove quite easy. Similar, huge, white, pink-flushed bowls.) (15+) **B**
- 1.693.020 : OXYTROPIS OREOPHILA** var. **JUNIPERINA** Nevada, Eureka Co., W of Eureka. 1870m. Eroded banks of calcareous clay. J. Andrews coll. (The two pulvinate forms of this species are among the most desirable of cushion-plants. Solid, woolly hummocks described by Dwight Ripley, as "densely caespitose & clothed all over in shaggy silver hair, each plant covered with hundreds of violet pea-flowers..." followed by inflated, beaked capsules, which are usually eaten by local rodents.) (8) **F**
- 1.695.015 : PAEONIA BROWNII** Oregon, Wallowa Co., N of Wallowa. 1000-1200m. G. Burrell coll. (A summer-dormant species adapted to the extreme climate of cold, inland steppe & not at all easy to grow in areas with softer, wetter weather, such as the UK. About 40cm. high with beautiful, cut, glaucous leaves & globular, nodding flowers with thick petals in bronze-maroon, thinly margined with yellow. From a colony of distinct plants with a suckering habit, red stems & red-tinged foliage.) (6) **D**
- 1.702.300 : PENSTEMON CARNOSUS** (Sect. *Coerulei*) Colorado, Rio Blanco Co. 2000m. Exposed slopes in loose, fragmented shale. (Rosettes of fleshy, blue-grey leaves with lavender-pink to blue-violet flowers on 15cm. stems. Supposedly endemic to Utah but a lot of species cross the line on the oil-shales here. A neat plant for really hot, dry conditions.) (15+) **C**
- 1.703.705 : PENSTEMON DAVIDSONII** (var. *davidsonii*) (Sect. *Erianthera*) Oregon, Jackson Co., Siskiyou Mts., S of Ashland. 2150m. Fissures on granite outcrops above tree-line. P. Gustafson 98-0874 (A soft pinkish lavender form (here it may have absorbed some genes from *P. rupicola*) of this superlative, normally blue, alpine, growable in a trough or raised bed in the UK. Shrubby, grey-leaved mats massed with big flowers, packed with shaggy white hairs inside & with yellow-hairy staminodes.) (15+) **C**
- 1.708.101 : PENSTEMON MONTANUS** (Sect. *Erianthera*) Montana, Beaverhead Co., Beaverhead Mts. c.2750m. Steep, loose talus. M.& P. Stone 98-9 (Decumbent stems with toothed, greyish leaves & large, lavender flowers, bearded inside.) (20+) **C**
- 1.708.200 : PENSTEMON NANUS** (Sect. *Cristati*) Utah, Millard Co., SSE of Garrison. 1980m. Open slope in calcareous gravel. J. Andrews coll. (A restricted Utah endemic, here in its type-locality. Maybe nearest *P. duchesnensis* with ashy foliage & rose-purple flowers. Orange-bearded staminodes. 7cm. or less high. A suitable candidate for trial in an alpine-house pot.) (15+) **E**
- 1.710.705 : PENSTEMON RUPICOLA** (Sect. *Erianthera*) Oregon, Jackson Co., W of Applegate Lake. 1800m. P. Gustafson 98-0865. (The classic, saxatile, alpine species of the Cascades, southward from Washington to N California. Shrubby mats with small, rounded, glaucous-grey leaves and large, woolly-anthered flowers, here in an outstanding deep-pink form.) (15+) **C**
- 1.712.150 : PENSTEMON THOMPSONIAE** subsp. **JAEGERI** (Sect. *Caespitosi*) Nevada, Clark Co., Spring Mts., NE of Charleston Peak. 2500m. J. Andrews coll. (Only known from this area. About 15cm. high with a more erect, ericoid habit than other races. Tiny rounded leaves with ash-white, scale-like hairs & thyrsoid panicles of violet-blue flowers with yellow palates.) (10+) **D**
- 1.751.101 : PHLOX STANSBURYI** (*P. longifolia* var. *stansburyi*) Cal., Inyo Co., White Mts. 2500m. Among *Juniperus* in fragmented shale. (An attractive plant of dry, montane pinyon-juniper & sagebrush associations from the E slopes of the Sierra Nevada across to Utah. Stems of about 15cm. with narrow, linear leaves carry large, long-tubed, pink to white flowers.) (10) **C**

- 1.751.201 : PHLIX TUMULOSA** Nevada, White Pine Co., NW of Ely. 2200m. Openings among Juniperus in gravelly clay. (The most densely pulvinate-caespitose development in the genus, from a few intermontane valleys in E Nevada, just into W Utah. Tiny rosettes compressed into the hardest of mats or mounds up to 50cm. across with stemless flowers in white to pale violet. Needs year-round cultivation in the alpine-house in the UK, where it cannot have enough sunshine. Summer daytime temperatures here often exceed 40C, well over 100F, with the soil surface temperature greatly in excess of that. Seed-collecting is not pleasant.) (6) **F**
- 1.753.209 : PHYSARIA CHAMBERSII** (var. *chambersii*) Nevada, Eureka Co., W of Eureka. 1870m. (A very neat, small form of this attractive member of *Cruciferae*. Rosettes of ashy white foliage. Masses of pearly bubbles follow the yellow flowers.) (10+) **C**
- 1.760.200 : POLEMONIUM CARNEUM** Oregon, Jackson Co., Siskiyou Mts., S of Ashland. 1400m. P. Gustafson 98-0839 (An unusual & handsome, taller species, up to 50cm. high, with clusters of rather flat, bell-shaped flowers in apricot-pink, opening early in spring & continuing into summer. Adaptable in UK gardens, making slow-spreading, basal mats in a sunny site.) (20+) **B**
- 1.760.300 : POLEMONIUM CHARTACEUM** Cal., Trinity Co., Mt. Eddy. 2740m. Exposed summit area. J. Andrews coll. 1995 (A remarkable disjunct population here. Otherwise known only from above 4000m. in the White Mts. In effect, a miniature *P. viscosum* but distinguished from this & *P. eximium* by its exerted stamens & the papery (chartaceous) base of the petioles. Little tufts of glandular foliage and heads of blue flowers, usually with yellow throats. Should be growable in skilled hands.) (10+) **E**
- 1.760.755 : POLEMONIUM PULCHERRIMUM** Oregon, Jackson Co., Siskiyou Mts., S of Ashland. 2150m. Moist, shaded areas at tree-line. P. Gustafson 98-0875 (A dwarf, alpine perennial with tufts of compound foliage & erect, 15cm. stems carrying crowded heads of open bells. Phyllis tells us the colour here varies from blue to white & we may have a population intergrading towards the dwarfer, hairier, white-flowered *P.p.* var. *pilosum*, local on volcanic talus from around here N to Washington.) (20+) **C**
- 1.768.050 : PRIMULA CUSICKIANA** Idaho, Custer Co., Salmon River Mts., Railroad Ridge. 3140m. M.& P. Stone 98-8 (One of the most exquisite & intractable of primroses, barely if at all in cultivation at present, from a comparatively recently discovered locality at a much higher elevation than the more western populations in the Wallowas & Snake River area. A snow-melt species, flowering when the ground is saturated but going dormant rapidly as it dries out. Possibly very intolerant of high temperatures & extreme drying in summer. Luminous, deep violet flowers with starry yellow eyes, on stems less than 10cm. high.) (20+) **E**
- 1.768.100 : PRIMULA DOMENSIS** Utah, Millard Co., House Range, Notch Peak above Sawtooth Canyon. 2450m. Ledges on & at base of limestone cliffs, in part-shade. J. Andrews coll. (Quite recently discovered & described relic member of the *P. cusickiana* group, separated morphologically on rather fine characteristics but widely disjunct geographically. Between 7 & 15cm. high & possibly nearest to *P. maguirei* but with even larger flowers, described as rose to lavender. Alpine-house in the UK.) (20+) **F**
- 1.768.400 : PRIMULA NEVADENSIS** Nevada, White Pine Co., Snake Range. 3440m. Limestone fell-field. Refrigerated seed from a J. Andrews coll. 1995 (Endemic to the summit of this Great Basin Range but now being cultivated from John's 1991 coll. Large, violet-purple, yellow-eyed flowers on short stems. Probably nearer the Rocky Mt. *P. angustifolia* than *P. cusickiana*. Like the latter, it will need careful cultivation by the alpine-plant specialist. Possibly best plunged outside in summer in the UK.) (20+) **E**
- 1.768.600 : PRIMULA SPECUICOLA** Utah, San Juan Co., above Bluff. 1550m. Seepage lines below overhangs on shady sandstone cliffs. (A very beautiful relic, endemic to the 'hanging gardens' of the Colorado River canyons. Like a giant *P. farinosa* with clumps of dark-green leaves, backed with dense, white farina. Umbels of up to 40 flowers in lavender, pink or white on 15cm. stems. It has been grown magnificently in some UK alpine-houses but is not at all easy. Try rich *Dionysia*-treatment.) (50+) **D**
- 1.770.001 : PRUNUS ANDERSONII** Cal., Lassen Co., near Milford. 1340m. G. Greger coll. (The desert peach - a splendid small shrub not in general cultivation in Europe. It can reach 2m. but is usually much dwarfer with a stiff, spiny habit. Deep-pink to red flowers followed by orange-red, downy fruits. Very much a plant of the dry southern ranges (we last listed this from the Providence Mts. at the edge of the Mojave), this seed is from a northern colony (we did not even know it grew away up in Lassen Co.) and may be much more growable in Europe, though remember this is a cold-desert area and give it optimum drainage & sunshine.) (5) **C**
- 1.775.105 : PULSATILLA OCCIDENTALIS** (*Anemone occidentalis*) Oregon, Jackson Co., above Applegate Lake. 1800m. Summit screes. P. Gustafson 98-10109 (The western pasque flower, distributed from Canada south to California. Large, creamy white, downy, cup-shaped flowers, usually purple-blue tinged externally, open on 10cm. stems in early spring from close clumps of hairy foliage, much cut into linear lobes. Beautiful but not usually so growable as the European ones - treat as *P. vernalis*.) (15+) **C**
- 1.775.205 : PULSATILLA PATENS** (*Anemone patens*) Montana, Madison Co., Gravelly Range. 2900m. M.& P. Stone 98-35 (This has a much wider distribution than the preceding, down the interior ranges from Alaska to Colorado, with disjunctions in Illinois & Texas, & is accordingly variable. Clumps of finely cut, silky, hairy, greyish leaves with large, blue to purple flowers, hairy outside, open on stems of about 10cm. & elongate to as much as 50cm., as it matures its showy head of plumed seeds.) (15+) **C**
- 1.775.206 : PULSATILLA PATENS** Wyoming, Park Co., NW of Cody, Dead Indian Hill. 2800m. M.& P. Stone 98-41. . . . (15+) **C**
- 1.776.400 : PYROLA PICTA** Oregon, Jackson Co., W of Applegate Lake. 1400m. Deep woodland. P. Gustafson 98-10117 (Dark leathery foliage, purplish below & exquisitely veined with white above. Racemes of creamy white flowers with red sepals on 20-30cm. stems. Very difficult but worth attempting by those experienced in raising *Ericaceae* or *Shortia* from seed.) (100+) **D**
- 1.800.625 : RANUNCULUS ESCHSCHOLTZII** var. *EXIMIUS* Wyoming, Park Co., ESE of Cooke City, Clay Butte. c.3000m. M.& P. Stone 98-35 (A variable, brilliant, little, alpine buttercup widely distributed from Alaska & the Yukon S into the higher ranges of California & Colorado. Flowering rapidly as the snows melt, close to the ground with varnished shrill-yellow cups, as the bright-green, 3-lobed leaves unfold. Taller later in the season then going more or less dormant as the ground dries out.) (20+) **C**

A : \$2.00 ; £1.50 ; DM4,- ; FF13.- **C** : \$4.00 ; £2.50 ; DM6,- ; FF21.- **E** : \$7.00 ; £4.50 ; DM12,- ; FF40.-
B : \$3.00 ; £2.00 ; DM5,- ; FF17.- **D** : \$5.00 ; £3.50 ; DM9,- ; FF30.- **F** : \$9.00 ; £6.00 ; DM15,- ; FF50.-

- 1.800.645 : RANUNCULUS ESCHSCHOLTZII var. TRISECTUS** Montana, Madison Co., Gravelly Range. 2830m. M.& P. Stone 98-31 (Leaves more deeply cut into more slender lobes than the type but the division into subspecific taxa on the basis of foliage characters seems arbitrary. For the gardener it is more important to find local variants more amenable to cultivation.) (20+) C
- 1.855.100 : SILENE CLOKEYI** Nevada, Clark Co., Spring Mts., Charleston Peak. 3400m. J. Andrews coll. (Endemic to the alpine-zone of this limestone range &, as far as we know, never in cultivation. The photographs John has sent show an attractive little mat-forming plant with pink-white flowers emerging from inflated, striped calyces. For the adventurous alpine-specialist.) (15+) E
- 1.855.400 : SILENE HOOKERI** * Oregon, Josephine Co., E of Takilma. 850m. Openings among conifers, in stony turf. (We have our cultivated stock rolling now under glass. One of our favourite plants. Decumbent stems with downy, greyish leaves & a very long succession of flowers with deeply cut petals, soft salmon-pink in this form. Eventually summer-dormant.) (10+) C
- 1.855.500 : SILENE HOOKERI subsp. BOLANDERI** * Cal., Trinity Co., S of Hayfork. 750m. Openings among conifers on W-facing slope. (Our cultivated seed of this local plant, limited to this area. Distinct both horticulturally & botanically & possibly worthy of specific status (though all subspecific divisions are disregarded in modern 'standard' floras). Large, pure-white flowers with the petal blades deeply cut into linear segments. A little more difficult to grow & maintain than the type-race listed above) (8) D
- 1.860.310 : SISYRINCHIUM DOUGLASII** Oregon, Jackson Co., Siskiyou Mts. 1500m. P. Gustafson 98-0617. (From an exceptional population of this outstanding, 20cm. high plant of open, montane meadows, surely the finest in the genus. Grassy stems & leaves & "noble hanging bells", in this case, in shades of rose, pink & white, instead of the usual violet. It flowers early and goes dormant later in summer. Growable in the alpine-house (do not over dry) or in a trough or scree-bed outside in the UK.) (15+) C
- 1.870.245 : SPHAERALCEA CAESPITOSA** Utah, Millard Co., SSE of Garrison. 1900m. Open slopes in calcareous gravel. J. Andrews coll. (Variable & probably grading into *S. ambigua* around here, though this area is virtually next-door to the type-locality. John tells us that this coll. has been selective. Woody-based, dwarf perennials, 5-10cm. high with tightly clustered orange flowers on pads of felted foliage, which, typically, should be thick, grey-white & crenate, barely if at all lobed. Our own 1993 & 1995 colls., though variable, produced some good compact plants which have appeared on the British show-benches.) (10+) D
- 1.873.200 : SPAEROMERIA COMPACTA** Nevada, Clark Co., Spring Mts., Charleston Peak. J. Andrews coll. (Most reduced member of its genus : prostrate pads 10cm. across. Dwight Ripley writes in 1942 : "...probably the most decorative of all the Charleston Peak plants...this exquisite tansy from desert snows should vie persistently with winners in the 'Silver Foliage' class...") (20+) D
- 1.890.405 : SYNTHYRIS PINNATIFIDA** Montana, Madison Co., Gravelly Range. 2860m. M.& P. Stone 98-30. (A classic alpine-tundra species of the high ranges of the N central Rocky Mts., extending from E Washington into W Montana, Idaho, W Wyoming & N Utah. Ground-hugging, deeply cut, pinnatifid leaves, grey-green above & usually grey-felted beneath, with dense terminal racemes of little, deep lavender-blue bells with projecting anthers, on stems of about 15cm. or less.) (15+) D
- 1.913.000 : THLASPI MONTANUM var. SISKIYOUENSE** Oregon, Josephine Co., W of O'Brien. 450m. P. Gustafson 98-0629 (A rather nice 10cm. tall, local variant from the Klamath serpentines, belonging to a diverse, circumpolar species-group . Dense heads of white flowers followed by seed-capsules which mature to deep reddish purple above glaucous leaves.) (15+) B
- 1.915.409 : TOWNSENDIA INCANA** Nevada, Lincoln Co., near Panaca. 1700m. Gravelly clay. J. Andrews coll. (A caespitose perennial, the most widely distributed *Townsendia* of the Colorado drainage, extending across Utah into Wyoming & New Mexico. Virtually stemless daisies, usually with white, pink-backed rays, on 2-5cm. high pads of little, spatulate, hairy leaves.) . . . (15+) B
- 1.915.500 : TOWNSENDIA JONESII** (var. *jonesii*) Utah, Millard Co., SSE of Garrison. 1980m. Open slopes, in calcareous gravel. (Another almost stemless, caespitose daisy, the Great Basin counterpart of *T. incana*. Clumps, about 3cm. tall & up to 10cm. across, of narrow grey-green leaves, & heads with white or cream rays, pink to purple on the reverse, around yellow discs.) (15+) B
- 1.915.905 : TOWNSENDIA PARRYI** Montana, Beaverhead Co., Beaverhead Mts. M.& P. Stone 98-5 (A sumptuous, large species, usually monocarpic, characteristic of the northern Rockies into E Oregon. Usually a plant of open, stony slopes, about 15cm. high with huge, many-rayed, lavender-blue, yellow-centered 'asters'. Worthwhile in a sunny scree-bed in the UK.) (15+) B
- 1.915.906 : TOWNSENDIA PARRYI** Wyoming, Park Co., Absaroka Range, SW of Meeteetse. c.3000m. M.& P. Stone 98-49 (Described as a "short-stemmed form", this must be spectacular as the heads normally seem disproportionately large.) (15+) C
- 1.916.200 : TOWNSENDIA SPATHULATA** Wyoming, Fremont Co., Wind River Range, Limestone Mt. 2750m. M.& P. Stone 98-3 (An extremely hairy, dwarf Wyoming endemic, covered with long, tangled wool and with virtually stemless heads.) (15+) D

Triteleia : neglected Cinderellas for the bulb-frame and garden

The Brodiaeas, now split into several genera, have not yet become a fashionable group of plants. There are extremely local and possibly difficult species here but many are simply good garden-plants & wonderful for cutting. These are corms with a

similar growth-cycle to the mariposas, flowering late in the season, after they have made their main leaf-growth, but many will thrive in a well-drained, sunny site outside in the UK. In a bulb-frame, they can be splendid & greatly extend the season.

- 1.925.120 : TRITELEIA BRIDGESII** from 'ROBINETT SELECTIONS' * Loose umbels of starry flowers, 2cm. wide in shades of pink, rose & lavender, lighter in the centres & with a glassy appearance. Selected in various N Californian locations. . . . (20+) **B**
- 1.925.300 : TRITELEIA CROCEA** Cal., Siskiyou Co., W of Yreka. 1750m. Loose serpentine talus on N & W-facing slopes. (A little-known local plant, confined to the Klamath Ranges on the Oregon line. About 20cm. high with bright yellow flowers.) . . . (15+) **D**
- 1.926.300 : TRITELEIA HENDERSONII** Oregon, Douglas Co., above Callahan Creek. 460m. Among *Pinus* on serpentine. (A SW Oregon endemic, superficially not unlike *T. crocea*. Yellow flowers with a central inky-blue stripe on each segment.) . . . (15+) **D**
- 1.926.700 : TRITELEIA IXIODES** subsp. **SCABRA** Cal., Fresno Co. 1740m. Steep granite-sand slope in open woodland. J. & G. Robinett coll. (The 'Foothill Pretty Face' with light yellow flowers striped grey on the reverse on 25cm. stems. From an outstanding colony with much larger flowers than normal, carried in wide umbels, over 15cm. across, of about 50 flowers.) . . . (20+) **B**
- 1.926.820 : TRITELEIA LAXA** from 'GIANT LAVENDER' * Cal., Tulare Co. 600m. (A Robinett selection from the southern Sierra Nevada. Very large, lavender flowers, 4-5cm. across in umbels up to 35cm. wide on stems reaching 75cm.) . . . (20+) **B**
- 1.926.850 : TRITELEIA LAXA** from 'HUMBOLDT STAR' * Cal., Humboldt Co. 700m. Open, grassy, S-facing clay bank. (Another Robinett wild selection. Densely packed, 20cm. wide umbels with about 50 dark purple flowers. Up to 40cm. high.) . . . (20+) **B**
- 1.926.860 : TRITELEIA LAXA** var. **NIMIA** * Cal., Marin Co., SSW of Tomales. 15m. Fissures & ledges on W-facing coastal cliffs. (Magnificent with us, flowering under glass long after the Eurasian 'bulbs' are over, keeping the mariposas & *Alstroemeria* spp. company. A local race from the Marin Co. coast with large heads of luminous, deep violet-blue flowers on long stipes.) . . . (20+) **C**
- 1.927.100 : TRITELEIA MODESTA** (*T. crocea* var. *modesta*) Cal., Siskiyou Co., SW of Castle Lake. 1700m. Gravelly areas between rocks on open slopes. (An exquisite, little pale-blue alpine species, whose colour reminded us of *Allium beesianum*. That it is recorded as endemic only to the Trinity Alps & placed as a var. of *T. crocea* simply indicates how little known it is.) . . . (15+) **E**
- 1.974.205 : VANCOUVERIA HEXANDRA** Oregon, Jackson Co. P. Gustafson 98-0838 (Most frequent & growable of a trio of ground-covering, *Epimedium* cousins. A rhizomatous perennial, about 20cm. high, with elegant, divided foliage & racemes of little, white flowers, which runs about below the scrubby undergrowth of mixed woodland below 1700m. Easy in the UK) . . . (8) **C**
- 1.975.210 : VERATRUM VIRIDE** * No data. A fine species, mainly native to Alaska & the Atlantic states of the USA. Closest to *V. californicum* but with deep green instead of greenish white flowers carried in immense, 1.5m. high panicles with drooping branches, rather than the erect ones. A magnificent herbaceous perennial with huge, pleated, bright-green leaves. Rich, moist soil.) . . (15+) **C**

Viola : violets from serpentine-woodland & sagebrush-steppe

The twenty or so summer-dormant *Viola* spp. of the American West have never become well-known in cultivation. We suspect that the very considerable difficulty in collecting seed from them is the main reason. When we were involved with growing alpine-house plants we grew several quite successfully, mainly from collections made by that dedicated team of the 1970's, Jim

McPhail & Bob Woodward. We outline a few pointers under *V. beckwithii*, which we grew well. One other comment from personal experience, is to note that several species produce only cotyledons in the year of germination, so do not think seedlings have died if they go dormant without producing true leaves. Keep the seedlings growing as long as possible.

- 1.981.150 : VIOLA BAKERI** Cal., Plumas Co., near Greenville. 1100m. G. Greger coll. (A dwarf, more or less summer-dormant, tap-rooted perennial from openings in the coniferous forests of N California up to Washington. Tufts of entire, lanceolate basal leaves and bright yellow flowers, often backed with purple and veined with brown on the lower three petals. Probably difficult.) . . . (10) **D**
- 1.981.205 : VIOLA BECKWITHII** Cal., Plumas Co., N of Lake Davis. 1830m. G. Greger coll. (A summer-dormant species from the northern rim of the Great Basin. A very lovely thing with greyish leaves palmately cut into linear segments & two-toned flowers : the 2 upper petals deep red-purple ; the 3 lower ones pale lilac, yellow at the base. We maintained this for many years without any great trouble in an alpine-house in the UK. We had no problem with overdrying when dormant with a deep, clay pot plunged in damp sand. We always potted very low & topped up with grit, building this up to a depth of about 8cm. over a few years.) . . . (8) **E**
- 1.981.300 : VIOLA CUNEATA** Oregon, Josephine Co., SW of O'Brien. 460m. Openings among conifers. (Little, round, white-faced flowers with purple eyespots & violet backs, on branching stems about 10cm. high with small, somewhat triangular, purple-veined leaves. A summer-dormant serpentine-plant from the open coniferous woodlands of S Oregon & N California.) . . . (10) **D**
- 1.981.500 : VIOLA HALLII** Cal., Humboldt Co., SSW of Willow Creek. 1420m. Stony turf in opening of coniferous woodland over serpentine. (Very close to *V. beckwithii* but the cut leaves are more glabrous & the flowers usually less elongated & more rounded. They have darker, velvety purple upper petals & cream lower ones. Some think this is even 'classier' than *V. beckwithii*. Restricted to the Coast Ranges on the California-Oregon line, cooler & perhaps moister in summer than the *V. beckwithii* habitat.) . . . (8) **E**
- 1.981.605 : VIOLA LOBATA** (subsp. *lobata*) (*V.l.* subsp. *psychodes*) Oregon, Josephine Co., Illinois River valley. 450m. P. Gustafson 98-0611 (A plant of dry, usually coniferous, woodland, widespread S from here into N Mexico but always occurring sparsely in ones & twos and extremely difficult to collect much seed from. This is the glaucous-leaved, serpentine form from N California & adjacent Oregon. Palmately lobed leaves rise to about 8cm. from running rhizomes. Deep yellow flowers, purple-brown outside & veined with purple on the lower petals. Possibly very difficult but there has not been much chance to try this in cultivation.) . . . (8) **E**

- 2.297.010 : ERYNGIUM AGAVIFOLIUM** * No data. Of quite limited distribution in NW Argentina, this has larger green-white heads than the following species. These hug the stout, 2m. stems rising from the evergreen clumps of entire, glossy-green leaves, saw-edged with spine-tipped teeth. In our experience, hardy & trouble-free in a sunny, well-drained site in the UK. (20+) **B**
- 2.297.610 : ERYNGIUM DECAISNEANUM** (*E. pandanifolium*) * No data. This & the following belong to a group of species distributed from S Brazil through Paraguay & Uruguay into N Argentina, essentially grassland plants, often from wet sites in the pampas. Their evergreen rosettes of leaves may look exotic but they are usually hardy in the UK in any good, rich soil in full sun. Branching stems of many purplish, thimble-heads can rise to 3m. above the basal, sword-shaped, spine-edged foliage. (20+) **B**
- 2.297.810 : ERYNGIUM EBRACTEATUM** * No data. "An unique species...curiously attractive", writes Tim Ingram. Clumps of narrow, grey foliage, almost indistinguishable from *Yucca filamentosa*, send up 1.5m., ridged, branching stems with many small, plantain-like, purplish flower-heads. Little-known in cultivation but from N Argentina & should be quite hardy. (20+) **C**
- 2.297.910 : ERYNGIUM EBURNEUM** (*E. bromeliifolium*) * No data. Bromeliad-like tufts of narrow, evergreen, spine-edged foliage & 2m. high candelabra of green-white heads. In our experience, the easiest, toughest & most reliable of these S American entire-leaved species. Reputedly from S Brazil into N Argentina but we have seen similar plants in Chile & W Argentina. (20+) **B**
- 2.299.800 : ERYNGIUM VENUSTUM** * No data. We could not verify the name but seed is from *Umbelliferae* enthusiast Tim Ingram, who recommends it as a good hardy perennial for a hot, dry spot with "very attractive foliage forming 30cm. wide, glossy green rosettes of spiky, pinnate leaves" & 45cm. high stems of "modest green-yellow thimbles in late summer" (20+) **C**
- 2.440.000 : HERBERTIA LAHUE** (subsp. *lahue*) * Argentina. Ex an A. Castillo coll. (A glorious little corm. Stems, about 15cm. high, with narrowly lanceolate, falcate leaves & a long succession of violet 'tigridias'. Hardy in our unheated greenhouse.) (20+) **B**
- 2.628.500 : MUTISIA OLIGODON** * Chile, Reg. VIII, Bio Bio, SE of Antuco to Volcan Antuco. 650m. Among scrub on steep slopes of volcanic ash. (A great success here in our cold greenhouse from our 1991 coll. Technically separated from *M. spinosa* (*M. retusa*) in that it is not a climber but forms wide-spreading, suckering mounds of stems, about 30cm. high. In cultivation, our plants are about 60cm. All the plants we have seen under this name in the UK have been quite strong-growing climbers and incorrectly named. Certainly the classiest & most aristocratic of these pink Andean daisies with a summer-long succession of broad-rayed heads in what Bean describes as a "beautiful silky pink (almost salmon-pink)." Try it outside in a raised scree-bed and be assured that it is the true plant - it came from the locality where Poeppig collected the material he described as this in 1835 - "Andes de Antuco.") (8) **D**
- 2.629.200 : MUTISIA SPINOSA** (*M. retusa*) * Argentina, Neuquen, Lacar, E of Lago Lolog. 1100m. Among scrub in gravelly soil. (Can climb to 6m., though usually much less. Coarsely toothed, leathery, evergreen leaves & profuse, large pink flower heads. This & *M. oligodon* are possibly the best for UK gardens, though we have found this the more difficult. Superior flowers to those of *M. illicifolia*, which often now masquerades as this as well as the preceding, in the UK. It is still grown from the Comber 1925-27 collections & Norman Hadden used to have a fence covered with it from that source in his Somerset garden.) (10+) **D**
- 2.880.010 : SISYRINCHIUM PALMIFOLIUM** (*S. macrocephalum*) * No data. Recently profiled & beautifully illustrated in the 'Kew Magazine', this is a remarkable, tall species, hitherto inexplicably obscure in general cultivation. "Surely one of the largest and most robust...a seemingly endless display of large yellow saucer-shaped flowers...with bold tufts of broad grey-green leaves overtopped by stiff, widely-winged flower stems over a metre in height." Widely distributed in damp grassland up to 1200m. in Uruguay, SE Brazil & N Argentina, it has so far proved hardy both in the heavy acid clay of a Devon garden & with Brian Mathew in Surrey. The 1m. high, arching, branched inflorescences, each producing about 100 of the bright yellow flowers with orange anthers, can continue from June into December : "a very desirable species and...a spectacular sight." It is best sown in spring and, as it is claimed that it does not thrive in pots, it seems advisable to plant the seedlings out in the garden as soon as they are large enough.) (15+) **D**
- 2.910.500 : SOLENOMELUS PEDUNCULATUS** * Chile, VI, Cachapoal, W of Pangal. 950m. Sandy soil. (Some excellent seed from Alan Edwards (Surrey, UK) of this fine, summer-dormant, rhizomatous *Sisyrrinchium*-relative for the alpine-house or bulb-frame. Tapered, grassy foliage & big, rounded, rich-yellow flowers from prominent spathe-bracts on 20cm. stems.) (15+) **C**
- 2.970.200 : TROPAEOLUM AZUREUM** * Chile, Reg. Metro., Chacabuco near Polpaico. 500m. Hot, dry hillslopes. Ex S. Pern & J. Watson 6055. (1998 Tasmanian seed just received. In the UK, this is best kept frost-free in winter & dry when dormant in summer. A very beautiful, fragile, tuberous-rooted climber with many, flat-faced flowers in soft violet-blues with white centres.) (5) **D**
- 2.970.305 : TROPAEOLUM BRACHYCERAS** * Chile, V, Los Molles. 15m. Among boulders in coastal scrub. Some cultivated seed ex BCW 4182 plus 1998 wild collected Flores & Watson material from the same area. (A pretty climber from the coastal mist-belt. Delicate stems scrambling to about 1m., clad in small, whirlygig leaves, carrying a multitude of tiny 'nasturtium' flowers in bright yellow with short, green spurs. Generally satisfactory in an unheated glasshouse in the UK but may be safest frost-free.) (5) **D**

More species from South America, South Africa & Australasia in our next list, which will concentrate on southern hemisphere material

- 4.005.510 : ACONITUM HEMSLEYANUM** * No data. A Chinese perennial with herbaceous stems twining to 3m. or more. Cut, rich-green foliage & long racemes of spurred, violet helmet-shaped flowers in autumn. Splendid in a draughty corner here. . . . (20+) **B**
- 4.045.009 : ANEMONE RIVULARIS** China, Gansu, SE of Tianshui. 1350m. (A wild collection from the NE extremity of the distribution of this montane meadow-plant. Likely to vary somewhat, if not substantially, from the following.) (15+) **C**
- 4.045.010 : ANEMONE RIVULARIS** * No data. A lovely, 60cm. high meadow-plant, widespread along the Himalaya, from Kashmir E into Tibet & Yunnan. Distinct from the umbel-flowered *A. narcissiflora*-group in its long-stalked flowers, individually cup-shaped, pure-white inside & usually slate-blue tinged outside. Easy & hardy in the UK in a good, moist soil in sun. (20+) **B**

Arisaema : fashionable, fascinating eastern aroids

- 4.080.500 : ARISAEMA AMURENSE** * No data. Appears to be the genuine species, an extremely hardy NE Asian plant, originally grown from seed received from the former USSR by Christoph Ruby. Impressively large, deeply veined foliage with broad leaflets of irregular size. Green spathes, striped with a paler shade, with elongated deflexed tips. Red autumnal fruits. (10) **C**
- 4.081.111 : ARISAEMA CANDIDISSIMUM** * No data. A superlative species from SW China, prerequisite for all who appreciate hardy plants of distinction, not just for "lovers of the curious". Appearing very late in spring, the unfolding trifoliate leaves rise up with the large spathes, elegantly peaked & ribbed arabesques, exquisitely sculptured in jade and rose-tinted alabaster. Not difficult if moist & well-fed in humus-rich soil in light shade, though it may resent too wet a site in winter, and maintained in UK gardens since the Forrest introduction from Yunnan early this century. Increases vegetatively but sets seed less frequently. (6) **E**
- 4.081.510 : ARISAEMA CONSANGUINEUM** * No data. About 1m. tall with elegant, cut leaves & hooded green spathes, followed by nodding heads of scarlet fruits. One of the most widespread species growing through the Himalaya E into China. (10) **B**
- 4.082.100 : ARISAEMA ELEPHAS** (*A. wilsonii*) * China, Yunnan, Cangshan. 3200m. Ex E. Needham 1024. (Illustrated in the recent AGS Bulletin on Chinese plants (Vol.64, No.2, p.186), where Ron McBeath writes "one of my favourites...striking & handsome...reasonably easy to cultivate at Edinburgh." Mike Tucker (Somerset, UK) also finds it vigorous & hardy, though it appears early. Large, trifoliate, rugose leaves, often flushed purple & margined with red. Elongated black-purple spadices snake out from hooded spathes striped with parallel purple & translucent white lines. 40cm. Excellent seed-set in 1998.) (10) **E**
- 4.082.170 : ARISAEMA ERUBESCENS f. LATISECTUM** China, Gansu, SE of Tianshui. 1400m. (Wild collected seed of the Gansu race of this fine species. Generally accepted as Himalayan and mainly distributed in Nepal & Sikkim, the name may be misapplied here and this coll. may represent a different species but confirmation of such conjecture must await a review of the genus as a whole, a taxonomic nightmare. The Himalayan, type-race is characterized by its lovely foliage : parasols of many, pointed, lanceolate leaflets, dark, shining green above & greyish below. The hooded spathes, on rosy, red-streaked stems, are no less beautiful : white striped on a brown-pink to purplish ground and covered with a white bloom, justifying the specific name, 'blushing'. This race from the cold, continental climate of Gansu, will be temperature-hardy in most of Europe & N America.) (10) **E**
- 4.082.210 : ARISAEMA EXAPPENDICULATUM from GREEN FORM** * Nepal, Sheopuri ridge. Ex an E. Needham coll. (Endemic to the forests of central & E Nepal between 2000m. & 3000m. Comparatively recently discovered & described in 1965. About 60cm. high with large divided leaves on chocolate-striped petioles. Somewhat more open spathes than the typical brown form.) (5) **E**
- 4.082.310 : ARISAEMA FLAVUM** * No data. Widespread from Afghanistan to W China & easy in a sheltered, shaded site in the UK. About 50cm. high with pedately cut leaves & small, chubby, yellow spathes, followed by heads of scarlet fruits. (10) **B**
- 4.082.501 : ARISAEMA GRIFFITHII** * Nepal, Modi Khola valley towards Annapurna sanctuary. 2600m. Ex E. Needham 389. (A striking thing from the forests of central Nepal into Bhutan. Very large, broad spathes, curving over on themselves and with big, broad side-flaps, all netted with greeny white on a dark purple ground. The purple spadix-appendage narrows to a tail and extrudes. Two large, trifoliate leaves rise above all this. Quite hardy when established in humus-rich soil in shade in the UK.) (6) **D**
- 4.082.550 : ARISAEMA GRIFFITHII var. PRADHANII** * No data. From a small area in Lachung, Lachen & Jeluk, in Sikkim, above 3000m, in *Rhododendron* scrub & in more open, rocky places, this is, in effect, the largest & most spectacular race of an extraordinary species. Two big trifoliate leaves overtop the large spathe with broad, lateral lobes, up to 20cm. wide & purple-brown netted with creamy white. The purple spadix-appendage snakes out, tapering to a flagellate tail, 50cm. long.) (6) **E**
- 4.083.310 : ARISAEMA JACQUEMONTII from NARROW-LEAVED FORM** * No data. The most western & possibly the hardest of the Himalayan species, distributed between 2800-4000m., among the alpine & subalpine scrub of drier areas from Afghanistan to Bhutan & SE Tibet. Most cultivated plants probably originate from Kashmir and this form with leaves with 6 tapering leaflets seems typical of these (received as var. *angustifolium*, a name for which we can find no authority). The elegant, elongated spathes, striped longitudinally in green & white, with their extended, tortuous tips rise up well above the foliage. (6) **D**
- 4.083.315 : ARISAEMA JACQUEMONTII from BROAD-LEAVED FORM** * No data. (Received as var. *latifolium*) (6) **D**

- 4.086.910 : ARISAEMA PROPINQUUM** (*A. wallichianum*) * No data. A variable, hardy species, widely distributed through the Himalaya from Kashmir to Bhutan & SE Tibet between 2500 & 4000m. One or two trifoliate leaves emerge from brown-mottled cataphylls & deep purple, or occasionally green, hooded spathes, striped with white, surround the spadix, which tapers & extends at an angle from the mouth. The spadix-appendage is shorter than in the allied, rather similar, Nepalese *A. costatum*. (5) E
- 4.097.610 : ARISAEMA SPECIOSUM** * No data. An eastern Himalayan, growing from Nepal into W China. A distinct, cylindrical tuber produces a single, large, trifoliate, red-margined leaf, rising to about 50cm. above the chocolate-purple & white, striped spathe, from whose elegantly attenuated hood the spadix appendage writhes out as a purple filament up to 50cm. long (5) D
- 4.099.009 : ARISAEMA TORTUOSUM** * Nepal, Dudh Khosi valley. 2700m. Degraded forest. Ex a J. Grimshaw coll. (This seems to be a particularly hardy, vigorous, giant form, well established with Mike & Polly Stone (Inverness-shire, UK), whose cultivated seed this is. Its tall stems were featured as an "*Arisaema-grove*" by Mike in his SRGC Journal column a year or so ago.) (8) D
- 4.099.010 : ARISAEMA TORTUOSUM** * No data. One of the tallest in the genus, up to 1m. high or more (see above). Stout, purple-mottled stems with 2 or 3, large, pedate leaves carry green spathes above the foliage. From these an extraordinary, tapering, green or purple, S-shaped spadix-appendage snakes outwards then upwards. Distributed through the Himalayan woodlands from the Punjab E into SW China at altitudes between 1400m & 2800m. & generally a fairly reliably hardy species in the UK (10) C
- ARISAEMA SP. ex I. Stokes 46.190** * China, Yunnan, Gholigan Shan. 2400m. Rough grassland near stream. (Seed just received from our friend Trevor Crosby & no time to check out the identity. We may have a name to put on the seed packets.) (8) E
- 4.159.510 : CALOSCORDUM NERINIFLORUM** * No data. An attractive central Asian bulb, in a monotypic genus, related to *Allium*, spread from the Pamirs through S Russia & N China. Stems of about 20cm. bear umbels of up to 20, bright-pink flowers over a long period in late summer. Not at all difficult, though it resents wet conditions, especially in winter. (10+) B
- 4.201.950 : CLEMATIS PETERAE** China, Gansu, SE of Tianshui. 1300m. (Wild seed of this climber with open panicles of many small, creamy white, fragrant flowers. Not in cultivation but quite close to *C. vitalba* & unlikely to be earth-shattering.) . . . (15+) C
- 4.202.110 : CLEMATIS REHDERIANA** * No data. A lovely & distinct, deciduous climber, which can reach 8m., from W China, with downy, pinnate leaves and panicles of nodding, sweetly scented, velvety, primrose-yellow bells in autumn. (15+) C
- 4.221.420 : CODONOPSIS LANCEOLATA** * No data. A hardy climber (especially distinct in its winged seeds, unlike any other we know) from N China through E Russia & Korea to Japan. Though with such a wide geographical range it is variable, this seed is from specialist Paul Kneebone, who describes it as "one of the best...covered in largish green bells with purple markings", growing about 2.5m. high. Don Elick sent us seed from Japan some years ago & described it as reaching 5m., often in alluvial soil along streams, where "wide open bells reminiscent of a richly coloured *Fritillaria graeca* dangle in profusion." (15+) D
- 4.221.850 : CODONOPSIS OBTUSA** * Afghanistan, Panjshir Valley. 2400m. Beside stream. Ex P. Furse 8643. (A dubious, obscure name, considered to be a synonym for *C. clematidea* or *C. ovata*. We acquired this long ago identified as *C. obtusa* & no other positive, alternative determination has been suggested. Certainly near *C. clematidea* but the big, ice-blue bells lack the internal markings and shade into glossy yellow-green instead. Hardy & reliable with us in a raised bed over many years. (30+) C
- 4.222.010 : CODONOPSIS PILOSULA** * No data. A climber, close to *C. tangshen*, from montane scrub in N China. The true plant is allegedly in cultivation but, the confusion of names is such that we cannot give a total guarantee this is it. Seed from Dinah Batterham (Dorset, UK) who has grown it outside for many years & describes it as having shiny, yellow-green bells. (20+) B
- 4.222.750 : CODONOPSIS TUBULOSA** * China, Yunnan, Dali. 2400m. Ex Compton, D'Arcy & Rix 2025. (From stock grown by Harry Hay (Surrey, UK), who tells us the large, bright green flowers on this climber are much admired by visitors.) (20+) D
- 4.222.805 : CODONOPSIS VINCIFLORA** * No data. A less vigorous member of the *C. convolvulacea* group from the E Himalaya & SW China with smaller, thinner-textured, toothed leaves & saucer-shaped, lilac-blue flowers. Twines delicately to no more than 1m. in height. Seedlings are best left to tangle the first season : sort out the dormant tubers & replant in winter. (20+) B
- 4.250.610 : DAPHNE GIRALDII** * No data. A beautiful, deciduous shrub, about 60cm. high, from W China, in Shaanxi & Gansu, with terminal clusters of fragrant, rich yellow flowers in late spring. Can thrive on soils from limy clay to acid sand but can also be rather temperamental in our experience. When we were in Dorset we could not grow it well - we have not tried in Wales. (8) C
- 4.285.500 : DRABA OREADES** * No data. One of the most worthwhile E Asian species for the alpine-house enthusiast (not to be confused with the similarly named Moroccan *D. oreadam*). A high-alpine, widespread from Central Asia, through the Himalayas to SW China, in rocky places at altitudes between 3500m. & 5500m. Tiny, hairy rosettes compressed into pads or cushions with heads of yellow flowers on 2cm. stems. Not too difficult given careful cultivation by experienced growers. (15+) E
- 4.360.505 : EUPHORBIA CORNIGERA** * No data. In a confusing group of Himalayan species, this has been grown as the allied *E. wallichii*. Much UK stock possibly originated from seed distributed as *E. wallichii* by the Kohli family, formerly collectors in Kashmir. An attractive hardy perennial, about 40cm. high with a mound-forming habit, apple-green foliage and yellow raylet leaves. Possibly best in the UK in a sunny, well-drained place as long as it does not become too starved or dry in summer. (10+) C

- 4.432.010 : GERANIUM SINENSE** * No data. A late-flowering, 60cm., woodland-plant of SW China, in Yunnan & Sichuan, long grown in gardens as the allied *G. delavayi* &, as such, extolled as a "connoisseur's plant" by such writers as A.T. Johnson & Will Ingwersen. A succession of many, small, inverted flowers with reflexed petals in ruby-black around a coral-pink base.) . . . (10+) **B**
- 4.432.500 : GERANIUM WALLICHIANUM** * India, Garhwal Himal. Ex an Udai Pradhan coll. (A vigorous, wide-spreading form of this variable species, which dies back annually to a stout, compact rootstock. Bright pink flowers with distinct white centres produced from midsummer until the first severe frosts on prostrate, trailing stems 60cm. or more long. Extremely enthusiastic here - plants moved to a new site among shrubs climbed to over 2m. up adjacent *Magnolia sieboldii*. Quite new & excellent.) . . . (10+) **C**
- 4.432.550 : GERANIUM WALLICHIANUM 'BUXTONS VARIETY'** * No data. Called after E.C. Buxton, who gardened in N Wales, this comes so evenly from seed that it may be a geographical race. More compact than the Garhwal form, the long succession of soft lavender-blue flowers with large white centres is unrivalled. "A pearl beyond price" wrote G.S. Thomas (10+) **B**
- 4.478.850 : INCARVILLEA SINENSIS var. PRZEWALSKII** China, Gansu, S of Lanzhou. 1700m. ("This interesting plant does not appear to be in cultivation" comments Chris Grey-Wilson in a review of the genus. A local race, limited to Gansu & Shensi, in a variable species-group. Quite unlike the familiar *incarvilleas* in subgenus *Pterocleris*. A woody-based perennial, about 30cm. high, with erect, loose racemes of long-tubed bells. Farrer saw it here : "...set with finely feathered ferny foliage & bearing...a steady flight of lovely citron-yellow Allamandas...on the hottest & driest & barest exposures on the hot, bare, dry loess hills...") (15+) **D**
- 4.478.140 : INCARVILLEA DELAVAYI** * No data. Pink form of this Chinese endemic from NW Yunnan & S Sichuan. . . (15+) **A**
- 4.478.150 : INCARVILLEA DELAVAYI from WHITE FORM** * From a good white form of this splendid, hardy, herbaceous perennial in *Bignoniaceae*. Beautiful, cut, basal foliage appears from stout, permanent tuberous roots & sturdy, 50cm. stems carry tropical-looking trumpet-shaped flowers. Easy & reliable in good soil in a well-drained, sunny site in the UK. (10+) **C**
- 4.480.750 : IRIS DELAVAYI (Ser. Sibiricae)** * China, Yunnan. Ex an I. Stokes coll. (A tall, handsome plant from damp sites in Sichuan & neighbouring Yunnan. Clumps of erect sword-leaves about 1m. high, overtopped by 1.5m. stems carrying several, large violet-purple flowers with white, dagger-like signals on the broad blades of the falls. Easy in a border or by a pond.) (15+) **B**
- 4.490.010 : KIRENGESHOMA PALMATA** * No data. A most distinct, choice, slow-growing, hardy perennial in *Hydrangeaceae*, endemic to the mountain-woodlands of S Japan, where it occurs locally on Kyushu & Shikoku. About 1.5m. high here with erect, purple-black stems, clad in soft-green, palmately lobed, maple-like foliage & ending in branched cymes of waxy, pale-yellow bells in autumn. Flowers with us until cut down by the first severe frosts and loves our acid soil & cool, moist summers, though Bob Brown (Worcestershire, UK) tells us that he has no problems growing it on his very alkaline soil (pH 8.5) as well.) (15+) **B**
- 4.516.001 : LILIUM AURATUM (var. auratum)** * Japan, Honshu, Shizuoka Pref. Ex a D. Elick coll. (The "Queen of Lilies", a spectacular Honshu endemic, with huge, heavily scented, horizontally held flowers in waxy white, banded with gold & spotted with crimson, on stems of 1m. or more in late summer. A species of hill-slopes at quite low altitudes & likely to thrive best in good, loose, sandy loam in a warm, sunny site in the UK - definitely not in a cool, wet, peaty place. English-grown seed from Mike Tucker (Somerset, UK) from plants raised from one of Don Elick's wild seed colls., which we listed a few years ago.) (10+) **D**
- 4.517.610 : LILIUM DUCHARTREI** * Scottish seed of this glorious, stoloniferous, W Chinese species, closely allied to *L. taliense* & *L. lankongense*. Brownish, 1.5m. stems with up to 12, pendant, scented, white flowers, with recurving segments spotted with deep purple & reddening with age. Most cultivated stock appears to derive from the 1915 Farrer coll. in S Gansu, where he wrote that 'its cold bone-white turkscaps have a glacial beauty.' Moist but well-drained, humus-rich soil in light shade. (20+) **D**
- 4.518.110 : LILIUM FORMOSANUM var. PRICEI** * Taiwan. 2600m. (A dwarf, alpine ecotype of this species with big, scented, white trumpets, purple-tinted outside. Recorded as not exceeding 45cm. in the wild, it has remained dwarf (or even dwarfer by selection) in gardens. Fairly hardy in the UK, it flowers quickly from seed, if sown in gentle warmth in winter.) (20+) **B**
- 4.519.305 : LILIUM JAPONICUM** A little, wild-collected seed from Don Elick in Japan. A very beautiful species, less than 1m. high with up to 5, fragrant, delicate rose-pink trumpets. For moist, loose, well-drained leafmould. Not easy in the UK. (10+) **E**
- 4.520.010 : LILIUM MACKLINIAE** * India, Manipur, Sirhoi near Ukhrul. 2300-2450m. Steep, grassy slopes. (All the cultivated stock seems to stem from the collections made by Frank Kingdon-Ward on this one mountain in 1946 & 1948. An exquisite species in the group approaching *Nomocharis* with nodding, white, bowl-shaped flowers, flushed with rose-pink outside, on stems of about 50cm. Perfectly hardy with us - enjoys an acid soil & the cooler, moister summers of the North & West of the UK.) (20+) **C**
- 4.520.910 : LILIUM PHILIPPINENSE** * No data. Slender, elegant, 1m., grassy-leaved stems with very long-tubed, horizontally carried, pure-white, scented trumpets, sometimes tinged green or brown outside. One of the most southern Asian lilies, from the mountains of Luzon in the N Philippines. Australian seed but recorded as hardy over several years in N England. (20+) **C**
- 4.522.220 : LILIUM SPECIOSUM var. CLIVORUM** * Japan, S Shikoku, Agawa river gorge. Damp shady cliffs. Ex a D. Elick coll. (From Don's 1988 type-locality coll. of this very local race, described in 1956. Hanging out of the cliffs "like a giant *Tricyrtis*...stems 6ft. or longer with up to 20 smaller, light-pink flowers on very long pedicels." A truly sumptuous plant, growing successfully in the UK, in rich, peaty soil, both under glass & outside, with gloriously scented, crimson-speckled flowers in late summer.) . . . (10+) **D**
- 4.542.500 : LYSIMACHIA DECURRENS** * China, Yunnan, Dali, Cang Shan. 3000m. Loose gravel in road-cut. Ex I. Stokes 46.092. (A quietly attractive species proving most adaptable in both moist & drier, exposed sites in W Wales. Of mounded habit, about 50cm. high & as much across, because of the spreading side-shoots, with upright, stubby, white racemes in summer.) . . . (50+) **C**

A : \$2.00 ; £1.50 ; DM4,- ; FF13.- C : \$4.00 ; £2.50 ; DM6,- ; FF21.- E : \$7.00 ; £4.50 ; DM12,- ; FF40.-
B : \$3.00 ; £2.00 ; DM5,- ; FF17.- D : \$5.00 ; £3.50 ; DM9,- ; FF30.- F : \$9.00 ; £6.00 ; DM15,- ; FF50.-

- 4.545.711 : MAGNOLIA SIEBOLDII** * No data. Seed from John Weagle in Nova Scotia, Canada, collected from an outstanding, extremely hardy form grown in Halifax. With an extensive south-north range, from S Japan into Korea, the species will certainly vary in this respect. A reliable plant for UK gardens, forming a large, deciduous shrub or small tree up to 5m. high, flowering from the end of May onwards with us. Slightly pendant, white flowers with a central cone of crimson stamens "look you in the face". Thoroughly cleaned seed has been stored moist in a refrigerator and will be sent out damp. Sow immediately! (10+) C
- 4.574.500 : NEPETA SUBSESSILIS** * No data. A pleasant perennial, growing easily here. From moist mountain slopes in N Japan, on Hokkaido & Honshu. Stout, erect stems, about 60cm. high, with toothed, downy leaves carry densely verticillate, terminal spikes of lavender-blue flowers, individually large for the genus & like little penstemons. Late-season & long-flowering. (20+) B
- 4.576.509 : NOTHOLIRION BULBULIFERUM** (*N. hyacinthinum*) * China. Ex Cox 5074. (A beautiful lily-relative, which can reach 1m. high with racemes of up to 30 horizontal, lilac trumpets, tipped with green. Distributed in alpine meadows from Nepal into W China, it is most likely to succeed in the UK in a cool, part-shaded site in moist but well-drained, humus-rich soil.) (15+) C
- 4.581.000 : PAEONIA OBOVATA** Russia, Sakhalin. (Possibly the pale-rose race, which is the only one we can find recorded from this island immediately N from Japan, & not the white. The two are also supposed to differ in their stigmas & follicles. All this group, about 50cm. high, have beautiful, lobed foliage. A further opportunity to acquire seed from this obscure locality.) (6) E
- 4.581.590 : PAEONIA VEITCHII** (var. *veitchii*) * No data. Seed from Hermann Fuchs in Germany of a form received from Japan (where it is not native). It appears to be a form of the type-race, less often seen in gardens than the following, *P. v.* var. *woodwardii*. Smaller, deeper coloured flowers, opening earlier in the season. Similar, attractive, glossy green foliage. (6) D
- 4.581.600 : PAEONIA VEITCHII** var. **WOODWARDII** * No data. Wide, dense clumps of shiny green, deeply cut foliage & slightly drooping, bowl-shaped flowers, usually in soft rose-pink. From around 3000m. in W China, in Gansu & NW Sichuan, & an excellent grower in the UK. This ill-defined variety is said to be distinguished by the longer hairs on the leaf-veins. (8) C
- 4.581.610 : PAEONIA VEITCHII** from **WHITE FORM** * This appears to be a white variant of *P. veitchii* var. *woodwardii*, a lovely plant, very rarely seen in cultivation, with pure-white flowers against cut, bright-green foliage. Our past experience indicated that a reasonable proportion will come white from seed with the balance in a very pale pink. (6) E
- 4.599.710 : POTENTILLA NEPALENSIS** * India, Himachal Pradesh, Kulu, Parasher. 2100m. Open meadows. Ex R. McBeath 1698 (A really excellent new form, now well established in the UK from Ron's 1985 coll. Wiry, branching, 40cm. stems curve upwards from the compact, central crowns of strawberry-leaves to carry a succession of flowers in rich, deep cherry-pink with darker centres, on & on from late summer until ended by the first severe frost. Much daintier & wilder-looking than 'Miss Willmott'.) (20+) B
- 4.604.009 : PRIMULA BULLEYANA** (Sect. *Proliferae*) * China, Yunnan. Ex ACE 2484 (From a recent collection of this beautiful, wet-growing, early summer-flowering, candelabra primula, distinct in the beetroot red midribs to its leaves. White-mealy stems up to 1m. high with superimposed whorls of yellow to pale orange flowers opening from scarlet buds.) (50+) B
- 4.616.009 : PRIMULA FLORINDAE** (Sect. *Sikkimensis*) * Tibet. Ex K. Rushforth 3579. (From a new collection of this magnificent plant, possibly the first since the 1924 Kingdon Ward introduction. Narrowly endemic to the Tsangpo basin of SE Tibet but naturalised in the UK & an important garden-plant. The largest in its genus with huge umbels of up to 80 fragrant, sulphur-yellow bells hanging on mealy stalks atop a stem up to 1.5m. high. in mid to late summer. Easy in any rich, wet soil.) (50+) B
- 4.624.010 : PRIMULA MOLLIS** (Sect. *Cortusoides*) * No data. A most distinct species, scattered around the headwaters of the Brahmaputra & Irrawaddy, from Bhutan to Yunnan, at altitudes up to 3300m. Downy, pale-green, rounded leaves, like opening umbrellas, on woolly stalks & 30cm. candelabra of little rosy crimson flowers. For a cool, moist, sheltered site. (50+) B
- 4.838.049 : SALVIA BULLEYANA** * China, Yunnan. Ex CLD 981 (A dry-meadow plant, hardy & easily grown in the UK. Big, bold, cordate leaves and 1m. stems with many, paired, soft-yellow flowers with distinctive brown-purple lower lips.) (15+) B
- 4.870.050 : SHORTIA SOLDANELLOIDES** var. **INTERCEDENS** Japan, Honshu, Shizuoka Pref., Tenryu River gorge near Kunma village. D. Elick coll. in late November, 1998 (An unusually good seed set this year so a few more seeds to supplement Don's earlier colls. of this extremely local and genuinely 'threatened' race from "dark damp serpentine cliffs" in a few river-gorges of a small area of Honshu. Don writes that "at least half if not more of its sites have been drowned in hydroelectric schemes." Very much for the experienced specialist, who will need a lens to count the tiny seeds plus a lot of skill and patience but it can be done.) (20+) F
- 4.874.950 : SORBUS POTERIFOLIA** * No data. A tiny dwarf shrub, about 20cm. high, with running, rooting stems, once confused with *S. reducta* but different from this in its pink flowers & white fruits. Native to NW Yunnan & adjacent N Burma at altitudes up to 4000m., most plants in cultivation would appear to originate from F. Kingdon Ward colls. made in NW Burma, where he writes that "its clusters of reddened berries turned snow-white, beading the crinkly black stems like moonstones." (8) C
- 4.940.100 : VIBURNUM BETULIFOLIUM** China, Gansu, SE of Tianshui. 1500m. (A new wild coll. of this deciduous shrub, about 3m. high with toothed, ovate leaves, and one of the finest of fruiting species, "when its slender branches are weighed down with the heavy trusses of bright red, translucent berries", writes 'Bean'. Fruits best when two clones are grown together and it did well on alkaline soils when we were in Dorset. Some cultivated material may originate from Farrer's 1914 coll. in this area.) (10+) B

Our main object is to bring you seed from wild plants. The selections and hybrids listed here are too far removed from the wild to be included in the main parts of our list but the parents are excellent garden-plants & can be expected to produce some worthwhile children.

- 6.025.000 : ALLIUM X HOLLANDICUM** Seed from such clones as 'Purple Sensation' & 'Purple Surprise'. The height of seedlings may vary from 50-100cm. but all should have large umbels of starry, deep purple-violet flowers. (20+) **A**
- 6.100.500 : ASTRANTIA MAJOR from 'RUBY WEDDING'** If you can get hold of the genuine clone from division, the parent is a really outstanding selection of this European mountain meadow-plant : about 60cm. high with brilliant crimson heads & dark-green foliage. There are a lot of seedlings around, however, under a variety of other names. Most are likely to be pretty good. . . . (15+) **C**
- 6.223.000 : BERGENIA from RED HYBRIDS** From some of the best modern crimson flowered hybrids : German ones like 'Abendglocken' & 'Admiral' as well as some of our own, like 'Bartok'. Good, tough foliage colours well in winter. (50+) **B**
- 6.223.100 : BERGENIA from WHITE HYBRIDS** From our compact white-flowered hybrids, bred from *B. stracheyi* 'Alba', such as 'Britten', 'Bach' & 'Beethoven'. Most seedlings will be apple-blossom pinks. Bronze weather-resistant winter-leaves. (50+) **B**
- 6.501.450 : GERANIUM from 'BROOKSIDE'** The parent is supposedly a hybrid between *G. pratense* and *G. clarkei*, though its general appearance is much nearer to the former. It is very fertile & seedlings are comparatively even in appearance. Fine garden-plants with spreading stems producing successions of large, rich violet-blue flowers over a very long period in summer. . . . (10) **B**
- 6.747.810 : PAEONIA MLOKOSEWITSCHII & P. WITTMANNIANA HYBRIDS** The beautiful yellow *P. mlokosewitschii* & *P. wittmanniana* will occasionally hybridize in gardens when other species are in flower at the same time, producing so-called pink *P. mlokosewitschii*. These are often beautiful plants in soft, apricot-tinted creams & pinks & some have been named. Seed from several, including ivory, crimson-veined 'Fedora' & the old French *P. wittmanniana* hybrid 'Claire de Lune'. (6) **C**
- 6.747.850 : PAEONIA SUFFRUTICOSA from CHINESE HYBRIDS** Cultivated tree-peony seed from China collected from a wide range of named hybrid clones : mainly doubles, in purple, pink, white & green. What might result is unpredictable. (6) **C**
- 6.747.860 : PAEONIA SUFFRUTICOSA from GANSU MUDAN** This is from a Chinese nursery specialising in growing Chinese tree-peonies in their home in the far western province of Gansu, where most of the collecting by Farrer & Rock took place. The name 'Gansu Mudan' means simply Gansu (Kansu) tree-peony. The basis of their stock has been *P. s.* subsp. *rockii* and this seed is more than likely to yield plants which will approximate to the Rock collection, which it must be remembered was from a cultivated plant in the first place, gathered in 1925 by Joseph Rock from plants growing at the Choni lamasery in Gansu at 2600m., where it had first been seen by Farrer. We can be confident the cultivated seed will produce huge flowers "refulgent as pure snow and fragrant as heavenly roses with a heart of gold", as described by Farrer, & we hope we can offer more assurance of "each stainless petal flamed at the base with a clean and definite feathered blotch of maroon" than we could with the wild seed listed previously (5) **E**

Thanks for your help and support in 1998. Our best wishes to all of you for 1999.

While our main aim is to offer you seeds collected or grown by ourselves, it would not be possible to produce a list with such a wide range of material without a vast amount of help from many friends in Britain and abroad. Collectors are mentioned in almost all instances but it is not possible to name sources of cultivated material in most cases. We are grateful to : John Andrews & Mike Broder, Greg Greger, Jim & Georgie Robinett (all California, USA), Jim Almond (Shropshire, UK), Charles Bailey (BC, Canada), Dinah Batterham (Dorset, UK), Galen Burrell (Washington, USA), Trevor Crosby (Wales, UK), Martyn Denney (Hants., UK), Alan Edwards (Surrey, UK), Don Elick (Japan), Hermann Fuchs (Germany), Phyllis Gustafson (Oregon, USA), Dave Hoskins (Hants., UK), Richard Hancock

(Hereford, UK), Tim Ingram (Kent, UK), Melvyn Jope (Surrey, UK), Panayoti & Gwen Kelaidis (Colorado, USA), Paul Kneebone (Warwicks., UK), Will McLewin (Cheshire, UK), Brian Mathew (Surrey, UK), Robert Newman (Nanjing, China), Tom Norman (Dorset, UK), Bob Reid (Falkland Islands), Christoph Ruby (Germany), Janis Ruksans (Latvia), David Stephens (Surrey, UK), Norman Stevens (Cambridge, UK), Mike & Polly Stone (Inverness-shire, UK), Lyn & Len Toms (Wales, UK), Mike Tucker (Somerset, UK), Bob & Rannveig Wallis (Wales, UK), Peter & Penny Watt (Hants., UK), John & Anita Watson (Chile), John Weagle (Nova Scotia, Canada). Our apologies to anyone omitted. Sincere thanks to all of them and to all our customers for supporting our work.

There is no South African seed in this list as, all going well, we hope that we can list many more new collections from the Drakensberg & other South African summer-rainfall areas early in 1999