

The emphasis in this winter list is intended to be on alpine-plants and herbaceous perennials, which are best sown when temperatures are low. We have neglected these groups a little during 1990 and 1991, when our lists were sent out in summer, and our tentative plans will mean that we shall do so again in the rest of the 1992-93 period. We plan another summer list concentrating on summer-dormant species in 1992 but, at present, a winter 1992-93 list looks unlikely. So, growers whose interests tend to the 'non-bulbous' should make the most of this present list. The most recent collections from ourselves are in Section II and are largely re-collections of species from southern Europe. There are, however, species which we have not listed since the 1983-84 period as well as some we have never been able to collect previously. There are further new collections from others spread throughout the list. In accordance with our policy of listing seed as soon as possible after collection (there are seeds here collected up to December, 1991), we have in fact included quite a volume of 'bulbous' plants, rather than holding these until later in 1991, so the list has become much more balanced and comprehensive than was the original intention. We hope that those of you who received seed from our 1991 South American collections are enjoying the sight of Tropaeolums and Astroemerias sprouting with the advent of cooler weather and that you already have vigorous Mutisia seedlings and pots full of Lobelia tupa ; we hope the higher altitude plants will be germinating through the winter and into spring 1992. Our best wishes for the new year.

ORDERING could not be easier. We shall accept your personal cheque in US \$, £ sterling or DM, with two qualifications. US \$ cheques must be on a US bank account - charges for negotiating cheques on foreign accounts are very high in the USA : please do not send Eurocheques made out in US \$ - they are unfamiliar to the US banking system. Payments from France do cause us some problems. While we have continued pricing in FF, we must ask French customers not to send personal cheques in FF and especially not to use cheques on 'La Poste'. These have proved very difficult to negotiate. A Eurocheque made out in £ sterling is excellent ; a Giro payment in sterling is used by many French clients - you can price in FF and have the current equivalent sent to us in £ sterling ; FF cash sent to us by registered letter is also no problem. If fluctuations in exchange rates mean it is advantageous to you to select a currency other than your own, please do so - it makes little appreciable 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 sterling for these please). We do not operate a Giro account to enable direct transfers nor do we accept credit card payments. If remitting by sterling cheque, it is a great help both to you and, of course, to ourselves, 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 cannot do this, a list of some substitutes will be very helpful - we shall not use them unless we have to and, if we do, we always try to send rather more than the value of the items we cannot supply. We do not pay-in your cheque until after your order has been sent - it is obviously in our interests, as well as yours, to complete orders as quickly as possible. Finally, we stress :

THERE IS NO CHARGE FOR AIRMAIL ON THE SEEDS OR ON THE SEED-LISTS :: PLEASE PRINT YOUR NAME & ADDRESS CLEARLY

PLEASE UNDERSTAND There may be a delay of some weeks before you receive your order. The majority of orders come in very quickly, during the first week or so after we send out a list. We receive your orders very much faster than we can despatch them. You may think that because you ordered as soon as you received this list, we can send back seed just as promptly. A great many other people ordered that same day ; we have to handle a lot of orders to derive an income from such a business as this. We try to avoid listing collections unless we think there will be enough seed to satisfy most of the demand, so there should be no great concern over this, even if you are not ordering by return. On the other hand, many items, especially those in Section III, do run out as the season advances. We are well ahead with packeting and hope to be able to move fairly quickly. If you feel that 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 after your order has been despatched. If it has been cashed, let us know immediately. One or two items do become lost or delayed each year. In such an unlikely event, you will find us totally sympathetic. Such occurrences are very rare.

FIRST STEPPES IN SEED SOWING We must acknowledge our indebtedness to Panayoti Kelaidis of Denver, Colorado, for the pun. He used to give a lecture, entitled "Steppe by Steppe". We felt that in our case, however, it was appropriate in three ways. Although we do have a garden, we do not actually have much time for gardening. We know some of you imagine that we are in a position to grow plants from all the exciting seeds we list and that our lives must be something like those of children in a toy-shop. Sadly this is not the case. Any plants we grow have to look after themselves. An itinerant life-style is not compatible with growing thousands of temperamental and choice plants from seed. Up till now we have only been able to grow plants suited to neglect in our wet Welsh climate. Hydrangeas, Camellias and Hostas thrive and will in time eliminate the weeds. Choicer and more diminutive species must wait until we can adapt the natural environment and arrange circumstances where they too will largely look after themselves. The first of these adaptations has given us much pleasure over the past year and has also allowed us to sow some of our own seeds. Our home lies on a North-facing hillside. Behind it an old dry-stone wall supports the slope. By roofing over this area with 4 m. sheets of double-walled acrylic, we have created what is in effect a version of the sunken, Victorian pit-house all along the South-facing side of our house. Last winter, even though we were not at home during the coldest weather, the temperature did not go below freezing, without any additional heating. Due to the slope above no sun reaches it for about six weeks in mid-winter and the temperature does not vary violently on either side of a mean of 5°C/40°F even in cold weather. In the November to January period last season we arranged a little over half of the greenhouse - the "dry end", where it is planned that no watering will be needed during our absences abroad. As the existing dry-stone wall was a little high for access, we rebuilt it and terraced the planting-area into two stepped beds. What better to plant in the lower stepped bed than some steppe-plants? After we had disposed of a few lingering rhizomes of Oncocylus and Regelia Irises and some odd bulbs, the bed was surfaced with gravel and watered heavily with a hose to settle it. A selection of seeds were sown directly on to the gravel in intergrading irregular groups. Our intention was to hose these in during early January so that, when we returned from South America in mid-March most would have germinated. However, seed started germinating rapidly and, by the time we left in mid-January, most were up and away. Even reputed high-temperature germinators, such as Campanula, came up, although a few, such as Calyptidium did wait until our return. Only a couple of species have not appeared in spite of the fact that a lot of seed was rather ancient and some had been resting in our refrigerator since 1984. One was Tschihatchewia isatidea, which we particularly wanted to establish ; we have some seed left and we shall try again. There were also lots of surprises. A batch of Calochortus Kennedyi which we had never listed as we thought it had been collected in an immature state, was broadcast through the bed and germinated like a lawn. In time, we know that the larger background shrubs and the Mutisias and Tropaeolums on the beams will shade-out the steppe-bed but we can have quite a few years of fun from it before then. This winter we shall complete the "wet end" of the greenhouse, which will be kept moist with mist nozzles. Our Lapagerias and Ericaceae are ready. We'll tell you about it later.

KILLERS OF THE STEPPES One of the most interesting results of our intentional neglect of the steppe-bed we have just described was the way in which unthinned seedlings thinned themselves out in a very precise manner. We have not as yet removed a single seedling yet several species now look as if we had planted them at precise spacing. *Eriogonum ovalifolium* and *Penstemon laricifolius* have been outstandingly effective in this respect. Within the same genera, *E. kemediyi* and *P. heterophyllus* on the other hand seem quite compatible en masse and have simply grown together. The bulbs do not seem to bear their fellows any resentment nor do lots of other genera, like *Aquilegia* and *Myosotis*, which have simply formed clumps of seedlings which look like one large plant. Anyone who knows desert plants growing naturally will have been struck by the large spaces between each individual plant and also by the fact that the same species is often to be found only at extremely wide intervals. One can only assume that some plants produce a chemical which is toxic to their own species - a rather odd philosophical point but a stratagem which might be useful in an arid environment. We cannot believe it is simply a question of the survival of the individual most efficient in competing for water or nutrients. It might also be an explanation for the loss of seedlings crowded in a pot; a loss invariably attributed to "damping off". The most efficient killer, however, was not a steppe-plant but a red-flowered *Ipomoea* - several dozen seedlings germinated; one by one they died until only one plant survived.

WE DO NOT WANT YOU TO MISS ANYTHING IMPORTANT so we have pulled out a few items, mainly from Section III, here to tell you a little more about them. There should be enough seed of most of them to meet any initial demand at any rate. We have chosen some species which should be of fairly wide interest.

ERYTHRONIUM ELEGANS

This did appear in our July list, rather cryptically as a one-line entry as we only had a little seed. We have now a reasonably adequate batch of 1991 seed, cultivated in Sweden from an original type-locality collection in U.S.A., Oregon Tillamook Co., Mt. Hebo. c. 950 m., where it grows on open, rocky slopes with *Gaultheria* & *Vaccinium* in the *Pseudotsuga* belt. It was described in 1985 and is known from three localities - only on Mt. Hebo is it locally abundant. Its affinities appear to be with the plain-leaved *E. montanum* and *E. klamathense* in Sect. *Concolorae* but the leaves can be mottled as in Sect. *Pardalinae*, suggesting some ancient introgression by *E. revolutum*, which now grows in moist habitats 600 m. below *E. elegans*. In nature, it is variable in the degree of leaf-mottling and in flower-colour from deep rose-pink to white. This particular stock has dark-green, slightly mottled leaves and flowers opening white and maturing to a good pink. Henrik Zetterlund thinks this may prove to be the most important garden-plant in the genus - "huge flowers - easy - lovely - forget about *E. montanum* - grow *E. elegans*!" (10 seeds) Price code : E

KIRENGESHOMA PALMATA

Though this is relatively rare in nature, confined to mountain woodlands on Shikoku and Kyushu islands in S Japan, we can hardly claim this is little-known in cultivation. It had been cultivated for about 100 years in Britain yet we wonder how many of you grow it. We have plenty excellent seed this season, harvested both from our own garden and from that of Bert Hopwood (Devon, U.K.). If the frosts come early, it does not always mature and it is a few years since we listed it. This is an autumn-flowering, fully hardy, 1 m. high herbaceous perennial whose merits are extolled by all the best garden-writers. G.S. Thomas calls it "a unique plant of great beauty"; A.T. Johnson considers "line and deportment... pervade the entire plant." Farrer, of course, is never to be outdone and about "this splendid thing... most curious and magnificent" he writes of "the black-dark, shining stems... set with nobly handsome foliage... green and palmate... waxy yellow flowers, very conspicuous and large, hover in large, loose clusters... like nothing else in the world." Likes some shade in a good, humus-rich soil which does not dry out. (30+ seeds) Price code : C

LILIUM LEDEBOURII

Since we moved to Wales, we have been looking for material of this species as we felt that it might possibly grow quite well with us. It was wholly by chance that we found out that our very old friend Dr. T. Norman (Dorset, U.K.) was growing this very well indeed and could harvest seed. This is the only Iranian lily, though it also grows in the Talysh Mts. across the border in Lenkoran, and is there known from only a single colony of about 2000 plants on the N slope of the Elburz Mts., in eastern Gilan at 1700-1900 m. altitude. It was not recorded there until 1971 and between then and 1973, Ann Ala, who was then doing so much to investigate the flora of N Iran and now lives in the U.K., fortunately sent back material to Britain. Tom Norman's stock is traceable back to an Ann Ala introduction. This is a very lovely lily, about 1 m. high with up to 15, white turk's cap flowers, banded with yellow-green, speckled lightly with purple and with deep orange anthers. Ann Ala's photographs of this are in Per Wendelbo's "Tulips and Irises of Iran"; there is a full account of it in cultivation by Alan Edwards - *Bull. Alp. Gard. Soc.* Vol. 55, p. 15 (March, 1987) with a good photograph. Alan Edwards writes that it is reasonably easy to grow "in a light, well-drained, organic soil in the south of England" and that it has no objection to lime. We hope we can help to establish it widely. (15 seeds) Price code : E

PARAQUILEGIA GRANDIFLORA 'GOTHENBURG STRAIN'

While there can be no dispute that this species, extremely variable over its vast range from Central Asia to the eastern Himalaya, constitutes one of the world's great saxatile alpinists, few would dispute that the many wild collections over the years have failed to produce stocks which maintain their vigour in the long-term in cultivation. It was not until successive generations from cultivated seed were raised at Branklyn from a Ludlow & Sherriff collection from Bhutan that this became at all widespread among alpine-growers. Even so, this Branklyn race is now much less seen in cultivation than it was about a decade ago. In an attempt to produce more satisfactory garden-plants, a deliberate cross was made at Goteborg Botanic Garden between the deep violet-blue L & S form from Bhutan and SEP 237, pure-white to lilac-flushed whites from Hazara, Pakistan. So far these are living up to expectations as extremely vigorous and floriferous plants in all shades from pure white to dark lilac-blue. While this will always need careful cultivation in cool conditions in the alpine-house, trough or raised bed, we hope that the result of this cross may ensure that this species, exquisite both in filigree-foliage and silky flowers, is more widely grown. (30+ seeds) Price code : E

NARCISSUS BROUSSONETII

By no means a plant of any general interest but an unprecedented opportunity for the specialist bulb-grower to acquire wild-collected seed of this extraordinary species, harvested by John Blanchard in December, 1991, at about 1000 m. in the western foothills of the High Atlas range, at Et-Tnine near Sebte Korimate. The only member of Sect. *Aurelia*, this has pure white flowers which lack a developed corona, in autumn, on stout stems of about 30 cm. It is illustrated on the cover of John's monograph on the genus. There seems no particular problem in growing this, though as might be expected with such a southern, low altitude species, it is best kept frost-free. (10 seeds) Price code : E

SECTION I : SEEDS COLLECTED IN CHILE & ARGENTINA, JANUARY - MARCH, 1991, BY JIM & JENNY ARCHIBALD

We list here those of our South American collections we still have available in sufficient quantity for further distribution. We have insufficient seed left from the other collections included in our list earlier in 1991. The general interest in the South American material was considerable and what is even more encouraging is that germination reports are already good. We have been told all the *Rhodophiala* spp., all the *Mutisia* spp. and almost all the *Alstroemerias* are now up along with various other collections; we hope to learn of further germination among the higher altitude species as we move into spring in the northern hemisphere. There will be no further South American listings from us in 1992.

REFERENCE NUMBERS in Section I are our field-numbers and do not run in numerical order here, where our collections are presented in alphabetical order. Seed will arrive with a separate check-list to facilitate identification of packets.

NOMENCLATURE offers some problems at present. There is no modern, standard flora of Chile and the 'Flora Patagonica', dealing with the southern part of Argentina is incomplete. We have felt it is advisable not to suggest names for some collections beyond generic level. For assistance with certain genera, we are grateful to E. Bayer (*Alstroemeria*) and J. Grau (*Rhodophiala*, etc.) of the Botanische Staatssammlung Munchen, P. Edwards (ferns) of RBG Kew, D. Ford (*Calandrinia*) of Northeast Missouri State University and especially to G. Marticorena - the 'Flora Chilensis' project at Barrio Universidad, Concepcion, Chile for his general advice.

THE REGIONS OF CHILE. As usual in our field-notes, we indicate the locality starting with the name of the country, followed by regional subdivision(s). Chile, stretching from the Tropics to the Antarctic, is divided into twelve administrative divisions, running from North to South using Roman numerals, except for a large area around Santiago, the Region Metropolitana (abbreviated Reg. Metro.). The Roman numeral following Chile in the notes refers to the region. We are concerned with the following here; running from North to South, the full titles are as follows:

Region III : Region de Atacama	Region VII : Region del Maule
Region IV : Region de Coquimbo	Region VIII : Region del Bio Bio
Region V : Region de Valparaiso	Region IX : Region de la Araucania
Region Metropolitana de Santiago	Region X : Region de los Lagos
Region VI : Region del Libertador General Bernardo O'Higgins	

- 12648 ALSTROEMERIA AUREA Chile, VIII, Nuble, SW of Termas de Chillan. 1500 m. Open banks in *Nothofagus* woods. 9.3.91 (An outstanding population of this species at its northern limit, noted for its coppery reds and orange-scarlets, far removed from the yellows of the lake districts. Spectacular and hardy.) (15+ seeds) B
- 12497 ALSTROEMERIA PALLIDA Chile, Reg. Metro., W of Farellones. 2000 m. Steep, open stony slopes. 13.2.91 (Few alpine plants could rival the sumptuous spectacle provided by this endemic of the ranges to the SW of Aconcagua, at 1500 - 2800 m. Almost stemless umbels of deep to pale pink or white flowers.) (15+ seeds) D
- 12321 ALSTROEMERIA REVOLUTA Chile, VI, Cachapoal, Rio Cachapoal Valley W of Pangal. 950 m. Openings among scrub in sandy soil. 23.1.91 (A lower altitude species but worth trying outside if the *A. ligtu* group can be grown. Round, lilac-pink to purple umbels, not unlike a ball-headed *Allium*, on 1 m. high stems.) (20+ seeds) C
- 12455 ANEMONE MULTIFIDA Arg., Neuquen, Minas, W of San Martin de los Andes to Passo Hua Hum. 1000 m. Grassy openings among scrub. 3.2.91 (Clumps of cut, dark-green leaves with pale-yellow, cup-shaped flowers, which can be variable in size - not seen in flower here. Usually quite easily grown in the U.K.) (30+ seeds) B
- 12294 ARGYLIA ADSCENDENS Chile, Reg. Metro., Lagunillas, ENE of San Jose de Maipo. 2200-2300 m. In rock 'stripes' on open, stony slopes. 21.1.91 (Campsis-like heads of big trumpets in purple-tinged orange and apricot-yellow rise from mats of cut, grey leaves, running through the loose, igneous talus. About 20 cm.) (20+ seeds) C
- 12390 ARGYLIA SP. Arg., Mendoza, S of Ranquil del Norte. 1300 m. Open, level, sandy areas among scrub. 30.1.91 (Glaucous, 5-lobed, basal leaves and 60 cm. stems with up to 50, 4 cm. long trumpets of brilliant, orange-yellow. A gorgeous member of the *Bignoniaceae* from an area of cold steppe and severe climate.) (20+ seeds) D
- 12578 BLECHNUM CHILENSE Chile, VIII, SE of Antuco. 500 m. Dense scrub on steep sides of wet gully with *Gunnera* and *Escallonia*. 24.2.91 (A fine fern from the wet South. 1 m. long glossy, leathery fronds. Plenty spores) C
- 12482 CAJOPHORA CORONATA Chile, Reg. Metro., NE of Valle Nevado (E of Farellones). 3200 m. Among rocks at bases of igneous boulders and cliffs. 12.2.91 (One of the world's most incredible high-alpines, reaching 3500 m. on the desolate slopes around Aconcagua and Tupungato. Lush clumps of spiny, *Acanthus*-like leaves, around which flop out enormous, 5-ribbed lampshades, about 7 cm. across, of diaphanous white silk. The whole plant stings but is so spectacular that it is worth wearing gloves! A growable, long-lived perennial.) (30+ seeds) D
- CALANDRINIA is close to its fellow member of the *Portulacaceae*, the small N American genus, *Lewisia*, but it is much more diverse with possibly over 100 species. We list some of the perennial high altitude developments which should succeed with maximum sunlight, maximum drainage, minimum nutrition and minimum water, except in spring, to keep them perennial and in character. Temperature hardiness of these is not in question. For brief notes on the Sections of the genus relevant to those listed here, please see our July, 1991, list.
- 12387 CALANDRINIA ANDICOLA Arg., Mendoza, Malargue, pass between Valle de las Lenas & Valle Hermoso. 2350 m. Open stony areas along ridge-top. 29.1.91 (Sect. *Dianthoideae*. Woody based with small, narrow leaves and stems to 10 cm., usually less and decumbent, with sumptuous, large flowers of brilliant magenta silk.) (15+ seeds) E
- 12439 CALANDRINIA CAESPITOSA Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1900 m. Among igneous rocks on exposed, stony slopes. 2.2.91 (Sect. *Acaules*. Tight, armeria-like tufts of little, fleshy, narrow leaves and yellow flowers, suffused orange, up to 5 cm. across. An outstanding form here.) (15+ seeds) F
- 12416 CALANDRINIA COLCHAGUENSIS Arg., Neuquen, Norquin, S of Copahue. 2000 m. Open, level, stony alpine steppe, among volcanic debris. 1.2.91 (Sect. *Acaules*. A melt-water plant with mounded rosettes of dark green strap-shaped leaves and a succession of satiny, lilac and rose flowers. A lovely *Lewisia*-like plant.) (30+ seeds) E
- 12415 CALANDRINIA ? COLCHAGUENSIS Locality as above. 1.2.91 (Identified by Donna Ford from non-flowering material as *C. colchaguensis* and growing adjacent to the above but in a slightly different habitat and with no intergrades. Much shorter, narrower foliage than 12416, easily separable in the field.) (30+ seeds) E

PRICE CODE A : \$1.50 ; £1.00 ; DM3, - ; FF10. -	PRICE CODE D : \$4.00 ; £2.50 ; DM 7,50 ; FF25. -
B : \$2.50 ; £1.50 ; DM4,50 ; FF15. -	E : \$5.50 ; £3.50 ; DM10, - ; FF35. -
C : \$3.50 ; £2.00 ; DM6, - ; FF20. -	F : \$7.00 ; £4.50 ; DM13, - ; FF45. -

- 12377 CALANDRINIA GAYANA Arg., Mendoza, Malargue, Valle de las Lenas. 2700 m. Open, stony areas & slopes. 29.1.91 (Sect. Dianthoideae. Caespitose with greyish, glabrous, linear leaves. Intense rose flowers.) (30+ seeds) C
- 12340 CALANDRINIA PICTA Chile, Reg. Metro., Lagunillas, ENE of San Jose de Maipo. 2200 m. Steep, open, stony slopes and in talus. 25.1.91 (Sect. Andinae. Distinct and splendid and the sole member of its section here. Succulent, spatulate leaves in loose rosettes and decumbent, 10 cm. stems of large, silky flowers in bright violet-rose from buds enclosed in enlarged bracts, exotically mottled with purple-brown.) (15+ seeds) F
- 12342 CALANDRINIA SERICEA Chile, Reg. Metro., Lagunillas, ENE of San Jose de Maipo. 2200 m. Steep, open, stony slopes. 25.1.91 (Sect. Hirsutae. Tight hummocks or pads of silvery grey, downy foliage produce a generous succession of brilliant magenta flowers on short stems. Possibly the finest of its section.) (30+ seeds) E
- 12311 CALANDRINIA SPLENDENS Chile, Reg. Metro., above Rio Maipo valley, N of Banos Morales. 2500 m. Open, stony areas. 22.1.91 (Diffuse, woody stems with little, linear, glaucous leaves, not unlike the basal growth of *Penstemon pinifolius*, send up wiry, 10 cm. stems with 2-4 silky magenta flowers, over 3 cm. across) (15+ seeds) E
- 12310 CALANDRINIA UMBELLATA Chile, Reg. Metro., above Rio Maipo valley, N of Banos Morales. 2500 m. Open, gravelly areas. 22.1.91 (Sect. Hirsutae. Rosettes of hairy grey leaves and 10-15 cm. stems of deep ruby-magenta flowers. We do not know if this is the same as plants cultivated under this name. Perennial here.) (30+ seeds) B
- 12600 CALANDRINIA SP. Chile, IX, Cautin, Volcan Villarica, S of Pucon. 1500 m. Exposed slopes in loose, volcanic ash. 28.2.91 (Sect. Dianthoideae. Glabrous leaves. Glandular bracts. Not seen in flower.) (30+ seeds) C
- 12662 CALANDRINIA SP. Chile, VIII, Nuble, SW of Termas de Chillan. 1300 m. Open site in hard-packed, gravelly soil. 11.3.91 (Sect. Dianthoideae. A few cm. high with bright pink flowers. Rather distinct.) (30+ seeds) C
- 12488 CALCEOLARIA ARACHNOIDEA Chile, Reg. Metro., NE of Valle Nevado (E of Farellones). 3100 m. Among igneous rocks on steep slopes. 12.2.91 (Black-maroon bubbles on 20 cm. stems from tight, basal rosettes of white-felted leaves. A high alpine, easy enough if protected from too much wetness.) (100+ seeds) C
- 12378 CALCEOLARIA SP. Arg., Mendoza, Malargue, Valle de las Lenas. 2700 m. Igneous rock-fissures on and at base of cliffs. 29.1.91 (A promising, compact and floriferous, saxatile alpine. Not seen in flower.) (100+ seeds) D
- 12393 CALCEOLARIA SP. Arg., Neuquen, Norquin, E of Cavihue. 2100 m. Stony slopes, among igneous rocks. 31.1.91 (A 50 cm. high, summer-dormant plant with stout, basal rosettes. Worth trying in a bulb-frame?) (100+ seeds) C
- 12545 CALCEOLARIA SP. Chile, VIII, Nuble, NE of Termas de Chillan. 2100 m. SE-facing fissures on igneous rocks along exposed ridge-top. 21.2.91 (Very compact rosettes, running along crevices - at least two very fine alpine taxa are reported from this area but we were too late to see any in flower.) (100+ seeds) E
- 12591 CALCEOLARIA SP. Chile, IX, Cordillera de Nahuelbuta, W of Vegas Blancas. 1200 m. Deciduous woodland. 26.2.91 (60 cm. high, coast range, shade-lover with many, fine, wiry, branching stems.) (100+ seeds) C
- 12363 CASSIA ARNOTTIANA Arg., Mendoza, Malargue, ESE of Los Molles. 2000 m. Open stony areas in valley bottom. 29.1.91 (One of a very few members of the huge, tropical genus *Cassia*, which penetrates south into Patagonia - a dwarf shrub, only 15-50 cm. high, with upright stems, leathery, grey-green, pinnate leaves and up to 5 large, brilliant orange-yellow flowers in terminal racemes. The climate here is bleak - we arrived here in driving sleet on what would be the 29 July in the northern hemisphere - and it should be growable in cold climates. Seed collected by Harold Comber in 1925 germinated but we can find no further records.) (8 seeds) E
- 12332 CHEILANTHES SP. Chile, VII, Curico, Rio Teno Valley, ESE of Canton. 750 m. Crevices on vertical cliffs. 24.1.91 (A neat, more or less, summer-dormant fern, probably best attempted in the alpine-house. Spores.) D
- 12521 CRUCKSHANKSIA HYMENODON Chile, Reg. Metro., Lagunillas (ENE of San Jose de Maipo). 2300 m. Exposed, stony areas on steep, NW-facing slope. 18.2.91 (Rivals *Cajophora coronata* as 'the world's most incredible high alpine' but only when in flower. Prostrate basal growth of wedge-shaped, rather fleshy, grey leaves bursts into an extrovert display of heads of long-tubed flowers in bright orange-yellow, surrounded by a flaring skirt of violet-pink sepals - a colour combination out of an early Hollywood musical. Full sun and optimum drainage will certainly be required. Accolades await the first person to explode this on a show-bench.) (15+) F
- 12612 DESFONTAINEA SPINOSA Chile, X, Llanquihue, N of Ensenada. 1200 m. Openings in tree-line *Nothofagus* forest. 3.3.91 (A marvellous shrub for moist, temperate gardens. Glossy, evergreen holly-leaves and pendant, waxy, tubular bells of orange-scarlet tipped with yellow. A plant of shade & high humidity in the wild.) (20+ seeds) D
- 12606 EMBOTHRIMUM COCCINEUM Chile, X, Llanquihue, W of Ensenada, 200 m. In scrub & at margins of woodland. 1.3.91 (The famous Chilean Fire Bush with dense racemes of orange-scarlet tubes. More or less evergreen, it can reach 10 m. in the wild but is usually much less. Should be reasonably hardy from this area.) (20+ seeds) C
- 12577 FRANCOA SONCHIFOLIA Chile, VIII, Bio Bio, SE of Antuco. 500 m. Steep side of wet gully. 24.2.91 (Herbaceous member of the Saxifragaceae associated with Victorian conservatories but perfectly hardy in much of the U.K. Very variable - in this form with 60 cm. high wands of pink flowers and almost hairless leaves.) (100+ seeds) B
- 12611 FUCHSIA MAGELLANICA Chile, X, Llanquihue, N of Ensenada. 1200 m. Openings in tree-line *Nothofagus* forest. 3.3.91 (Another locally variable species. Profuse hanging, red and purple flowers on 1-2 m. high shrubs. Very hardy basally, regenerating if cut-back. Usually a plant of moist places in the wild.) (50+ seeds) B
- 12616 GAULTHERIA MYRSINOIDES - LILAC-PINK BERRIES Chile, X, Volcan Osorno, N of Ensenada. 1300 m. Open slopes in volcanic ash. 3.3.91 (We include *Pernettya* under *Gaultheria* in accordance with current opinions, which seem likely to be widely adopted. This is a member of the immensely variable group, cultivated under such names as *Pernettya prostrata*, *P. pentlandii*, *P. cilata*, etc. Prostrate, alpine, evergreen shrubs.) (50+ seeds) C
- 12617 GAULTHERIA MYRSINOIDES - ROSE-RED BERRIES Chile, X, Volcan Osorno. 1300 m. Habitat as above. (50+ seeds) C
- 12615 GAULTHERIA MYRSINOIDES - WHITE BERRIES Chile, X, Volcan Osorno. 1300 m. Habitat as above. (50+ seeds) C
- 12422 GAULTHERIA PUMILA var. LEUCOCARPA Arg., Neuquen, Norquin, lower slopes of Volcan Copahue. 2000 m. Among rocks on open, stony slopes. 1.2.91 (= *Pernettya leucocarpa*. Tiny procumbent, evergreen shrub, about 3 cm. high with pearly pinkish white flower clusters followed by white berries. A delight in a trough.) (30+ seeds) D
- 12554 GUNNERA CHILENSIS Chile, VIII, Nuble, SSW of Termas de Chillan. 1600 m. Wet slopes and streamsides in forest. 21.2.91 (A massive and spectacular foliage plant rising to almost 2 m. with enormous, lobed leaves on spiny stalks. Smaller than the Brazilian *G. manicata* and almost certainly hardier.) (100+ seeds) C
- 12610 GUNNERA ? MAGELLANICA Chile, X, Llanquihue, N of Ensenada. 1200 m. Margins of *Nothofagus* woodland at tree-line. 3.3.91 (At the complete opposite end of the size scale. A little, creeping plant a few cm. high with rounded, dark-green leaves and strawberry-like, scarlet fruiting heads. Moist but not wet here.) (15+ seeds) C

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- 12608 LIBERTIA CHILENSIS Chile, X, Llanquihue, W of Ensenada. 200 m. At base of cliffs in stony soil. 1.3.91 (A 50 cm. high member of the Iridaceae, much along the lines of the New Zealand members of this genus. Clumps of Iris-like basal foliage and rigid stems, up which the white flowers cluster.) (20+ seeds) C
- 12436 LOASA NANA Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1800 m. Among igneous rocks on exposed slopes. 2.2.91 (Mats of dissected, bluish grey-green leaves set with large, starry flowers of complex symmetry in lemon or orange-yellow with white centres. Reputedly does not sting!) (20+ seeds) E
- 12527 LOBELIA TUPA Chile, VI, Cachapoal, W of Coya. 900 m. Openings among scrub in sandy soil. 19.2.91 (One of the most regal Chilean endemics with spires, packed with hooded, scarlet flowers towering to 2.5 m. Almost all earlier collections were coastal; this from the Andean foothills may prove a little hardier.) (100+ seeds) D
- 12632 LOPHOSORIA QUADRIPINNATA Chile, X, Llanquihue, Rio Petrohue valley, NW of Ralun. 150 m. Steep, moist, shaded banks at forest margins. 4.3.91 (A majestic fern with finely cut fronds rising to 2 m. from a massive crown matted with golden-brown hairs. Omitted from our earlier list as we had lost the herbarium specimen and had no idea of the identity. The name is an informed guess by tree-fern enthusiast Martin Rickard. Should be at least as hardy as *Eucryphia cordifolia* and *Mitraria coccinea* from nearby woodland. A generous lot of spores.) C
- 12533 MATHUENIA POEPPIGII Chile, VIII, Nuble, SE of Recinto. 1000 m. Open, level site in volcanic ash. 20.2.91 (A member of the Cactaceae which should be acceptable in the alpine-house or, protected from winter wet, in a scree-bed, where it is reputed to flower better. Huge lemon-yellow flowers on wide, tight mats.) (20+ seeds) C
- 12495 MALESHERBIA LINEARIFOLIA Chile, Reg. Metro., W of Farellones. 2000 m. Open, stony slopes. 13.3.91 (In its own family, the Malesherbiaceae, and unlike anything familiar in gardens. A woody-based, herbaceous perennial about 60 cm. high, with somewhat Delphinium-like panicles of 'hose-in-hose' flowers in rich, dusky, blue-violets to red-violets. Alan King tells us he has grown and flowered this in the U.K. - "a beautiful plant". It should be attempted in full sun in a well-drained site - we assure you it is worth any effort.) (20+ seeds) D
- 12484 MBLOSPERMA ANDICOLA Chile, Reg. Metro., NE of Valle Nevado (E of Farellones). 3200 m. Exposed stony slope on summit ridge. 12.2.91 (Prostrate, radiating stems clothed in opposite, fleshy, blue-grey leaves with a succession of dark-veined, bell-shaped lilac flowers. A high-alpine member of the Scrophulariaceae (15+ seeds) E
- 12627 MITRARIA COCCINEA Chile, X, Llanquihue, Rio Petrohue valley, NW of Ralun. 150 m. On *Nothofagus* trunks in dense, humid forest. 4.3.91 (One of a trio of gorgeous Gesneriaceae from the Chilean temperate rain-forests. Brilliant scarlet, pendant, tubular flowers from evergreen, shrubby growth. Creeps or climbs.) (50+ seeds) D
- MUTISIA, the beautiful climbing daisies, is by no means an easy genus from which to collect seed but our efforts so far have been rewarding. All collections, including those from which there is no longer seed available, have germinated. A percentage came quickly in early summer but a second germination has been occurring with us in November into December, in an unheated greenhouse. Take great care in transplanting and try them with the best possible drainage in acid to neutral soil, with their heads in the sun and feet in shade, like *Clematis*. Names follow Cabrera's 1965 revision - some of the hardiest species are listed here.
- 12646 MUTISIA DECURRENS Chile, VIII, Nuble, SW of Termas de Chillan. 1500 m. Openings in *Nothofagus* forest, often in *Chusquea* thickets. 9.3.91 (Climbs to 3 m. with large flower-heads, about 12 cm. across and up to 15 ray-florets, like single dahlias in deep, glowing orange. In particularly fine form in this area.) (10+ seeds) E
- 12451 MUTISIA SPINOSA Arg., Neuquen, Minas, E of Lago Lolog. 1100 m. Among scrub in sandy soil. 3.2.91 (Climbs to about 6 m. with coarsely toothed, evergreen leaves and profuse large, pink flower-heads. Possibly the best species to try outside in the U.K. Plants grown under the name *M. retusa*, a synonym, belong here and it is likely most plants grown as *M. oligodon* (a non-climbing, suckering plant about 30 cm. high) are also this species - they certainly are if they climb! Still grown from the 1925-27 Comber collections.) (10+ seeds) D
- 12668 MUTISIA SUBULATA Chile, VI, Cachapoal, ESE of Machali. 1000 m. Among scrub on open slopes in gravelly soil. 13.3.91 (Most distinct, fine linear leaves clothe the thin zig-zag stems, which can climb to about 3 m. The flower-heads are about 8 cm. across and of brilliant scarlet. Barely tried in cultivation.) (10+ seeds) E
- 12561 MUTISIA SUBULATA Chile, VIII, Nuble, Rio Itate valley E of Quillon. 300 m. Among scrub on ridges of old river-sands and gravels. 23.2.91 (The few late flowers seen were not the usual scarlet but a deep rose-pink. The lowest altitude collection here and possibly best tried in a cold greenhouse in the U.K.) (10+ seeds) D
- 12485 NASTANTHUS ? AGGLOMERATUS Chile, Reg. Metro., NE of Valle Nevado (E of Farellones). 3200 m. Exposed, stony slope below summit ridge. 12.2.91 (Weird, high-alpine member of the Calyceraceae. Ground-hugging rosettes, about 10 cm. across, of toothed, glossy leaves with a cream cauliflower-head tight in the centre.) (20+ seeds) C
- 12494 OENOTHERA ACAULIS Chile, Reg. Metro., Farellones. 2300 m. Open stony slopes. 13.2.91 (Has been confused with the N American *O. caespitosa* - just as splendid and similar in its great, white, sometimes pink-tinted, flowers held on long tubes from deeply dissected basal foliage. From a high elevation for this.) (15+ seeds) C
- 12650 OURISIA MICROPHYLLA Chile, VIII, Nuble, SSW of Termas de Chillan. 1600 m. Shaded, apparently dryish, crevices on igneous cliffs. 10.3.91 (Perhaps the finest saxatile plant of the southern Andes. Mounds like a thready-stemmed, tiny-leaved version of *Cassiope lycopodioides* with profuse, soft-pink, primula-like flowers over a long period. Grow it in *Dionysia*-conditions in alpine-house or trough.) (100+ seeds) D
- 12435 OXALIS ADENOPHYLLA Argentina, Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1800 m. Steep, exposed slopes, among rocks or in loose talus. 2.2.91 (A magnificent alpine of established garden-value and growability. Very variable in colour from pale to intense rose-pink and even white here.) (20+ seeds) D
- 12490 OXALIS SP. Chile, Reg. Metro., SW of Valle Nevado (E of Farellones). 2900 m. Among igneous rocks on steep, open slopes. 12.2.91 (A brilliant and attractive little plant with small, slightly fleshy, bluish grey clover-leaves and profuse rosy carmine flowers. Usually about 5 cm. high but less in exposed places.) (20+ seeds) D
- 12522 PACHYLAENA ATRIPLICIFOLIA Chile, Reg. Metro., Lagunillas (ENE of San Jose de Maipo). 2300 m. Exposed, stony area on steep, NW-facing slope. 18.2.91 (A fascinating, rhizomatous perennial member of the Compositae, endemic to the high mountains of the Chilean-Argentinian border. Flat rosettes of big, smooth, bronze-tinted leaves with a white 'bloom' bear a cluster of almost stemless, apricot-coloured heads centrally.) (10+ seeds) E
- 12441 POLYSTICHUM MOHRIOIDES Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1900 m. Among igneous rocks on exposed slopes. 2.2.91 (A rather local and choice alpine fern with xerophytic inclinations, endemic to high altitudes in the Andes. Erect fronds about 10 cm. high. Alpine-house or trough.) D

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- 12334 PUYA CAERULEA Chile, VII, Curico, Rio Teno valley ESE of Canton. 750 m. Among rocks on steep slopes. 24.1.91 (Splendid member of the Bromeliaceae with rosettes of spiny leaves, about 60 cm. long, and 2 m. high red-stemmed inflorescences - dense panicles of tubular flowers in rich, deep blue.) (50+ seeds) D
- 12674 PUYA ? VENUSTA Chile, Reg. Metro., SE of San Jose de Maipo. 1000 m. Ledges on cliffs of igneous rock. 14.3.91 (Almost certainly this magnificent species with rose-pink flowers. Towers to 2-3 m. high) (50+ seeds) E
- 12669 PUYA SP. Chile, VI, ESE of Machali. 1000 m. Steep, open, rocky slope. 13.3.91 (Not seen in flower but possibly neither of the preceding and not the lower altitude yellow *P. chilensis*. About 2 m.) (50+ seeds) D
- 12444 RANUNCULUS SEMIVERTICILLATUS Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1900 m. Open slopes in loose, igneous talus. 2.2.91 (The only southern Andean *Ranunculus* for the connoisseur of alpine-plants and one of the finest plants of these, or any other, mountains. Dissected blue-grey leaves recall *Dicentra peregrina* but are even more finely cut. Large, white, purple-backed flowers open on 10 cm. stems, elongating in fruit. It has been grown but has yet to appear in its full perfection.) (10 seeds) F
- RHODOPHIALA species have all germinated well. These largely Chilean "Hippeastrum species" will we believe provide much new excitement and interest for bulb-growers in temperate areas. While these are often summer-flowering, like *Alstroemeria*, they are largely winter-growing, flowering at the end of their growing season. Treatment should parallel such northern hemisphere groups as the *Calochortus* or *Oncocyclus* Irises.
- 12584 RHODOPHIALA ? ADVENA Chile, VIII, Bio Bio, S of Canteras (E of Los Angeles). 400 m. Open level site in sandy soil. 24.2.91 (Flower remains reddish to yellow-red. About 30 cm. high in fruit.) (15+ seeds) D
- 12432 RHODOPHIALA ANDICOLA Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1800 m. Among rocks on exposed, stony slopes. 2.2.91 (Violet-pink, dark-throated, upward-facing flowers.) (10+ seeds) E
- 12419 RHODOPHIALA ARAUCANA Arg., Neuquen, Norquin, lower slopes of Volcan Copahue. 2000 m. Open, stony slopes. 1.2.91 (Obscure and seldom-collected. Nearest to *R. elwesii* but varies from reddish to yellow. Leaves often slightly twisted and falcate. Like the other alpine species, probably best grown with some water in autumn, just moist over winter, copious water in spring and a cool, dry rest in summer - these all have permanent, fleshy roots on the bulbs and 'baking' may be fatal. Soil temperatures will remain low in nature.) (10+ seeds) F
- 12450 RHODOPHIALA ELWESII Arg., Neuquen, Minas, E of Lago Lolog. 1100 m. Among low scrub in sandy soil. 3.2.91 (Exceptionally beautiful, 30 cm. high plant with soft-yellow flowers with wine-stained throats.) (10+ seeds) D
- 12597 RHODOPHIALA ? PRATENSIS Chile, IX, Malleco, Cordillera de Nahuelbuta, W of Vegas Blancas. 1200 m. Openings among scrub. 26.2.91 (Elegant, pale scarlet-flowered species, about 20 cm. high, which Prof. Grau suggests may be the "often wrongly interpreted *R. pratensis*." Possibly distinct from any grown as this.) (15+ seeds) E
- 12365 SCHIZANTHUS GRAHAMII Arg., Mendoza, Malargue, Valle de las Lenas. 2200 m. Steep, stony slopes. 29.1.91 (This and the following are the two members of this small genus of the Solanaceae, virtually confined to Chile, which have climbed to high elevations and acquired a perennial, even if short-lived, habit. Both have much-cut, glandular foliage and branching stems to about 50 cm. carrying successions of 'upside-down' butterfly flowers. These are among the most amazingly improbable and spectacular alpine - alpine-plants they certainly are! *S. grahamii*, a species of many aliases, including *S. gilliesii*, just infiltrates the border with Argentina here in the most violent colour form - shocking-pink and luminous orange.) (30+ seeds) C
- 12492 SCHIZANTHUS HOOKERI Chile, Reg. Metro., SW of Valle Nevado (E of Farellones). 2900 m. Rock-slides on steep slopes. 12.2.91 (Little less spectacular with lilac flowers with attenuated, flame-shaped upper lips of rich yellow grading into white, topped and tailed with the basic lilac. Try these outside in scree.) (30+ seeds) B
- 12431 SENECIO ARGYREUS Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1800 m. Exposed, stony slopes. 2.2.91 (A neat, upright shrub, about 30 cm. high, with narrow foliage and stems densely clothed in white felt. Rather fine, reputedly scented, soft-yellow daisies. Not difficult grown dry in sun.) C
- 12379 SENECIO GILLIESII Arg. Mendoza, Malargue, Valle de las Lenas. 2700 m. Open, level, gravelly areas. 29.1.91 (Upright, coarsely toothed, spatulate leaves covered in dense, white tomentum on both surfaces. More or less a compact, alpine version of *S. candicans* from sea-level in Tierra del Fuego and even more desirable.) D
- 12289 SISYRINCHIUM FILIFOLIUM subsp. JUNCEUM Chile, Reg. Metro., Lagunillas (ENE of San Jose de Maipo). 2200 m. Exposed, dryish slopes. 21.1.91 (A pretty, easily grown, summer-dormant species, about 20 cm. high, with a few linear leaves and up to 8 pendant bells, variable from white to pink, often veined purple.) (20+ seeds) B
- 12323 SOLENOMELUS PEDUNCULATUS Chile, VI, Rio Cachapoal valley W of Pangal. 950 m. Openings among scrub in sandy soil. 23.1.91 (Summer-dormant, rhizomatous *Sisyrrinchium*-relative with large, rounded, rich-yellow flowers from prominent spathe-bracts on 20 cm. stems. Should be growable in a bulb-frame in cold areas.) (20+ seeds) C
- 12307 SOLENOMELUS SISYRINCHIUM Chile, Reg. Metro., above Banos Morales. 2500 m. Open, stony slopes. 22.1.91 (Neat *Aphyllanthes*-like tuft of rush-like leaves. Fragile, short-lived flowers reputedly violet.) (20+ seeds) C
- 12437 TRISTAGMA ? NIVALE Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1800 m. Among loose igneous rocks on exposed slopes. 2.2.91 (High-alpine bulb belonging to the Alliaceae, with affinities to *Brodiaea*. Curled, fleshy leaves coil on the scree; flowers may vary from green to purple-black.) (15+ seeds) E
- 12337 TROPAEOLUM SESSILIFOLIUM Chile, Reg. Metro., Lagunillas (ENE of San Jose de Maipo). 2200 m. Along snow-melt gulleys (now dry) and in consolidated, sandy soils. 25.1.91 (Interest in the tuberous *Tropeolums* has been considerable and seed from all our other collections is now finished. We have reports of all germinating, except for *T. incisum* but this may need a longer cool period. Germination is irregular and is to be expected in autumn to spring. This is one of the smallest and may just be manageable in a deep pot. Erect or flopping branching stems with tiny leaves and white to pale lavender, grey & orange-centred flowers. 20 cm.) (8 seeds) E
- 12605 VIOLA ? MAGELLANICA Chile, Cautin, S of Pucon. 1200 m. Among stones in sparse *Nothofagus* forest. 28.2.91 (An excellent 'normal' stoloniferous violet with good yellow flowers on stems of about 8 cm.) (20+ seeds) C
- ROSULATE VIOLAS, on which we wrote at some length in our last list, are likely to undergo further taxonomic revision shortly. The following are all perennial with saxifrage-like rosettes of leathery leaves.
- 12405 VIOLA SP. Arg., Neuquen, Norquin, between Caviahue & Copahue. 2000 m. Among igneous rocks on loose, stony slopes. 31.1.91 (Flowers appear to be lilac-blue to cream. Forms wide hummocks in steppe country.) (10+ seeds) F
- 12434 VIOLA SP. Arg., Neuquen, Lacar, Cerro Chapelco above San Martin de los Andes. 1800 m. Exposed stony slopes. 2.2.91 (Possibly *V. dasyphylla* of Rossow's 'Flora Patagonica' account - white to lilac flowers.) (10+ seeds) F
- 12547 VIOLA SP. Chile, VIII, Nuble, NE of Termas de Chillan. 2000 m. Loose, volcanic ash on N & NE-facing slopes. 21.2.91 (Reputedly large-flowered here and variable from white to pink, violet and purple.) (10+ seeds) F

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SECTION I : SEEDS COLLECTED IN WESTERN NORTH AMERICA

While we have not been collecting seed in N America since 1989, we have been listing some collections made by John Andrews (Berkeley, California) over the past two seasons as a separate section. As we have a few items from others this time, we thought it simplest to list all the N American seed in alphabetical order. Only our own seed-bank collections carry a field number in the left-hand column. J. Andrews and other numbers will follow the name of the species. Almost all the seed-bank material germinated satisfactorily with us from November-January sowings in an unheated glass-house last season and we have no qualms about recommending it to you. A lot of these dry-climate species give about 50% germination the first season and this we found to be the case with those we sowed ourselves - we have quite a lot more seeds germinating at present from these 1990-91 sowings.

REFERENCE NUMBERS, as with the S American collections, are field-numbers and run in the order of collection. Packets of our collections will carry only these numbers and a check-list of the numbers in numerical order will be sent with seeds to facilitate identification. Seed from other collectors will carry the name & number on the packets.

NOMENCLATURE, where possible, follows the 'Intermountain Flora' but, as this is incomplete, a certain amount of editing has been done using Welsh's 'A Utah Flora', Dorm's 'Vascular Plants of Wyoming', etc. For Californian species, Munz 'A Californian Flora' has been used where there is no alternative, though it is now somewhat outdated.

- 11410 AQUILEGIA BARNEBYI Colorado, Rio Blanco Co., above Piceance Creek NW of Rio Blanco. 1980 m. Steep-sided gully in loose, fragmented shale. 19.7.89 (Extraordinary endemic of the oil-shale barrens of the Uinta Basin discovered by Ripley & Barneby in 1948. Tufts of glaucous basal leaves and downy, sticky, 50 cm. stems with pink and cream flowers. Germinated profusely with us in 1991 and has grown on vigorously.) (20+ seeds) E
- 11503 AQUILEGIA CAERULEA var. OCHROLEUCA Wyoming, Fremont Co., Wind River Mts. SW of Lander. 2500 m. Shaded areas among Populus. 29.7.89 (Beautiful white and creamy race which predominates to the West.) (20+ seeds) B
- 11390 AQUILEGIA ? ELEGANTULA X MICRANTHA Colorado, Montrose Co., Dolores River Canyon NW of Uravan. 1700 m. Sandstone detritus and crevices on steep, shaded slope. 14.7.89 (A very beautiful colony of 30-50 cm. high plants with branching stems of flowers in soft-yellow to cream with long apricot-orange spurs.) (20+ seeds) C
- 11451 AQUILEGIA LARAMIENSIS Wyoming, Albany Co., Laramie Mts., above Friend Creek. 2280 m. Granite fissures and ledges, often under overhangs. Cultivated seed ex hort D. Hoskins from our 1989 coll. - grown in isolation. (Isolated, Laramie Mts. endemic with pure-white flowers, from creamy buds, with short, incurved spurs. Our photograph of this at 3110 m. below the summit of Laramie Peak is in 'A Century of Alpines' p. 209(20+ seeds) E
- AQUILEGIA SCOPULORUM J. Andrews 91-110 : Utah, Garfield Co., Red Canyon. 2200 m. Limestone cliffs. 29.7.91 (Beautiful bluish leaves, similar to *A. jonesii*, but can be up to 40 cm. high and has flowers with long, straight spurs, usually wholly blue in this locality. A very elegant plant.) (20+ seeds) E
- ARCTOMECON HUMILLIS J. Andrews 91-117 : Utah, Washington Co., S of St. George. 930 m. Eroded gypsum hills. 4.5.91 (The only previous attempt at introducing this incredible species would seem to be that made in 1942 by Dwight Ripley, who described this as "one of the most startlingly beautiful plants in all Utah" with bristly rosettes of narrow, bright-blue leaves" producing as many as 70, huge, white poppies on erect, branching stems 10-25 cm. tall. Its limited habitat is being invaded by housing developments and eroded by "off-the-road" so-called "recreational" vehicles. This germinated very rapidly after sowing in 1991.) (20+ seeds) F
- ASTRAGALUS. This very large and very complex genus, for which Barneby lists 368 species for N America, has great potential for the skilled, specialist grower. So far, the most desirable horticulturally have not been proving easy to keep far less keep in character. Seed germination is not usually the problem. All we sowed last year came up rapidly but several took one breath of our damp Welsh air and departed. All listed here will require perfect drainage, full sun and as much free air about them as possible. They are not easy for the uninitiated to identify and where possible herbarium specimens have been checked by Dr. Barneby (det. RCB)
- 10687 ASTRAGALUS AMPHIOXYS (det. RCB) Utah, Washington Co., Pine Valley Mts., 1830 m. Gravelly clay slopes. 25.9.89 (Silvery tufts with purple-pink flowers, then reddish, silky pods, on short stems.) (15+ seeds) D
- 11735 ASTRAGALUS AUSTINAE Nevada, Washoe Co., SW of Mt. Rose. 3080 m. Exposed summit ridges. 29.8.89 (Very local high altitude endemic of a few Sierra Nevada summits. Silver-haired mats. Purple-veined flowers.) (10+ seeds) E
- ASTRAGALUS COCCINEUS J. Andrews 91-118 : California, Inyo Co., White Mts. near Toll House Springs. 1980 m. Loose, stony clay slopes. 23.6.91 (Unsurpassed in the brilliance of its elongated, glowing scarlet flowers set against white, woolly foliage and followed by amazing, white-velvet, horned pods. A small plant which was sown directly into tufa at Goteborg Botanical Garden is illustrated in 'A Century of Alpines'.) (10 seeds) F
- ASTRAGALUS LOANUS J. Andrews 91-119 : Utah, Sevier Co., E of Glenwood, King's Meadow Canyon. 1960 m. Loose, igneous gravels. 29.6.91 (Extremely compact narrow endemic near the next & *A. newberryi*. Silky, silver leaves. White lavender-tipped flowers followed by beaked pods, tinted red-purple & with long shiny hairs.) (10 seeds) F
- 10791 ASTRAGALUS MUSINIENSIS (det. RCB) Utah, Emery Co., Molen Reef SE of Moore. 2130 m. Stony clay on eroded shale hills. 2.6.89 (Distinct Central Utah endemic. Small tufts of grey-green leaves with 3 lanceolate leaflets. Pink & purple flowers followed by beautiful, big, downy, pinkish, papery pods.) (10+ seeds) F
- ASTRAGALUS ? NEWBERRYI J. Andrews 91-149 : Nevada, Storey Co., Geiger Pass. 2070 m. (Though rather far SW for this widely distributed species, seems to be it - large purple-pink flowers on downy cushions.) (10+ seeds) E
- 10588 ASTRAGALUS NEWBERRYI var. WATSONIANUS (det. RCB) Nevada, Nye Co., NE of Warm Springs. 1550 m. Gravelly and sandy clays. 22.5.89 (White-felted pads with exquisite pods, clothed in silver-white velvet.) (10+ seeds) E
- 11138 ASTRAGALUS PURSHII var. PINCTUS California, Modoc Co., Warner Mts., E of Davis Creek. 1750 m. Gravelly clay among sparse Artemisia. 20.6.89 (Low tufts of grey-white foliage and racemes of purple-pink flowers - has grown well and stayed quite compact here in poor conditions under glass.) (15+ seeds) D
- 10837 ASTRAGALUS THOMPSONAE (det. RCB) Colorado, Mesa Co., East Creek Canyon SW of Whitewater. 1800 m. Stony sandstone slopes with sparse Juniperus. 5.6.89 (A beautiful plant, more or less confined to the sandstones of the Colorado Plateau. Tufts of woolly white foliage and many-flowered racemes of purple-pink flowers on 10 cm. stems. Ovoid, densely white-hairy pods. In Sect. Mollissimi - most here are Sect. Argophylli.) (15+) D

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 C : \$3.50 ; £2.00 ; DM6, - ; FF20. - F : \$7.00 ; £4.50 ; DM13, - ; FF45. -

- ASTRAGALUS UNCIALIS J. Andrews 91-120 : Utah, Millard Co., N of Sevier Lake. 1460 m. Stony 'wash' leading into Sevier Lake (dry). 29.6.91 (Long thought to be limited to a small area near Currant, Nevada, it is now known the main population is here. Described by Rupert Barneby as "one of the most ornamental dwarf astragali" with "silvery 3-5 foliolate leaves" and "narrow, long and showy purple flowers which seem quite disproportionately large for the plant's diminutive stature." Certainly the first introduction.) (10 seeds) F
- 10903 ASTRAGALUS UTAHENSIS (det. RCB) Utah, Sevier Co., SE of Salina. 2000 m. Stony clay in openings among Quercus and Juniperus. 9.6.89 (Mats of white-felted leaves and short-stemmed racemes of brilliant carmine-purple flowers. Pods covered in dense, shaggy, shining, creamy-white hairs. Marcus Jones, pioneer of Utah botany, considered this the most beautiful flower in the state. May be one of the easiest to grow in the U.K. - we have well-budded plants from last season's sowing. Flowers very early in the spring.) (10+ seeds) E
- 9623 BOYKINIA JAMESII (Telesonix jamesii, if you wish to 'split' it) Colorado, El Paso Co., Pike's Peak near Elk Park. 4000 m. Crevices among granite boulders. 9.9.87 (Still giving good germination. The finest race of this splendid, saxatile alpine. Cherry-carmine flowers from tufts of sticky, toothed, rounded leaves, which turn to orange and red in autumn. Let it become pot-bound to induce flowering - no problem to grow.) (100+ seeds) E
- 11218 CALYPTRIDIDIUM UMBELLATUM (Spraguea umbellata) California, Ventura Co., Mt. Pinos. 2680 m. Open patches of granite grit. 27.6.89 (Neat, flat rosettes of leathery, dark-green, spoon-shaped leaves, which radiate prostrate stems with packed umbels of tiny rose-pink flowers. An Eriogonum-like Lewisia-relative.) (50+ seeds) B
- CAMPANULA SCABRELLA J. Andrews 90-13 : California, Trinity/Siskiyou Co., Mt. Eddy SW of Weed. 2500-2700 m. Loose igneous (? serpentine) talus on steep, summit slopes. 9.9.90 (An extremely local, high altitude species allied to C. shetleri and possibly the more distant C. piperi. Tufted, upright habit, 3-10 cm. high, with a characteristic rough pubescence, narrow leaves and starry, pale-blue flowers. Very desirable.) (50+ seeds) F
- 8920 CASTILLEJA CHROMOSA New Mexico, San Juan Co., NW of Aztec. 1900 m. Eroded clay hills. 4.7.87 (We only list this spectacular scarlet Desert Paintbrush, as we had lots of seedlings up from a direct sowing of this coll. in our bed under glass. One of them flowered for months last summer and all have made good tight basal growth to overwinter. What's the problem? We only tried this but we have plenty seed of the following. (30+ seeds) B
- 9437 CASTILLEJA INTEGRATA Colorado, Park Co., SW of Fairplay. 3100 m. Open stony steppe. 13.8.87 (Upright, 30 cm. grey-leaved stems with brilliant orange-scarlet spikes. One of the best montane species.) (50+ seeds) B
- 9465 CASTILLEJA OCCIDENTALIS Colorado, Park Co., Mosquito Range. 4300 m. Exposed slopes. 15.8.87 (Lemon-yellow bracts and purplish leaves and stems. 15 cm. Often grows isolated on 'rock-stripes'.) (30+ seeds) B
- 11606 DICENTRA CHRYSANTHA California, Mendocino/Lake Co., Hull Mt., NNE of Lake Pillsbury. 1880 m. open slopes in recently burned scrub. 19.8.89 (A Californian endemic and classic 'fire-follower' with long-lived seeds which may offer problems in activating germination. Stiff, erect stems rise to about 1 m. from a stout, perennial root. Blue-grey, dissected leaves and panicles of upward-facing, bright-yellow flowers.) (20+ seeds) C
- 11481 DOUGLASSIA MONTANA Wyoming, Sheridan Co., Big Horn Mts., Duncum Mt. 3300 m. Stony, windswept, summit area. 26.7.89 (Little clumps of rosettes with big, pink flowers. An exquisite N American Androsace.) (10+ seeds) E
- 10789 ENCELIOPSIS NUDICAULIS Utah, Emery Co., Molen Reef SE of Moore. 2130 m. Stony clay on eroded shale hills. 2.6.89 (Exquisite tufts of silver-white leaves alone justify its cultivation in any alpine-house. Huge, orange-gold daisies on erect, white, 10-30 cm. stems. A beautiful plant, refined and full of 'class', always limited to barren, exposed sites and unlikely to be easy. Seed has germinated well.) (15+ seeds) D
- EPILOBIUM OBCORDATUM J. Andrews 91-150 : California, Modoc Co., ridge above Pine Creek Basin. 2680 m. East-facing ridge top. 28.9.91 (Most widespread of a group of late-flowering alpiners, "really beautiful and gorgeous...a rare choice treasure" wrote Farrer. Stunning magenta satin flowers on running mats.) (10 seeds) C
- EPILOBIUM OBCORDATUM subsp. SISKIYOUENSE J. Andrews 90-24 : California, Trinity Co., Mt. Eddy. 2630 m. Scree (This is more caespitose with a suffrutescent base and is closer to E. rigidum than the above.) (10 seeds) F
- ERIOGONUM CAESPITOSUM J. Andrews 90-28 : Oregon, Harney Co., Steens Mts. 2950 m. 2.9.90 (One of the most desirable dwarf species with compact mats of little, spatulate, white-felted leaves and clustered, yellow heads flushing to red, often opening almost stemless on the cushions ; later on 5 cm. stems.) (15+ seeds) D
- ERIOGONUM CAESPITOSUM J. Andrews 90-29 : California, Mono Co., White Mts. 2300 m. Open, stony limestone slopes. 23.6.90 (The species can usually be grown without great trouble in the alpine-house.) (15+ seeds) D
- ERIOGONUM DOUGLASSII J. Andrews 91-127 : California, Modoc Co., Warner Mts., above Pine Creek Basin. 2670 m. (Close to the above but with bracts on the 4-10 cm. long flower-stems. Hard, white mats about 30 cm. across and yellow heads, flushing red, over 3 cm. across. Not the plant illustrated as this in ARGS Bull.) (15+ seeds) D
- 11718 ERIOGONUM GRACILLIPES California, Mono Co., White Mts., Sheep Mt. 3500 m. Exposed, stony slopes. 28.8.89 (White Mts. endemic forming pads of grey-felted rosettes with short-stemmed heads of pink flowers maturing through rose to rusty shades. Germinated well but is not at all easy to maintain.) (15+ seeds) F
- ERIOGONUM KELLOGGII J. Andrews 91-128 : California, Mendocino Co., Red Mt. 1180 m. Rocky slopes & screes. (Only known from Red Mt., this forms large, dense, flat, woolly mats with 5 cm. stems carrying heads of pink flowers flushing with orange as they age. Virtually untried in cultivation, like most here.) (15+ seeds) E
- 11697 ERIOGONUM KENNEDYI California, Ventura Co., Mt. Pinos. 2680 m. Exposed patches of granite grit in summit area. 27.8.89 (Perhaps the most compact of all in the wild, forming wide, hard, silvery-white mats with almost stemless, pinkish heads maturing to rust red. Not nearly so tight in cultivation with us but still remaining more compact than any other and not proving at all difficult to grow under glass.) (15+ seeds) F
- 11604 ERIOGONUM LOBBII California, Mendocino Co., Hull Mt. 2030 m. Loose talus on steep slopes. 19.8.89 (Most distinct from others here. Flat rosettes of rounded, grey leaves send out one or two prostrate stems to 15 cm. with big, round, umbels of pink flowers maturing to rose and apricot shades.) (15+ seeds) D
- ERIOGONUM OVALIFOLIUM J. Andrews 90-31 : Oregon, Harney Co., Steens Mts. 2800 m. 2.9.90 (Some good pinks here - this wholly desirable group is complex and intergrading ; all here are distinct & desirable.) (15+ seeds) D
- 11780 ERIOGONUM OVALIFOLIUM (E. eximium, if you wish) Nevada, Washoe Co., S of Mt. Rose. 2680 m. 16.8.89 (Rather loose growing with quite large rosettes but the leaves are superb - purest white - and the large flower-heads are silvery buff. This and the next are staying very much in character with us.) (10+ seeds) D
- 11740 ERIOGONUM OVALIFOLIUM (E. rhodanthum, if you wish) Nevada, Washoe Co., SW of Mt. Rose. 3150 m. 29.8.89 (Extremely fine, high altitude race of the sort which can be aggregated under E. o. var. nivale. Little pads of tiny, round, grey leaves and short-stemmed flower-heads of a good rose-pink. A gem.) (10+ seeds) E

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 C : \$3.50 ; £2.00 ; DM6, - ; FF20. - F : \$7.00 ; £4.50 ; DM13, - ; FF45. -

- ERIOGONUM SHOCKLEYI J. Andrews 91-123 : Nevada, Nye Co., Grant Range, Ox Spring Wash below Cherry Creek Summit. 1660 m. 30.6.91 (One of the pulvinate-caespitose members of Sect. Capitata (*E. gracilipes*, *E. kennedyi* etc. are also in this). Mounds of tiny, white-felted leaves and almost stemless, cream heads, maturing to apricot and rust shades. Uncleaned seed but John has dissected some out and says there is plenty in it.) E
- ERIOGONUM SISKIYOUENSE J. Andrews 90-36 : California, Trinity Co., Mt. Eddy, ridge at Parks Creek trailhead. 2070 m. 9.9.90 (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 and yellow heads.) D
- ERIOGONUM SOREDIUM J. Andrews 91-138 : Utah, Beaver Co., Frisco (WNW of Milford). 2010 m. Limestone slopes. 28.7.91 (Densely pulvinate, forming firm, woolly, grey-white mounds up to 50 cm. across with almost stemless heads of white, sometimes pink-flushed, flowers. We mistakenly thought we had collected this in 1987 (9019) in the adjacent Wah Wah Mts. but this proved to be a form of variable *E. shockleyi*. Only known from above the ghost-town of Frisco, this is a fitting end to a list including most of the best dwarf westerners)(15+ seeds) F
- ERITRICHIMUM HOWARDII H. Zetterlund 91-200 : Wyoming, Park Co., Dead Indian Pass NW of Cody. 2800 m. Limestone gravel patches and rock-fissures. A 1991 coll. from the same site as our 1989 coll. (11491) (This is absolutely distinct from the *E. nanum* group and to our mind more beautiful and certainly more growable. Of course it needs perfect drainage, protection from winter wetness and careful cultivation but it can be maintained in character and induced to set seed in cultivation. In Europe it will be best plumed outside in summer - this is a plant of cold, northern steppe. Silver rosettes packed into dense cushions, up to 10 cm. across, which cover themselves with purest blue, forget-me-not flowers on 5 cm. stems.) (15+ seeds) F
- 11785 FREMONTODENDRON CALIFORNICUM California, Shasta Co., S of Shingletown. c. 1000 m. Coll. W. Roderick, 19.7.89 (We have a few seeds left of this coll. from what is probably the most northern locality for this marvellous shrub. More or less evergreen, 3-lobed leaves and wide-open, rich-yellow, saucer-shaped flowers.) (15 seeds) C
- FRITILLARIA PURDYI California, Napa Co., Mt. St. Helena. 1991 cultivated seed from a 1986 coll. by John Andrews. (Endemic to the serpentines of the Coast Ranges. White bells marked with purple. A few.) (15 seeds) E
- 11371 GALLARDIA SPATHULATA Utah, Emery Co., SE of Moore. 1980 m. Stony clay in saline-desert scrub. 10.7.89 (A sweet little dwarf species, endemic to E central Utah around the San Rafael Swell. Thick, grey-green, basal leaves and big daisies with notched, pale yellow rays on stems of only 10-15 cm.) D
- GILIA STENOETHYRSA J. Andrews 91-144 : Utah, Emery Co., Molen Reef, SE of Moore. 1860 m. 29.6.91 (If Farrer had travelled through Utah, he might well have enthused over this instead of *Saxifraga florulenta*. This is a monocarpic plant of similar qualities : very local (restricted to 'barrens' around the Uinta Basin) and with exquisite basal rosettes - overlapping, beautifully cut, flat, grey-felt leaves - from which rises a 30 cm. cylindrical flower-spike in white to pale lavender-blue. To be cosseted in the alpine-house.) (15+ seeds) E
- 11610 HACKELIA CALIFORNICA California, Trinity Co., Lassics Lookout Road above Zenia. 1630 m. Stony openings in coniferous woodland on serpentine. 20.8.89 (An eye-catching, herbaceous perennial member of the Boraginaceae about 50 cm. high from a stout, woody crown. Widely branched panicles of large, pure-white, forget-me-not flowers. Germinated well with us last season and is progressing slowly and steadily. Poor dry soil(10+ seeds) C
- 11422 HYMENOXYIS GRANDIFLORA Wyoming, Albany Co., Medicine Bow Mts., Snowy Range. 3600 m. Open stony slopes and in alpine-turf. 20.7.89 (Surely one of the most stunning of all alpine - enormous golden sunflowers on short, woolly stems from tufts of cut, grey leaves. Has been very successfully grown in the U.K. from time to time.) B
- 11618 KECKIELLA CORYMBOSA (*Penstemon corymbosus*) California, Humboldt Co., SE of Kneeland. 660 m. Fissures and ledges on cliffs. 20.8.89 (N Californian endemic, justifiably split from *Penstemon*, forming shrubby mats with leathery, small, evergreen leaves and corymbs of soft-scarlet flowers on thready stems. This has lived up to our expectations in our greenhouse. Sown direct into a dry-stone wall, it remains prostrate.) (50+ seeds) D
- LEPIDIUM NANUM J. Andrews 91-109 : Nevada, White Pine Co., Hamilton Road W of Ely. 2060 m. 28.6.91 (The classic Great Basin endemic - "its hummocks look like those of some extra-tight *Dionysia*, of a peculiarly intense shade of sap-green, and when in flower they are almost concealed by the profusion of its small, parchment-coloured corollas...this is the *Draba* to end all *Drabas*..." writes Dwight Ripley in 1944.) (20+ seeds) F
- LEPTODACTYLON CAESPITOSUM J. Andrews 91-114 : Nevada, Eureka Co., W of Eureka. 1890 m. 27.7.91 (Another classic cushion-plant, local on barrens from here to Nebraska, it grows with *Lepidium* and is about as tight. Bristly, hard-packed, brownish-green mounds in which the little cream flowers hide. Polemoniaceae)(15+ seeds) D
- LILIUM RUBESCENS California, Humboldt Co. A few seeds of this Coast Range endemic, coll. by Nancy Wilson. A dry-grower with purple-dotted trumpets, opening white and suffusing to wine. (15+ seeds) D
- 11350 LUPINUS LEPIDUS var. UTAHENSIS Utah, Garfield Co., Aquarius Plateau NNW of Escalante. 3000 m. Exposed alpine steppe. 8.7.89 (A very tight form of this dwarf, caespitose species. Silky, grey-green, basal leaves radiate from the stemless raceme packed with many flowers - blue keels and white banners.) (10+ seeds) F
- MAURANDYA PETROPHILLA California, Inyo Co., Grapevine Mts., above Titus Canyon. 1100 m. Fissures & under overhangs on N & NE-facing limestone cliffs. 22.6.91 : J. Andrews 91-122 ("...the undisputed queen of all *Antirrhinae*", "the most extreme development of the genus", wrote Dwight Ripley in 1942. Flowers "peer from the stiff rosettes like sumptuous primroses - primroses just opening with the flowers still a little crumpled, of a serene and candid yellow." Never before collected - try it with *Dionysia* treatment.) (10+ seeds) F
- 11589 MIMULUS BIFIDUS California, Sierra Co., E of Downieville. 1200 m. Steep, granite slopes. 13.8.89 (Will still germinate rapidly like cress. The dwarfest & highest-growing of the shrubby group, which can be separated as *Diplacus*. Low, mounded shrubs, about 60 cm. high, with narrow, sticky, dark-green leaves, covered with notched flowers in a beautiful apricot-cream shade. See Section III for taller, more tender ones.) (50+ seeds) C
- 11565 MIMULUS LEWISII Idaho, Custer Co., below Galena Summit. 2450 m. Wet areas by stream. 8.8.89 (The luminous cherry-carmine, eastern form of this spectacular, 60 cm., herbaceous perennial. Hardy anywhere.) (100+ seeds) C
- 10753 MIRABILIS MULTIFLORA Utah, Washington Co., Beaver Dam Mts., SW of Shivwits. 1200 m. Open stony slopes. 30.5.89 (Spectacular, herbaceous perennial for a hot, dry site. Decumbent, leafy stems bear a succession of large, funnel-shaped, brilliant magenta flowers. Like many desert plants, can be slow to germinate.) (8 seeds) B
- 11514 OENOTHERA CAESPITOSA var. MACROGLOTTIS Utah, Rich Co., WSW of Woodruff. 2400 m. S-facing clay banks and loose shale slopes. 1.8.89 (A good vigorous phase of this superlative, widespread & variable species. Huge, bowl-shaped, white flowers, flush pink with age, on long tubes from low, toothed rosettes.) (15+ seeds) C

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C	:	\$3.50	;	£2.00	;	DM6, -	;	FF20. -		F	:	\$7.00	;	£4.50	;	DM13, -	;	FF45. -

- 11577 OENOTHERA TANACETIFOLIA California, Plumas Co., SE of Beckwourth. 1500 m. Clay in openings among Artemisia. 11.8.89 (Another very fine, stemless plant with flat rosettes of downy, pinnatifid leaves and a profusion of brilliant yellow flowers over a long period, from snow-melt into summer. Recommended!) (20+ seeds) C
- OXYTROPIS OREOPHILA var. JUNIPERINA Nevada, Eureka Co., W of Eureka. 1870 m. Eroded banks of calcareous clay 29.6.91 : J. Andrews 91-121 (Superb pulvinate species, summed up by Dwight Ripley as "one of the smallest of its race, densely caespitose and clothed all over in shaggy silver hair, each plant covered with hundreds of violet pea-flowers..." These are followed by inflated pods, usually eaten out by local rodents!) (8 seeds) F
- PENSTEMON While we have chosen a wide range of worthwhile species from our seed-bank and have some fine new collections from John Andrews, we have not the space to give you so much information on this magnificent genus as we did in our 1987 and 1989 lists. There is a good, introductory, selective review of the genus by Panayoti Kelaidis in the recently published "A Century of Alpines". A lot of plants from our earlier collections are now widely tried and established in the U.K. and elsewhere. Obviously some have been the most successful in areas such as SE Australia but it has been most encouraging to see how well many have settled to the British climate. A lot of Sect. Caespitosi have done very well in scree-beds or the alpine-house in the U.K. ; further selection of clones suited to the local climate and vegetative propagation of these will be worthwhile. We sowed a rather arbitrary selection in our greenhouse beds last winter. We shall try to grow them dry and slowly. Except for the recalcitrant P. leonardii (others have been successful with this) all came up to varying degrees - a solid mass of P. heterophyllus but only two P. laricifolius exilifolius. It made no difference whether seed was 1987 or 1989 vintage. We were interested in comments by Gwen Kelaidis in Winter 1991 "Bulletin of the American Penstemon Society" - Gwen writes of generally poor germination of 4-5 month old seed but that 12 year old seed of P. rubicundus and 10 year old seed of P. grahamii both gave excellent germination. Gwen's comments accompany an interesting report on experiments with Penstemon germination by Norman Deno. Norm was able to divide the genus into 4 groups, according to germination requirements. His work was less help to us at present than it may appear, as almost all we list are low-temperature germinators (50°C/40°F was the temperature he used). P. hallii, P. angustifolius and all Sect. Erianthera (=Subgen. Dasanthera) may be better at higher temperatures (20°C/70°F was what Norm used). There is not much help with the irregular and unpredictable Sect. Caespitosi - they emerge as irregular and unpredictable - and the real problem P. leonardii was not considered. One last unrelated comment - it seems the famous Penstemon-blue is produced on alkaline soils, just the opposite to Hydrangea and Meconopsis. Best with a pH above 7.5. Names and classification into Sections generally follows Holmgren (as in his 'Intermountain Flora' account.).
- PENSTEMON ABILETINUS J. Andrews 91-113 : Utah, Sevier Co., E of Salina. 2100 m. 28.7.91 (Sect. Caespitosi. A distinct, dwarf, shrubby endemic, about 15 cm. high, from juniper-oak-sagebrush associations in this part of the Fish Lake Plateau, usually on limestone-derived soils. Heathlike with erect stems clad in narrow, linear leaves and rich, clear blue flowers with yellow-bearded palates. Barely known in gardens.) (15+ seeds) E
- 11438 PENSTEMON ANGUSTIFOLIUS Wyoming, Platte Co., SW of Wheatland. 1830 m. Open sites in stony clay with sparse grasses. 21.7.89 (Sect. Coerulei. A very beautiful plant of the northern Great Plains with channelled blue-grey leaves and 20 cm. stems of pale blue flowers - "not even in Omphalodes is there any matching the tender yet assured magnificence of the pale azures..." wrote Farrer.) (20+ seeds) C
- PENSTEMON BRACTEATUS J. Andrews 91-116 : Utah, Garfield Co., Red Canyon. 2220 m. Limestone rock-slides. 29.7.91 (Sect. Coerulei. As far as its habit is concerned, this is to us the creme de la creme of the genus - and we have never seen it in flower ; Dwight Ripley, who had, rated it as possibly the best of all the dwarf species. It is only just around in cultivation in the U.S.A. & U.K. from our 1987 coll. (we could get no seed at all in 1989) ; John has managed a reasonable amount - but not a lot! 5 cm. high heads of blue flowers on rosettes of fleshy, blue-grey leaves from subterranean stems threading through the pink limestone scree. This has to be grown as a pan-plant or perhaps in a trough or scree-bed.) (8 seeds) F
- 11190 PENSTEMON CENIRANTHIFOLIUS California, Ventura Co., Lockwood Valley Road. 1220 m. Open 'flats' in sandy clay with sparse Pimus. 26.6.89 (Spatulate, blue-grey basal leaves. 60 cm. stems hang out long, tubular flowers of glowing scarlet. The stunning western counterpart of P. utahensis, it has grown rather more happily under glass with us than its eastern cousin and looks as if it may flower well later.) (30+ seeds)
- 11395 PENSTEMON CRANDALLII Colorado, Montrose Co., Uncompahgre Plateau, Columbine Pass. 2900 m. Thin gravelly soil in fissures & pockets on flat sandstone slabs. 15.7.89 (Sect. Caespitosi. Prostrate, shrubby mats with somewhat ascending flower stems. Lavender to blue flowers with yellow palates and staminodes.) (20+ seeds) E
- 11380 PENSTEMON CRANDALLII var. ATRATUS Utah, Grand Co., La Sal Mts, ESE of Moab. 2590 m. Open gravelly areas among Juniperus & Artemisia. 13.7.89 (Completely prostrate, mat-forming La Sals endemic with little obovate leaves. This and the above are perfectly distinct from more eastern & southern forms in gardens.) (15+ seeds) E
- 11517 PENSTEMON CYANANTHUS Utah, Weber Co., Wasatch Ridge WSW of Woodruff. 3100 m. Meadows & openings in mixed woodland. 1.8.89 (The most glorious wildflower of the Wasatch. Stout 80 cm. high stems ringed with dense verticillasters of big, rich gentian-blue flowers provide an unrivalled spectacle. Sect. Glabri.) (30+ seeds) C
- PENSTEMON DAVIDSONII J. Andrews 91-142 : California, Modoc Co., Warren Peak. 2760 m. Volcanic-scrub slopes. 28.9.91 (Sect. Erianthera. Creeping, mat-forming high-alpine. Little rounded, leathery leaves and ascending, blue-violet flowers with the woolly white anthers typical of this section. Quite growable.) (15+ seeds) C
- 9086 PENSTEMON DUCHESNENSIS Utah, Duchesne Co., E of Duchesne. 1900 m. Stony slopes among sparse steppe plants. 14.7.87 (Sect. Cristati. Very local & "much showier" version of P. dolius and the tiniest of its section. We could get no seed in 1989 but this germinated well with us last season and the plants have stayed very much in character. Little, flat, greyish rosettes with cymes of blue to blue-purple flowers.) (20+ seeds) E
- 10812 PENSTEMON EATONII Utah, San Juan Co., above Bluff. 1550 m. Steep, stony, sandstone slopes. 3.6.89 (A most spectacular plant with 1 m. stems of brilliant scarlet flowers. Sect. Elmigera.) (30+ seeds) B
- 11722 PENSTEMON FLORIDUS California, Inyo Co., White Mts., SW of Westgard Pass. 2070 m. Loose stony slopes and gulleys. 28.8.89 (Another tall, showy perennial, near P. palmeri with glaucous, toothed foliage and 1.2 m. stems of pouting, deep rose-pink flowers. The type-race intergrades with var. austinii here.) (20+ seeds) C
- 9090 PENSTEMON GOODRICHII Utah, Uintah Co., E of Tridell. 1700 m. Sandy clay and pebble ridges with sparse Juniperus. 14.7.87 (no seed set in 1989)(Sect. Cristati. Very local, recently described species with pale blue to lavender-blue flowers - regular not two-lipped as in almost all others. 20-30 cm. tall.) (20+ seeds) D
- 11550 PENSTEMON FRUTICOSUS Idaho, Custer Co., N of Sunbeam. 1890 m. Loose detritus & ledges on granite outcrop. 6.8.89 (Sect. Erianthera. An entire-leaved, glabrous form, with glossy, leathery leaves, of this variable, erect, shrubby species, about 30 cm. high with lavender-blue flowers. Usually quite easy in U.K.) (30+ seeds) B

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- 9461 PENSTEMON HALLII Colorado, Park Co., below Mt. Sherman. 3800 m. Loose stony banks in coniferous forest zone. (Splendid native of the mountains around the Continental Divide. Rosettes of narrow, smooth leaves and 15 cm. stems of luminous red-violet flowers, accurately reproduced in "Rocky Mountain Alpines" Plate 13.) (30+ seeds) B
- 11676 PENSTEMON HETEROPHYLLUS California, Lake Co., above Grizzly Crk., 500 m. Open rocky slopes. 23.8.89 (Sect. Saccanthera. Woody-based, erect 50 cm. stems and flowers of soft lavender-blue, shading to rose basally - "one of the loveliest of all" writes Farrer, "trumpets of opalescent loveliness".) (30+ seeds) B
- PENSTEMON HUMILIS Nevada, White Pine Co., near Hamilton Road W of Ely. 2020 m. Limestone slopes. 29.7.91 J. Andrews 91-111. (Sect. Penstemon. Rooting prostrate mats and 12 cm. stems of deep violet-blue.) (30+ seeds) B
- PENSTEMON JANISHIAE J. Andrews 91-108 : Nevada, Eureka Co., W of Eureka. 1900 m. Low, eroded limestone hills 29.7.91 (Sect. Cristati. Superb endemic of the W Great Basin which may prove the best of its section in gardens, remaining dwarfier than the closely related *P. grahamii*, according to Panayoti Kelaidis. We could get only a little seed in 1987 and almost none in 1989. About 15 cm. high, grey-leaved and with erect stems of big, ascending violet-pink flowers marked red-violet with cream-bearded palates and striking, prominent staminodes covered in orange wool projecting from the gaping mouths. Grows with *Lepidium nanum*.) (10+ seeds) E
- 11701 PENSTEMON LABROSUS California, Kern Co., E of Mt. Pinos. 2250 m. Open slopes among Pinus in granite grit. 27.8.89 (Sect. Elmigera. SW Californian version of the more eastern *P. barbatus* but a dwarfier, 50 cm., plant from higher altitudes. Narrow, glossy-green leaves. Orange-scarlet flowers with swept-back lips.) (20+ seeds) C
- 11496 PENSTEMON LARICIFOLIUS Wyoming, Hot Springs Co., Wind River Canyon. 1500 m. Fissures on limestone cliffs. 28.7.89 (Sect. Laricifolii. Unlike any other. Basal rosettes like tufts of larch-foliage. Branching, wiry stems, 3-15 cm. high, with a succession of salmon-pink flowers. Perhaps our own favourite.) (20+ seeds) D
- 11515 PENSTEMON LEONARDII Utah, Weber Co., Wasatch Ridge WSW of Woodruff. 3100 m. Open, stony slopes. 1.8.89 (Sect. Saccanthera. Massed rich gentian-blue flowers on low, neat shrubby growth, 15 cm. high. One of the best dwarfier species but not easy to germinate - may need a very cold period - we'll send plenty seed to try) D
- 11387 PENSTEMON LINARIOIDES Colorado, San Miguel Co., SW of Slick Rock. 2150 m. Open gravelly 'flats' with *Artemisia*. 14.7.89 (Sect. Caespitosi. Tidy shrublets with narrow, grey, aethionema-like foliage and 15 cm. stems with up to 30 flowers of soft lilac-blue with white throats. Does not quite 'key-out' as this; unlike any other listed. Has germinated & grown better with us than any other of Sect. Caespitosi.) (20+ seeds) D
- 10834 PENSTEMON MOFFATTII Colorado, Mesa Co., Gateway. 1600 m. Steep clay slopes on full sun. 5.6.89 (Sect. Cristati (Little-known, 20 cm., Colorado Plateau endemic. Early flowering lavender-blue. Sticky leaves.) (20+ seeds) D
- 8800 PENSTEMON MUCRONATUS Utah, Daggett Co., S of Manila. 2250 m. Eroded, stony, clay slopes. 25.6.87 (none set in 1989) (Sect. Coerulei. Has produced the most beautiful foliage of any we germinated in 1991 and stayed very compact & slow-growing. Fleshy, blue-grey leaves and pale lavender-blue flowers, streaked red.) (20+ seeds) C
- 11558 PENSTEMON MONTANUS Idaho, Custer Co., above Jim Creek to Railroad Ridge. 2590 m. Loose igneous talus on steep slope. 7.8.89 (Sect. Erianthera. A distinct plant of high altitude screes. Decumbent stems form loose mats of toothed greyish leaves with large pale lavender flowers with very woolly, white anthers.) (30+ seeds) C
- 11798 PENSTEMON NEWBERRYI subsp. SONOMENSIS California, Mendocino Co., Hull Mt. NNE of Lake Pillsbury. 2040 m. Exposed rock-fissures. 19.8.89 (Deep carmine-purple race endemic to the peaks of the Coast Range - most distinct from the rose-red type-race known in gardens. Glaucous-leaved mats. 10-15 cm. stems.) (30+ seeds) D
- PENSTEMON PALMERI J. Andrews 90-60 : Nevada, White Pine Co., Pole Canyon below Mt. Washington. 2300 m. (Sect. Spectabiles. Woody based clumps of blue-grey toothed leaves. 2 m. wands of huge, pink flowers, marked inside with wine-red and with yellow-bearded staminodes. Unrivalled in size and visual impact.) (30+ seeds) B
- 11598 PENSTEMON PURPUSII California, Mendocino Co., Hull Mt. 2040 m. Open, stony areas. 19.8.89 (Sect. Saccanthera. Only known from high altitudes in the Coast Ranges, a magnificent dwarf species we have never seen mentioned in cultivation in Europe. Germinated well with us in 1991 and so far remains entirely in character. Woody, decumbent stems; ash-grey, rounded foliage; big, baggy flowers in luminous imperial purple.) (20+ seeds) E
- 11725 PENSTEMON ROSTRIFLORUS California, Mono Co., Virginia Lakes Road S of Bridgeport. 2740 m. Open, gravelly banks. 28.8.89 (Sect. Bridgesiani. The only member of its section. A low, shrubby base with narrow, leathery leaves and 50 cm. stems of scarlet flowers, rather like *P. barbatus*. Seldom seen but it must be hardy.) (20+) C
- PENSTEMON SCAPOIDES J. Andrews 90-61 : California, Inyo Co., White Mts. 2300-2540 m. Rocky limestone slopes usually E to NE-facing. 11.8.90 (Sect. Saccanthera. Distinct & desirable White Mts. endemic. Tight basal mats downy grey foliage, usually distinctly folded, send up delicate, glaucous stems to about 20 cm. with tubular, pubescent, blue-purple to pale-lavender flowers with white throats & yellow-bearded staminodes.) (20+ seeds) E
- PENSTEMON SPECIOSUS California, Modoc Co., Warren Peak. 2800 m. 28.9.91 : J. Andrews 91-143 (Sect. Glabri. From the very dwarf, high altitude race, which can be segregated as subsp. *kennedyi*. Usually well under 30 cm with heads of very large, white-throated, deep blue flowers, shading to violet at the bases.) (20+ seeds) C
- 11510 PENSTEMON STRICTUS Wyoming, Fremont Co., above Louis Lake NE of Atlantic City. 2800 m. Open banks in granite grit. 29.7.89 (Splendid, one-sided spires of rich-blue flowers. Woolly white anthers. Sect. Glabri.) (20+) B
- 11853 PENSTEMON TRACEYI California, Trinity Co., Packers Peak W of Coffee Creek. 2090 m. NE-facing igneous rock-crevices. Coll. 17.9.89 by J. Andrews (Only known from one or two mountains in the Trinity Alps and like no other - in a section of its own. A very dwarf shrub, about 10 cm. high, with small, rounded, leathery leaves. Dense clusters of tubular flowers, which John tells us open white and mature to pink. Treasure it) (30+ seeds) F
- 10833 PENSTEMON UTAHENSIS Colorado, Mesa Co., Gateway. 1600 m. Steep clay slopes in full sun. 5.6.89 (Sect. Gentianoides. Stunning 50 cm. wands of pure, brilliant carmine-red over clumps of leathery, blue-grey leaves. The superb full-page photograph of this (taken in this site) by Panayoti Kelaidis in "A Century of Alpines" is tragically captioned "Penstemon uintahensis" (a small, blue high-alpine) : while in no way attempting to compete, this publication maintains the precedent set recently by the A.G.S. Bulletin, which will long stand unrivalled for the sheer volume of its misprints. It has, however, decided on esoteric quality rather than vulgar quantity and will appeal to the connoisseur of errata (e.g. "exerted" stamens; "musicola") (30+ seeds) D
- 11450 PENSTEMON VIRGINS Wyoming, Albany Co., Laramie Mts., Friend Park. 2250 m. Among rocks in granite grit. 22.7.89 (Sect. Penstemon. A low, long-lived, clump-forming plant with many wiry stem of about 15 cm., ringed with bright violet-blue flowers. Mainly a species of the Colorado Front Range of the Rocky Mts.) (30+ seeds) B

- 11511 PHACELIA SERICEA Wyoming, Fremont Co., NE of Atlantic City. 2800 m. Open banks in granite grit. 29.7.89 (Widespread 'classic' Rocky Mt. alpine. Cut, silky grey leaves. Columns of violet-purple flowers.) (30+ seeds) B
- 11127 PHLOX HOODII California, Modoc Co., NW of Canby. 1500 m. Stony clay 'flats' overlaid with volcanic debris. 20.6.89 (Comparatively compact, deep pink form - western races can be separated as *P.h. canescens*.) (10 seeds) F
- 11506 PHLOX MULTIFLORA (? subsp. *depressa* of Wherry) Wyoming, Fremont Co., Wind River Mts. above Fiddler's Lake. 3000 m. Open slopes in granite grit. 29.7.89 (A very good, compact form forming cushions of needle-leaves smothered in white or occasionally pale-lilac flowers.) (10 seeds) F
- 11071 PHLOX SPECIOSA (subsp. *occidentalis* of Wherry) Oregon, Josephine Co., SW of O'Brien. 460 m. Open, stony 'flats' with sparse scrub among conifers. 19.6.89 (A handsome, shrubby-based plant with wide heads of large flowers with notched petals. Here in a rich purple-pink form, about 15 cm. high.) (10 seeds) C
- 9510 POLEMONIUM BRANDEGEBI New Mexico, Bernalillo Co., Sandia Mts. above Albuquerque. 3600 m. Fissures on summit cliffs. 20.8.87 (Gave quite a lot of seedlings sown last winter. Soft golden-yellow form.) (20+ seeds) E
- 11463 POLEMONIUM BRANDEGEBI Wyoming, Albany Co., Laramie Mts., Laramie Peak. 3110 m. Granite grit among rocks in summit area. 23.7.89 (From an equally isolated colony, 700 km. (450 miles) to the North. Both these are 'uncontaminated' by *P. viscosum*. Similar to this in foliage but with long racemose inflorescences of more trumpet-shaped, upward-facing flowers. In this form, snowy-white with golden anthers.) (20+ seeds) E
- POLEMONIUM CHARTACEUM J. Andrews 90-69 : California, Siskiyou Co., Mt. Eddy SW of Weed. 2740 m. Exposed summit area. 9.9.90 (Only known from here and from above 4000 m. in the White Mts. In effect, a miniature *P. viscosum*, distinguished by its exerted stamens and papery (chartaceous) petiole bases.) (15+ seeds) F
- POLEMONIUM PULCHERRIMUM J. Andrews 91-141 : California, Modoc Co., Warren Peak. 2800 m. Steep, N-facing cliff-terraces. 28.9.91 (The extremely dwarf, small-leaved, high-alpine Sierra Nevada form - most distinct from the eastern Rocky Mt. populations. Tight clumps with bright blue flowers.) (20+ seeds) D
- 11485 POLEMONIUM VISCOSUM Wyoming, Big Horn Co., Big Horn Mts., Duncum Mt. to Sheep Mt. 3200 m. Unstable limestone talus on steep, W-facing slope. 26.7.89 (Tufts of sticky, cut, foliage and heads of golden-anthered, soft-azure-blue flowers. The plants illustrated in Bull. Alp.Gard.Soc. March 1990 p.49 (idiotically captioned *Polemonium* sp.) was raised from our seed collected in this locality. One of the best Rocky Mt. alpine.) (20+) D
- PRIMULA DOMENSIS J. Andrews 91-112 : Utah, Millard Co., House Range, Notch Peak. 2450 m. Ledges on & at base of vertical limestone cliffs in part shade. 29.7.91 (John's 1990 introduction of this recently discovered & described member of the *P. cusickiana* group has germinated well and is progressing. It so far seems easier to please than the very closely related *P. maguirei*, from which it differs in its larger calyces, shorter corolla-tubes and more consistently toothed foliage. The flowers, described as rose to lavender, are as much as twice the diameter of *P. maguirei*. 7-15 cm. high. Like its close relatives in this group, it will tend to summer dormancy and will need to be kept 'just moist' then. For *Dionysia* treatment.) (20+ seeds) F
- PRIMULA NEVADENSIS J. Andrews 90-67 : Nevada, White Pine Co., Snake Range, Mt. Washington. 3125 m. N-facing, vertical limestone cliffs & also under *Pinus longaeva* in limestone scree. 19.8.90 (Though the closest geographical neighbour of the preceding, this will need totally different treatment - a high alpine which may be better plunged outside in summer in the U.K. or grown in a trough. Up to 9 cm. tall with an umbel of 2 or 3 large, violet-purple, yellow-eyed flowers. Has germinated but, as yet, little-known in gardens.) (20+ seeds) F
- 8926 PRIMULA SPECUICOLA Utah, San Juan Co., above Bluff. 1550 m. Seepage lines on shady sandstone cliffs. 5.7.87 (Gave excellent germination with us last winter. Extraordinary relic, like a giant *P. farinosa*, endemic to the hanging gardens of the Colorado River canyons. Umbels of up to 40, lavender or pink flowers.) (50+ seeds) E
- 11752 PRIMULA SUPFRUTESCENS California, Alpine Co., above Winnemucca Lake. 2740 m. Steep slopes in granite 'talus & among boulders. 5.9.89 (Magnificent high-altitude endemic of the Sierra Nevada, in the mainly NE Asian Sect. *Cuneifolia*. Shrubby mats of toothed, leathery leaves ; generous rose to purple heads. 8 cm.) (30+ seeds) D
- 11687 ROMNEYA COULTERI var. TRICHOCALYX California, Ventura Co., Cuyama valley near Ozena. 1280 m. Open 'flats' among scrub in sandy clay. 26.8.89 (Spectacular 2 m. high Californian endemic. Shrubby-based with divided, glaucous leaves and huge, crinkled, white poppies. Hardy and long-lived when established in British gardens. "Old seed...germinates sooner than fresh seed", wrote Lester Rowntree, who knew her Californians.) (50+ seeds) D
- SCUTELLARIA NANA var. SAPPHIRINA J. Andrews 91-115 : Nevada, White Pine Co., Hamilton Road. 2050 m. In clay among *Artemisia*. 27.7.91 (An amazing, tiny, Great Basin endemic discovered by Ripley & Barney and described in 1947. The type-race grows to the N & W and is dreary purple. This is deep, rich gentian-blue. Little tufts of tiny, rounded, grey-green leaves set with jewel-like blue skullcap flowers pop up from wide-growing subterranean tuberous rhizomes - only a few cm. high above the ground. It could be a delight if it proved possible in a pot kept in full sun in the alpine-house and stayed in character - try a very gritty, alkaline mix until we learn more. Not at all easy to collect a quantity of seed from - John has done well!) (10 seeds) F
- 11105 SILENE HOOKERI Oregon, Josephine Co., E of Takilma. 950 m. Openings among conifers in stony turf. 1991 seed from our plants sown last winter. (Flopping stems with downy leaves and big, fringed flowers over a long period - all are soft-pink so far from this locality. Goes dormant in late summer through to spring) (8 seeds) E
- 11639 XEROPHYLLUM TENAX Oregon, Josephine Co., SW of Obrien. 910 m. Open, stony slopes. 21.8.89 (Spectacular, 1 m. creamy racemes from grassy clumps. We have a 'lawn' of seedlings sown last winter. Slow-growing.) (30+ seeds) C

SOUTH AMERICAN COLLECTIONS BY J. ANDREWS John, who travelled with us for the first three weeks of our visit to Chile and Argentina in 1991, has a few seeds left of three rosulate *Viola* collections, which were his main objective. All these are distinct from those in this list & were not in our summer list.

VIOLA SP. J. Andrews 91-006 : Chile, Reg. Metro., above La Parva. 3140 m. Volcanic rubble. 20.1.91 (Seems to be the taxon assigned to *V. atropurpurea*, with black flowers (our 12381 may be the same). Purplish rosettes.) (10+ seeds) F

VIOLA SP. J. Andrews 91-035 : Argentina, Mendoza, Lujan, Cordon del Plata, Vallejos. 3100 m. SE facing volcanic scree. 27.1.91 (This & the others here have very compact rosettes of leathery leaves with cartilaginous margins) (10+ seeds) F

VIOLA SP. J. Andrews 91-104 : Argentina, Rio Negro, Bariloche, Cerro Catedral. 1850 m. Rocky slopes. 4.2.91 (This is *V. columnaris* of Rossow's 'Flora Patagonica' account (= *V. petraea*). White or lilac flowers marked violet) (8 seeds) F

SOLARIA MIERSIODES ? (A large question-mark - our guess!) J. Andrews 91-022 : Chile, Reg. Metro., Lagunillas (ENE of San Jose de Maipo). 2480 m. N-facing slope. 21.1.91 (A small, snow-melt bulb, found in a small area by John - not by us - spilling its seed out from scilla-like capsules. If this, will have heads of green stars. 10 cm.) (15+ seeds) D

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 B : \$2.50 ; £1.50 ; DM4,50 ; FF15. - E : \$5.50 ; £3.50 ; DM10, - ; FF35. -
 C : \$3.50 ; £2.00 ; DM6, - ; FF20. - F : \$7.00 ; £4.50 ; DM13, - ; FF45. -

FROM : JIM & JENNY ARCHIBALD, 'BRYN COLLEN', FFOSTRASOL, LLANDYSUL, DYFED, SA44 5SB, WALES, U.K.

This section of our list includes the most recent of our collections, made in September, 1991, in southern Europe. We have also included some collections made earlier in the season in 1990 along with some important earlier 'seed-bank' material, which it has not been possible to collect again. There is also some 1991 cultivated seed.

CULTIVATED MATERIAL is only listed in this section if it is derived from plants of known wild origin, accompanied by a reasonable amount of field data. Even with first generation seed, a certain amount of selection has occurred (i.e. an ability to grow and set seed under particular garden conditions) and there is the possibility of hybridization. With successive generations raised from seed in cultivation, field data and the original numbers become more and more irrelevant. Such cultivated seed will be found in Section III. In cases where the collection has not been made by ourselves or grown by ourselves, we specify the collector or the cultivator (ex hort. : from the garden of....)

COLLECTED MATERIAL is almost all from our own collections. We are grateful to Professor P. and Dr. P. Watt for some additional wild collections made in S Greece during late spring 1991 and SW Turkey in November, 1991. Collections made prior to this year have been stored in silica gel at about 0°C, to ensure that little deterioration of viability has occurred. Not infrequently germination, especially of dry-climate species, is actually improved by such storage.

REFERENCE NUMBERS in this section are our permanent references for particular populations within the area of Europe, SW Asia and N Africa. If we - or anyone else - collect an identified species from a defined locality, it is listed under the same reference as previous collections from the same place. Seed packets carry only this number but, as these six-digit numbers run in alphabetical, as well as numerical, order here, identification from this list is a simple matter. Five-digit field-numbers used in Section I apply only to particular collections on particular dates.

NOMENCLATURE in general follows 'Flora Europaea' and 'Flora of Turkey' with a degree of editing and updating.

ABBREVIATIONS - Coll. ; collected/collected by/collection ; Da. : Dag/Daglari (Turkish for mountain or mountains)

* : indicates seed from cultivated plants of known wild origin. Field data applies to the original collection.

- 110.031 ACHILLEA AGERATIFOLIA Jugoslavia, Makedonija, Galicica Planina. 1700 m. Exposed, gravelly patches on lime-stone. 12.6.90 (One of the loveliest rock-garden 'daisies' with profuse white flowers on 10 cm. stems. A distinct form lacking the toothed margin to its little white-felted leaves. Recommended!) (50+ seeds) B
- 127.400 ALKANNA GRAECA Greece, Fokida, Delfi. c. 1000 m. Fissures in limestone cliffs. Coll. P. & P. Watt, 1991. (A small, saxatile perennial, near *A. orientalis*, but dwarfer and more suited to alpine-house culture. Fine heads of brilliant yellow flowers on 15-20 cm. stems. Give it poor, dryish treatment.) (10 seeds) E
- 134.100 ALLIUM NARCISSIFLORUM France, Hautes-Alpes, Pic de Gleize NNW of Gap. 2000 m. Loose, unstable, limestone screes along S-facing side of summit ridge. 20.9.91 (Little known in gardens, where the name is usually applied to the related *A. insubricum* from N Italy. An endemic of the limestone massifs S of Grenoble, where Farrer rated it as "the glory of its race." Umbels of erect sugar-pink flowers on 15 cm. stems.) (15+ seeds) D
- 155.000 ANDROSACE ALPINA Austria, Salzburg, Hohe Tauern, Hochtor. 2600 m. Stable areas of mica-schist detritus on open, N-facing slopes. 12.9.88 (Superlative high-alpine. White or pink flowers on tight pads.) (15+ seeds) E
- 161.903 ANEMONE PAVONINA Greece, Argolida, Paronon. 1000 m. and above. Coll. P. & P. Watt, 1991 (Collected at the highest elevations for the species in the Peloponnese, where its bright scarlet flowers (usually white-centred here) provide an unrivalled spectacle in spring. Usually germinates and grows on well.) (20+ seeds) B
- 166.103 ANTHERICUM LILIAGO France, Hautes-Alpes, above Col de Gleize NNW of Gap. 1700 m. Open grassy slopes on limestone. 20.9.91 (A lovely herbaceous plant for a well-drained site in full sun. Grassy leaves and erect stems of about 30 cm. set with shallow, pure-white trumpets, in early summer.) (20+ seeds) B
- 174.201 AQUILEGIA PYRENAICA France, Pyrenees-Atlantiques, E of Col d'Aubisque. 1600 m. Among & at margins of Fagus scrub on limestone. 15.9.91 (Quite dwarf at less than 30 cm. with beautiful, large, nodding flowers of rich blue. Not difficult in rock-garden conditions in moist, cool climates.) (20+ seeds) C
- 180.450 ARENARIA TETRAQUETRA var. GRANATENSIS Spain, Granada, Sierra Nevada. 2500-3000 m. Open slopes in mica-debris. 10.9.91 (The tightest race, forming solid mounds of minute rosettes, as densely packed as *Gypsophila aretioides* and much more likely to be generous with its stemless white flowers.) (50+ seeds) D
- 220.501 ASTRANTIA MAJOR subsp. CARINTHICA Italy, Lombardia, below Passo di Croce Domini ESE of Breno. 1700 m. Among sparse Larix on limestone slope. 25.9.91 (A fine herbaceous plant, about 50 cm. high, with clumps of cut leaves and branching stems of starry, creamy green heads.) (20+ seeds) B
- 221.002 ASTRANTIA MINOR France, Alpes-Maritimes, Vallon de la Gordolasque. 1700 m. Among grasses & Rhododendron scrub on open, acid slopes. 23.9.91 (The dwarfest species, 30 cm. or less, with deeply cut, toothed, dark green foliage and dainty, lacy, parchment coloured heads on airy, branching, wiry stems.) (20+ seeds) C
- 245.001 BUPLEURUM ANGULOSUM France, Hautes-Pyrenees, Vallee d'Ossoue. 1500 m. steep, loose, limestone scree on S-facing slope (but also grows on cliffs and among shady rocks). 15.9.91 (Conveniently follows *Astrantia*, which it resembles in its petal-like bracteoles but in this these are rounded and of a beautiful jade-green with a bluish sheen. A choice herbaceous perennial, slowly forming tufts of narrow leaves, with branching 30 cm. stems. This needs good drainage, some feeding and much patience.) (20+ seeds) C
- CAMPANULA is a genus which has always featured prominently in our winter-lists. We have several species this year which we have not listed previously and fresh seed from others which we have not collected for some time. All the 'seed-bank' species listed germinated well with us from November, 1990 sowings. Seed of Campanulas stores well and an adequate number of plants can be expected from standard packets.
- 250.500 CAMPANULA ALPESTRIS (= *C. allionii*) France, Vaucluse, Le Mont Ventoux. 1800 m. Loose limestone screes on N side of summit ridge. 19.9.91 (One of the most spectacular European alpine species. "Immense flowers... of the most gorgeous satiny purple." Better grown outside in a sunny scree-bed or trough.) (20+ seeds) C
- 251.300 CAMPANULA ARVATICA (subsp. *arvatica*) Spain, Leon, Picos de Europa, NE of Fuente De. 1900 m. Fissures and pockets on limestone cliffs. 7.9.91 (A delicate but soundly perennial endemic of these mountains towering above the Atlantic. Dainty stems carry profuse, wide-open, violet bells - a lovely alpine-plant) (50+ seeds) D

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- * 252.700 CAMPANULA CARPATHA Greece, Karpathos. Shady limestone crevices. Our 1991 cultivated seed from Helen & Ivor Barton's 1983 re-introduction. (Endemic to the island of Karpathos, introduced by Peter Davis in 1950 but lost within a few years. A truly lovely alpine-house plant with soft-lilac flowers appearing over a very long period, often in late autumn into winter. Perennial but not long-lived.) (50+ seeds) C
- 254.300 CAMPANULA ELATINOIDES Italy, Lombardia, S of Sabbio Chiese. 280 m. Fissures on dry limestone cliffs. 24.9.91 (An extremely local saxatile endemic of the area between Lake Como and Lake Garda. Greyish, felted rosettes with radiating, 15 cm. stems, packed with small pale to dark blue flowers. Perennial.) (50+ seeds) C
- 256.400 CAMPANULA HERMINII Spain, Granada, Sierra Nevada, SE of Pico del Veleta. 3000 m. Stony turf & among mica-schist detritus. 10.9.91 (Unknown in cultivation yet much rubbish has been written about it in gardening literature, such as Crook's 'Campanulas' - it is neither annual nor anything to do with *C. rotundifolia*. Possibly closest to some of the Balkan species, its running woody rhizome sends up little, round-leaved rosettes with wide, clear-blue bells carried singly on short stems. The ibex left us few seeds.) (50+ seeds) F
- * 256.800 CAMPANULA INCURVA Greece, Magnisia, Oros Pilio above Portaria. 1200 m. Mica-schist cliffs. 1991 seed ex H. Barton. (An absolutely stunning, large monocarpic species with widely radiating stems of huge, ice-blue bells which go on and on. It can be quite successful outside in a wall or raised bed in sun.) (50+ seeds) B
- * 257.400 CAMPANULA LACINIATA Greece, Karpathos. Limestone fissures. 1991 seed ex hort H. Barton from the 1983 re-introduction by H. & I. Barton. ("Surely one of the finest monocarpic species known" writes Peter Davis, whose account of seeing this in the wild in 1938 is a classic. Its discoverer, Tournefort considered it "the fairest Campanula in all Greece." A stout, trunk-like stem supports the rosette of a few large leaves deeply cut and toothed and, in time, the stiff, erect flower-stem, of 50 cm. or more, up which the huge, shallow bowls, about 5 cm. across, cluster. These are of "a cold crystalline lavender" with a large, white centre - the whole plant is unlike any other. Native to the cliffs of a few Aegean islands, this is not an easy plant to re-collect and every effort should be made to maintain it in gardens. It is quite happy in an unheated to frost-free greenhouse in the U.K. and, while by no means an 'easy' plant, as Crook rightly states, it "well deserves all the care and attention it demands.") (50+ seeds) E
- 258.502 CAMPANULA MACRORHIZA France, Alpes-Maritimes, Vallon de la Gordolasque, 2000 m. Fissures on E-facing, granite cliffs. 23.9.91 (A dainty plant with a close, woody rhizome sending up lots of wiry stems of dancing violet bells. Rewarding and long-flowering in the rock garden or a trough.) (50+ seeds) B
- 259.000 CAMPANULA MOLLIS Spain, Jaen, Sierra de Pozo, NW of La Nava de San Pedro. 1300 m. Fissures on shaded limestone cliffs, facing E to NE. 12.9.91 (A delicate, thready, little plant with downy, grey leaves and little, pale lilac bells. This may be the taxon described as *C. malacitana* and ignored by the 'Flora Europaea', which tends to lump the Iberian species mercilessly and split the Aegean ones eagerly. This looks as if it will need careful cultivation in an alpine-house - it often grew under overhangs) (50+ seeds) D
- 259.700 CAMPANULA OREADUM Greece, Pieria, Oros Olimbos. 2000 m. Vertical limestone cliffs. 10.8.85 (Seed-bank material of this incomparable but difficult Mt. Olympus endemic. Long violet bells.) (20+ seeds) F
- 262.400 CAMPANULA RUPICOLA Greece, Viotia, Oros Parnassos. 1500 m. & above. N & NW facing limestone cliffs. 2.8.85 (Peter Davis considered that this "cannot have many peers among the alpine species" with its "incredibly lovely flowers ...of a glorious richness." Now well established from this 1985 coll. and proving a choice alpine-house plant - a little easier than its close ally, *C. oreadum*.) (20+ seeds) E
- 265.100 CAMPANULA TOPALIANA subsp. DELPHICA Greece, Fokida, above Delfi. c. 1000 m. Limestone cliffs. Coll. 1991 by P. & P. Watt. (A fine monocarpic species with radiating stems of lavender bells. Our 1986 coll. of the Peloponnese type-race proved stunning in the alpine-house; this is greyer leaved with larger bells.) (50+) B
- 265.500 CAMPANULA TROEGERAE Turkey, Artvin, Barhal valley, NW of Yusufeli to Sarigol. 600-700 m. Crevices in shady, igneous cliffs. 22.7.88 (Distinct from the closely allied *C. betulifolia* in its thicker, greyish, densely pubescent leaves and in that the huge, white bells are split down and opened out almost flat to form a stunning flower. Described in 1976 and now established as a splendid alpine-house plant from our 1986 and 1988 colls., this wild seed germinated well with us from a sowing last winter.) (50+ seeds) F
- 274.101 CARLINA ACANTHIFOLIA subsp. CYNARA France, Hautes-Pyrenees, SE of Gedre. 1400 m. Steep, open, grassy slopes. 15.9.91 (Big, flat rosettes of deeply gashed green leaves, downy grey beneath, with central stem-less heads, surrounded by clear yellow bracts, almost 15 cm. across. It is always extremely difficult to acquire more than a few good seeds from these splendid stemless thistles.) (10+ seeds) C
- 274.200 CARLINA ACAULIS (subsp. *acaulis*) France, Vaucluse, Le Mont Ventoux. 1800 m. Exposed limestone scree along summit ridge. 19.1.91 (A truly stemless, tight form of this much smaller species. Dark green, spiny leaves surround the ivory head. A long-lived perennial despite the 'Flora Europaea' "monocarpic" claim) (10+ seeds) C
- 294.050 CHAENORHINUM GLAREOSUM Spain, Granada, Sierra Nevada, below Pico de Veleta. 3300 m. Mica-schist crevices and detritus. 10.9.91 (A Sierra Nevada endemic, one of the highest alpiners here, or indeed in Europe. Thready stolons run below the stones sending up flopping stems with tiny, rounded, smooth leaves and racemes of comparatively large, rather flat, spurred flowers, variable in shade of bright pink and lilac, with yellow palates. Farrer enthused at length about this in 1913 - "the only undisputed member of its family to deserve attention...choice and delicate...neat and delightful" - and it received a Certificate of Merit as "*Linaria glareosum*" in April, 1935, (before the days of an A.M. from the 'Joint Rock'), being duly illustrated (Bull. Alp. Gard. Soc. Vol. III, p.215). This should be seen around again!) (50+ seeds) E
- 305.201 CISTUS ALBIDUS Spain, Jaen, Sierra de Pozo. 1300 m. Steep, open, limestone slopes. 12.9.91 (Downy, greyish leaved shrub with clustered pink flowers. About 50 cm. high here in this cold locality.) (30+ seeds) B
- * 318.203 COLCHICUM TRIPHYLLUM Turkey, Sivas, Ziyaret pass. 2100 m. Exposed ridges in thin layer of limestone gravel. 1991 seed from material grown at Goteborg, Sweden, from our 1985 collection. (Possibly the loveliest of the spring-flowering species, in a good form we are told. A snow-melt plant widespread from Morocco to Pakistan but always very local and not too easy to grow. Exquisite pink goblets.) (8 seeds) E
- 321.001 COLUTEOCARPUS VESICARIA Turkey, Gumushane, Kop Da. 2500 m. Steep open slopes in sparse steppe vegetation. 28.7.88 (A crucifer with rosettes like *Androsace carnea*, white or lilac-tinged flowers like a *Thlaspi* and inflated fruits like a *Physaria* - pale green papery balloons shaded white or lilac. These have been borne in cultivation and this coll. germinated well with us in 1991.) (20+ seeds) E
- 382.601 DAPHNE GNIDIUM Spain, Jaen, Sierra de Pozo. 1400 m. W-facing limestone slope. 12.9.91 (A shrub about 1 m. high with erect stems, narrow leaves and clusters of small, cream flowers and orange fruits.) (15+ seeds) C
- 384.004 DAPHNE MEZEREUM Italy, Lombardia, below Passo di Croce Domini. 1700 m. Steep limestone slope. 25.9.91 (Lovely, deciduous, spring-flowering shrub, wreathed in lilac-pink flowers. Red fruits.) (15+ seeds) B

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 C : \$3.50 ; £2.00 ; DM6, - ; FF20. - F : \$7.00 ; £4.50 ; DM13, - ; FF45. -

- 401.502 DIANTHUS PAVONIUS France, Alpes-Maritimes, Vallon de la Gordolasque. 1700 m. Among grasses on open, acid slopes. 22.9.91 (A lovely, 10-15 cm. high pink with rose, buff-backed flowers with steel-blue eyes. Previous colls. have produced some lovely things - well worth selecting out and growing on.) (20+ seeds) C
- 409.002 DIGITALIS LUTEA France, Alpes-Maritimes, Col de la Couillole. 1600 m. Open limestone slopes and woodland margins. 20.9.91 (Elegant, perennial foxglove with 1 m. high wands of numerous, little, tubular, pale-yellow flowers from neat basal clumps of glossy, dark-green, strap-shaped foliage.) (100+ seeds) B
- 409.401 DIGITALIS OBSCURA Spain, Jaen, Sierra de Cazorla. 1100 m. Stony limestone slopes, usually in light shade. 11.9.91 (Utterly distinct, shrubby-based Spanish endemic with dark, narrow leaves and amber-orange flowers marked yellow and rust-red within. About 60 cm. Colour varies and is best in sunny, dry areas.) (50+ seeds) C
- 409.800 DIGITALIS PURPUREA Spain, Granada, Sierra Nevada below Penones de San Francisco. 2500 m. At base of E-facing schist cliffs. 10.9.91 (Compact perennial alpine ecotype of this widespread species, 'lumped' by 'Flora Europaea' but deserving of some infra-specific status. It has been called *D. nevadensis*.) (50+ seeds) B
- 410.000 DIGITALIS THAPSI Spain, Avila, Sierra de Gredos, Puerto del Pico. 1300 m. Granite fissures and in loose granite grit on steep slopes. 8.9.91 (Iberian endemic, close to *D. purpurea*, but all covered in yellowish indumentum and with downy, sugar-pink flowers. A good perennial in the wild.) (50+ seeds) C
- 461.000 ERYNGIUM GLACIALE Spain, Granada, Sierra Nevada. 2700 m. Exposed, stony slopes and schistose screes. 10.9.91 (The dwarfest European species with deeply cut, spiny, leathery basal leaves and branching flower-stems of about 15 cm. with globose heads - the whole inflorescence of pale, silvery blue.) (20+ seeds) C
- 461.500 ERYNGIUM MARITIMUM U.K., England, Devon, near Exmouth. Just above sea-level, among grass on stable sand-dunes. 8.9.91, coll. M. Tucker. (The sea holly itself, one of the most beautiful of the genus but very seldom seen in gardens, where it is by no means easy but deserves the attention lavished on exotic novelties. We have grown it without trouble in a gravel bed and any raised bed or scree in sun should suit it. The spiny basal leaves, bracts and stems are all of the same matt bluish grey, unique in the garden and only a little paler than the blue flower-heads. Usually less than 30 cm. high and slow-growing.) (15+ seeds) C
- 462.200 ERYNGIUM SPINALBA France, Vaucluse, Le Mont Ventoux. 1800 m. Limestone scree on S side of summit. 19.9.91 (Another superlative dwarf species, about 30 cm. high, local in the SW Alps, with silvered, spiny leaves and large, feathered bracts surrounding the big, dome-like heads of bluish-green.) (20+ seeds) C
- 475.500 EUPHORBIA CHARACIAS (subsp. *characias*) Spain, Granada, Sierra Nevada, Puerto de la Ragua. 1900 m. Open, stony slopes. 24.6.90 (A distinct form of this fine, shrubby spurge, less than 1 m. high with downy, greyish leaves. Stubby flower-heads, wider at the top than the base, and dark-brown flower-glands.) (20+ seeds) B
- 475.603 EUPHORBIA CHARACIAS subsp. WULFENII Yugoslavia, Hrvatska, Biokovo Planina SE of Makarska. 500 m. Open, stony, limestone slopes. 31.5.90 (The eastern race with yellow glands and columnar heads rising to 1.5 m. The species is of immense architectural value as evergreens for dryish, sunny sites.) (20+ seeds) B
- 480.004 EUPHORBIA MYRSINITES Yugoslavia, Hrvatska, N of Risan. 800 m. Open limestone slopes. 2.6.90 (Prostrate stems with fleshy, grey foliage carry greenish yellow heads in spring. A garden-plant of proven worth easily grown in a well-drained place in full sun and the hardiest of Subsect. *Myrsiniteae*.) (15+ seeds) B
- 486.001 FIBIGIA CLYPEATA Turkey, Antalya, Bey Da. c. 1000 m. On rocks & in stony areas. Coll. P. & P. Watt, 1991 (A distinctive crucifer, near *Alyssum*, with grey-leaved, woody-based tufts and heads of yellow flowers followed by rounded, grey, honesty-like seed-heads set up stiff stems. About 50 cm. in fruit.) (20+ seeds) B
- 503.800 FRITILLARIA TUBIFORMIS France, Hautes-Alpes, Pic de Gleize, NNW of Gap. 1800 m. Steep, SE-facing slopes among *Helictotrichon*. 20.9.91 (A fresh coll. of this outstanding species, seldom listed by bulb-dealers. Fat, chequered, brown-purple bells on relatively short stems. Often a plant of moister habitats, seed from these rather hot, dry slopes over limestone should offer no problems in bulb-frame or pots.) (20+ seeds) D
- 515.006 GENTIANA ACAULIS (= *G. kochiana*) France, Alpes-Maritimes, Vallon de la Gordolasque. 2000 m. Ledges below N-facing granite cliffs. 23.9.91 (The classic huge blue trumpet-gentian, core of a superficially similar group in reality distinct botanically & in habitat & soil requirements - see the next three.) (30+ seeds) B
- 515.201 GENTIANA ALPINA France, Pyrenees-Orientales, Puigmal above Las Planes. 2200 m. Stony turf on open slopes with *Rhododendron*. 17.9.91 (Distinct in its almost orbicular leaves; another calcifuge plant.) (30+ seeds) C
- 515.400 GENTIANA ANGSTIFOLIA France, Hautes-Alpes, Pic de Gleize NNW of Gap. 1900 m. Steep, stony limestone slopes. 20.9.91 (Limited to the limestones of the SW Alps, in especially fine form here with narrow-leaved clumps and huge trumpets on short stems - of special importance for warm, drier limy gardens.) (30+ seeds) C
- 517.201 GENTIANA CLUSII Italy, Lombardia, Monte Tremalzo WSW of Riva. 1900 m. In turf on N & W-facing limestone slopes. 25.9.91 (Another splendid calciphile member of the *G. acaulis* group. "Glossy tufts" with "celestial goblets" in "indigo masses". This may be the origin of much cultivated "*G. acaulis*".) (30+ seeds) C
- 518.803 GENTIANA LUTEA France, Hautes-Alpes, below Col de Gleize NNW of Gap. 1600 m. Stony limestone slopes. 20.9.91 (The statuesque Yellow Gentian with magnificent, broad, ribbed basal foliage and 1 m. stems whorled with bright yellow stars. Splendid and not too difficult in good soil but very slow-growing.) (30+ seeds) B
- 519.001 GENTIANA OCCIDENTALIS Spain, Huesca, Puerto del Portalet. 1700 m. Steep, grassy slope in meadow vegetation 29.6.90 (Little-known in gardens and rather uncommon in the wild in our experience, this is the most western species in the *G. acaulis* group. Maybe nearest to *G. clusii* and also a limestone plant.) (30+ seeds) C
- 519.002 GENTIANA OCCIDENTALIS Spain, Leon, Picos de Europa, NE of Fuente De. 1900 m. Ledges on SW-facing limestone cliffs. 7.9.91 (The trumpet-gentian at the western extremity of its distribution.) (30+ seeds) C
- 521.403 GENTIANA VERNA France, Pyrenees-Orientales, SE of Las Planes to Puigmal. 2200 m. Stony turf on open slope with *Rhododendron*. 17.9.91 (The exquisite, little, purest blue spring gentian - in a very distinct form with narrow, pointed leaves. We thought at first this was *G. pumila* subsp. *delphinensis*, also recorded in this area; it may be - we always have difficulty sorting out some members of Sect. *Calathianae*) (50+ seeds) C
- 547.000 HABERLEA RHODOPENSIS Greece, Drama, NW of Drama. 300 m. N-facing rock fissures. 9.6.90 (A very beautiful Gesneriad endemic to the Greek/Bulgarian border mountains. Clusters of exquisite pale-lavender flowers. Easy in a shady crevice, alpine-house or N-facing, dry-stone wall outside in the U.K. The minute seeds should be surface-sown then put in a polythene bag in shade or covered with glass and newspaper and water - ed from below - drying out when germinating is the main cause of failure.) (100+ seeds) D

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- 553.400 HEDYSARUM HEDYSAROIDES subsp. EXALTATUM Italy, Lombardia, above Passo di Croce Domini. 1900 m. Stony alpine turf over limestone. 25.9.91 (A. Huxley singles this out as a "striking herbaceous perennial" and Farrer enthuses over its "loose spires of hanging pea-flowers...of rich reddish violet" 30 cm. high.) (15+ seeds) B
- 576.000 HYPERICUM ERICOIDES Spain, Jaen, Sierra de Pozo above La Nava de San Pedro. 1400 m. W-facing fissures on limestone cliffs. 12.9.91 (Our 1984 re-introduction - seed had not been collected since the 1948 Davis and Heywood attempt - seems to have ensured that this is now firmly in cultivation at last, thanks to the work of skilled growers, both amateur and professional. As we were back in the area in autumn for the first time since 1984, we collected some more seed but there is not much as the season had been a dry one. Most reduced of Sect. Coridium, a group of relics like H. coris and H. empetrifolium, with a habit like a delicate Cassiope Lycopodioides (almost identical to S American Ourisia microphylla in growth!) (20+ seeds) F
- 580.100 IBERIS CANDOLLEANA France, Vaucluse, Le Mont Ventoux. 1800 m. Loose limestone scree on summit ridge. 19.9.91 (Most refined of its genus and the piece de resistance among the fascinating flora of this isolated Provençal limestone massif, where it grows "tucked in among the rocks, its leaves completely hidden by corymbs of lilac flowers" (writes Dwight Ripley in 1938). Compact and perennial in nature, it can be grown with reasonable success in the alpine-house or trough but it remains a challenge.) (20+ seeds) E
- 590.400 IRIS LATIFOLIA France, Haute-Pyrenees, Vallee d'Ossoue. 1500 m. Steep, stony, limestone slopes. 15.9.91 (Bulbous but summer-growing with sturdy, 60 cm. stems of large, violet-blue flowers marked with gold. A splendid endemic of the Pyrenees and NW Spain seldom seen in its wild form in cultivation.) (15+ seeds) B
- 601.400 IRIS XIPHIDIUM Spain, Jaen, Sierra de Cazorla, E of Puerto de las Palomas. 850 m. Open, wet slope, among grasses and rushes. 13.9.91 (Another summer-growing member of Subgenus Xiphidium with clear lilac-blue flowers, appearing here towards the end of June. These are both very hardy plants well suited to conditions in U.K. gardens and merit the attention of plantsmen as pure species rather than hybrids (20+ seeds) B
- 610.500 JURINELLA MOSCHUS Turkey, Gumushane, Sogunli Da. N of Bayburt. 2300 m. Loose, gravel banks in sun. 28.7.88 (Described by John Watson as "spectacularly attractive" in the wild but not yet widely established in cultivation. A rosulate, tap-rooted, perennial composite with lyrate leaves, lobed or pinnatisect but always densely felted beneath, lying flat and encircling a big, stemless head of lilac-pink, intensely fragrant flowers. This germinated well with us sown last winter and remains slow-growing and compact.) (15+ seeds) D
- 612.500 KNAUTIA MACEDONICA Yugoslavia, Makedonija, NW of Bitola. 900 m. Open hay meadows and margins of scrub. 12.6.90 (Reasonably well-known herbaceous perennial, often listed as "Scabiosa rumelica" with successive crimson-red 'scabiousses' on 1 m. branching stems. This wild colony varied to brighter crimsons, pinks and lilacs. It germinated well and flowered this year proving as varied as anticipated.) (20+ seeds) B
- 620.400 LAVANDULA LANATA Spain, Granada, Sierra Nevada SE of Granada. 1100 m. Open limestone slopes. 10.9.91 (60 cm. high shrub endemic to the mountains of S Spain. Grey-white, woolly leaves and darkest violet heads. This and the following should prove perfectly hardy in a dry, sunny site in more northern areas) (50+ seeds) B
- 621.201 LAVANDULA STOECHAS subsp. PEDUNCULATA Spain, Avila, Sierra de Gredos, Puerto del Pico. 1300 m. Loose, granite grit on steep slope. 8.9.91 (The fine central Spanish race with especially large ruby-violet bracts topping the heads of violet flowers. Narrow, greyish leaves clothe the 60 cm. shrubby stems.) (30+ seeds) C
- 627.801 LEUCANTHEMOPSIS RADICANS Spain, Sierra Nevada, SE of Pico del Veleta. 3000 m. Open, stony areas on schist. 10.9.91 (A Sierra Nevada endemic and one of the choicest and most aristocratic alpine composites. 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 Giuseppe, 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." Our earlier, 1990 collection germinated very well and has flowered. To be tried in an acid scree-mix in full sun in alpine-house or trough. Keep the conditions Spartan to keep it compact. Too much water in summer can be just as dangerous as in winter - these are dry, windy mountains after snow-melt is over.) E
- * 632.600 LILIUM CANDIDUM Greece, Lakonia, Oros Taigetos, foothills W of Sparti. 500 m. Steep limestone slopes. 1991 seed ex hort. D. Hoskins from plants raised from our 1983 seed. (An opportunity to raise fertile, virus-free stock of this superlative, 1 m. high, pure-white lily. Usually germinates in autumn.) (15+ seeds) D
- * 633.201 LILIUM CHALCEDONICUM Greece, Magnissia, Oros Pilio above Portaria. 1500 m. Steep, SW-facing schist slope, among Pteridium, Helleborus, Phlomis, etc. 1991 hand-pollinated seed ex hort. D. Hoskins. (Pendant, waxen flowers unrivalled in the brilliance of their luminous scarlet. We strongly recommend raising stock of this and the following two from these seeds derived from wild material - not only is there freedom from virus but the plants are distinct from old commercial stock, being more slender and dwarfer. They can be grown well outside in a well-drained, sunny site in the U.K. or are vigorous in large pots.) (20+ seeds) D
- * 633.202 LILIUM CHALCEDONICUM Greece, Viotia, Oros Elikonas above Evangelistria. 1500 m. Margins of mixed Quercus and Abies woodland. 1991 hand-pollinated seed ex hort. M. Tucker from our 1986 collection. (15 seeds) D
- * 633.203 LILIUM CHALCEDONICUM Greece, Messinia, Oros Taigetos, Langada Pass above Tripi. 1200 m. Deep leaf-soil under Platanus. 1991 hand-pollinated seed ex hort. D. Hoskins from our 1984 coll. (A distinct Peloponnese race not listed previously. Black-speckled flowers. Not so vigorous or easy as the other two.) (12 seeds) D
- 640.203 LINARIA ALPINA France, Hautes-Pyrenees, Col du Tourmalet. 2200 m. Loose, stony slopes. 15.9.91 (Lovely alpine toadflax with violet-blue flowers - here with both white and orange palates.) (30+ seeds) B
- 654.800 LITHODORA ZAHNII Greece, Messinia, S of Kardamili. 30 m. Fissures on N-facing limestone cliffs. 1991 seed coll. P. & P. Watt (An extremely local Peloponnese endemic shrub, about 20 cm. high. Dark, narrow foliage and pale-blue flowers. At its best as an alpine-house plant but surprisingly hardy in the U.K.) (10 seeds) E
- 659.200 LONICERA PYRENAICA France, Hautes-Pyrenees, Vallee d'Ossoue. 1500 m. Steep, loose, limestone scree on S-facing slope. 15.9.91 (Praised by W.J. Bean as "perhaps the most pleasing in flower of all the dwarf, bush honeysuckles" but barely known in gardens as propagation vegetatively is all but impossible. Seed is no problem if you can get it! A shrub, 50-100 cm. high, with creamy-white, sometimes pink-flushed trumpets from the leaf-axils in early summer. Endemic to the Pyrenees and adjacent NE Spain.) (20+ seeds) D
- 662.300 LYGOS SPHAEROCARPA Spain, Sierra Nevada, SE of Granada. 1100 m. Open limestone slopes. 10.9.91 (Elegant, broom-like, 2 m. shrub with beautiful, blue-green, arching stems dripping with yellow flowers.) (10 seeds) B
- 663.000 LYSIMACHIA EPHEMERUM Spain, Jaen, Sierra de Cazorla, E of Puerto de las Palomas. 850 m. Open, wet slopes, among grasses and rushes. 13.9.91 (A most distinguished-looking herbaceous perennial, esteemed by discriminating gardening writers from A.T. Johnson to G.S. Thomas yet seldom seen. Thick, smooth, greyish leaves and erect stems to about 1.5 m. with slender spires of a multitude of little, white, lilac-tinged flowers. Easy but restrained in any decent border soil in the U.K. though a wet-grower in its wild habitat.) (30+ seeds) C

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PAEONIA BROTEROI

We sometimes feel that we should write a little more to draw your attention to particular items in our lists and you will notice that in this present list we have singled out a few for special attention. There is no point in doing this if we do not have enough seed to meet demand but it would be equally pointless if our motivation was solely to persuade you to order something simply because we have an excess. We think most of you know us well enough to trust us not to push some species at you unless we feel that as many gardeners as possible should be trying to secure its wider establishment in cultivation and also that the opportunity to do so seldom occurs. This is invariably the case with the species of *Paeonia*. Unlike the hybrids, these are not 'commercial' plants and are seldom obtainable from nurseries. In nature, they are always local and the opportunity to visit colonies at an appropriate time to collect seed is not always easy to arrange. Moreover, the seed-collector needs the knowledge of where the most concentrated stands are, knowledge that is best acquired when the plants are in flower. A long time ago, in 1970, on an early June visit to SE Spain, it was possible to do this. It was not possible to return for seed until 1984, when we last listed this. It may well be another seven years before the opportunity to acquire seed occurs again; we may well never be able to collect it again. This year we have a fine, ample collection but, unlike such genera as *Penstemon* and *Campanula*, we cannot anticipate listing it over a long period. *Paeonia* seed certainly keeps for a season or so under good storage conditions but deterioration is much more rapid than with many genera. Sowing soon after collection is the most satisfactory course. We shall probably be able to list this into 1993 but not beyond. Our 1984 collection gave very satisfying germination; if this does not germinate this spring it will do so during the 1992-93 period. Germination is hypogeal and the cotyledons remain below ground; in some species subterranean growth is made one season and no leaves appear above ground until the next. Both of the following are high-growing and should prove fully temperature hardy. They will need excellent drainage - no *Paeonia* objects to summer drought; their growth-cycle is exactly that of the summer-dormant monocotyledons or of their closer relatives *Helleborus*, which they resemble also in their longevity. They may grow slowly but they go on for ever. The following two collections, though distinct in minor features, are both superlative herbaceous plants with fine foliage and great, rose-pink, bowl-shaped flowers with massed golden stamens. The species as a whole is confined to the Iberian Peninsula.

- 746.000 PAEONIA BROTEROI Spain, Granada, Sierra Nevada, SE of Granada. 1100 m. Among scrub and sparse *Pinus* on limestone slopes. 10.9.91 (Very large flowers shade from pale pink to deep rose at the edge.) (10 seeds) D
- 746.002 PAEONIA BROTEROI Spain, Jaen, Sierra de Pozo, NW of La Nava de San Pedro. 1300 m. Among *Pinus* on steep limestone slopes. 12.9.91 (Almost always uniform in colour, though a little variable in tone.) (15 seeds) D
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- 752.500 PAPAVER RHAETICUM France, Vaucluse, Mont Ventoux. 1800 m. Loose, limestone screes. 19.9.91 (A delightful, dwarf, perennial poppy forming cushioned tufts of cut, greyish leaves, up to 30 cm. across, with silky flowers on 10 cm. stems, in both lemon-yellow and coppery orange (f. *aurantiacum*.) (50+ seeds) B
- 766.750 PHLOMIS CRINITA Spain, Granada, Sierra Nevada SE of Granada. 1100 m. Open limestone slopes. 10.9.91 (Woody-based, 60 cm. high perennial with basal leaves and stems clothed in fluffy, white wool. Whorls of large, lipped dusky yellow flowers. Rated as possibly the most attractive of the genus by Dwight Ripley who grew it in a cold greenhouse in Sussex in the 1930's - a bulb-frame would suit it today.) (10 seeds) D
- 772.001 PHYSOPLEXIS COMOSA (= *Phyteuma comosum*) Italy, Lombardia, Monte Tremalzo. 1900 m. Fissures on N & W-facing limestone cliffs. 25.9.91 (Confined to the limestones of the SE Alps, this can be grown to a superlative standard in the alpine-house but usually survives happily in tufa, a trough or a choice crevice. Farrer's description of this classic alpine will always be unrivalled: "amethystine heads of wild pale bottles... deepening to darker tones of translucent purple at their tip...from which the curly stigma goes frisking forth in manner weird and wild. It is indeed the strangest of all children of the cliffs...") (50+ seeds) D
- 775.230 PINGUICULA GRANDIFLORA France, Pyrenees-Atlantiques, E of Gourette. 1500 m. Wet rocks and limestone cliffs running with water. 15.9.91 (Most spectacular of the European butterworts. Huge, flat-faced flowers of imperial violet from sticky, yellow-green rosettes. Not difficult in sphagnum or wet peat.) (100+ seeds) B
- 785.152 PRIMULA AMOENA Turkey, Trabzon, Soganli Da. 2300 m. Turf-filled ledges on N-facing slopes. 28.7.88 (A very beautiful plant now becoming a little more widespread in gardens from this and our 1986 collections. The aristocrat of Subgen. *Primula* with violet-blue flowers. Wants cool conditions in acid loam.) (20+ seeds) E
- 785.301 PRIMULA AURICULA Italy, Lombardia, Monte Tremalzo. 1900 m. Fissures on N & W-facing, limestone cliffs. 25.9.91 (Progenitor of many hybrids but itself a beautiful plant, the only yellow-flowered alpine member of its section. Usually occurs here in the white-throated var. *albo-cinota*.) (30+ seeds) C
- 786.500 PRIMULA ELATIOR subsp. PALLASII Turkey, Artvin, Genya Da. above Artvin. 1700 m. Open summit meadows and woodland margins. 23.7.88 (We have extracted this from our seed-bank as Scottish grower, Jim Jermyn, is so impressed with it - "it took our breath away...exquisitely fragrant lemon-yellow flowers...") (30+ seeds) B
- 786.600 PRIMULA FARINOSA France, Pyrenees-Atlantiques, E of Gourette. 1500 m. Wet turf in wet-flush. 15.9.91 (A delightful, little plant, widespread in the high turf of many European ranges, with lilac-pink, yellow-eyed flowers on 10 cm. stems. Not always easy to maintain in cultivation - good in a trough.) (50+ seeds) B
- 786.800 PRIMULA GLAUDESCENS Italy, Lombardia, Passo di Croce Domini. 1900 m. Alpine turf on steep slopes over limestone. 25.9.91 (Tight tufts of narrow, shiny-green leaves, leathery in texture. Fine heads of purple-pink flowers, quite variable in size and form. Only known from a small area in N Italy.) (30+ seeds) D
- 787.502 PRIMULA INVEGRIFOLIA France, Pyrenees-Orientales, SE of Las Planes to Puigmal. 2100 m. Ledges on wet shale cliffs. 17.9.91 (Neat little mounds of shiny leaves covered with rosy flowers. Though it occurs in the Central Alps, it is a special delight in the Pyrenees, where the forms are especially fine.) (30+ seeds) D
- 787.802 PRIMULA LATIFOLIA (f. *cynoglossifolia*) France, Alpes-Maritimes, Vallon de la Gordolasque. 2000 m. Fissures on W-facing, granite cliffs. 23.9.91 (Rather small-leaved, SW race of this rich red-purple, calcifuge species. It can be variable here - see further comment under *P. marginata*.) (30+ seeds) D
- 788.100 PRIMULA LATIFOLIA (f. *pyrenaica*) France, Pyrenees-Orientales, SE of Las Planes to Puigmal. 2100 m. Wet N-facing, shale cliffs above stream. 17.9.91 (A magnificent giant race, local in nature and little-known in gardens. Clumps of broad, toothed, sticky foliage send up huge umbels, on stems almost 30 cm. high, of flowers in intense, velvety reddish violet. Not so fine among the *Rhododendrons* higher up.) (50+ seeds) D

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- 788.200 PRIMULA LONGIPES Turkey, Rize, Ovit Da. 3000 m. & above. Shady crevices, N-facing cliffs & in turf on rocks in melt-water streams. 30.8.86 (We should certainly not have listed this after so many years had we not had a report of a generous germination of this collection from a 1989 sowing by Ray Brown of Torbay's Plant World (Devon, U.K.). More than a little incredulous, especially as fresh 1986-87 sowings had come up poorly, if at all, we gave some seed to our friend Stan Taylor in Warwick to try last season. It performed well. We have mentioned before that some years ago Ron McBeath of the R.B.G. Edinburgh told us he had found dry-stored, refrigerated *Primula* seed sometimes germinated better than fresh seed. Might this actually be a requirement of a few species? Years ago we had fresh seed of the closely allied *P. bayernii* from the Caucasus; & promptly sown and duly nurtured, it did not produce one seedling. We are not at the stage of offering vintage seed yet but it may come. An exquisite, NE Turkish endemic, one of the most beautiful of Nivalid *Primulas*, with heads of white-eyed, soft lavender-blue flowers.) (30+ seeds) F
- 788.403 PRIMULA MARGINATA France, Alpes-Maritimes, Vallon de la Gordolasque. 1700-2000 m. Fissures on N & W-facing granite cliffs. 23.9.91 (Violet-blue flowers and beautiful, toothed, farina-edged leaves. Typically a limestone plant, we suspect the populations on granite have some ancient influence from the sympatric *P. latifolia* in their background (and vice versa) resulting in great colour variations.) (30+ seeds) D
- 788.900 PRIMULA MINIMA Italy, Veneto, Dolomiti, SE of Tre Cime de Lavaredo. 2300 m. In turf on open, W-facing, dolomite slope. 9.9.88 (Comparatively large flowers with deeply notched petals sit on tiny rosettes of wedge-shaped, serrate leaves. Usually rose-pink but varies from magenta to blue-mauve.) (30+ seeds) D
- 789.200 PRIMULA PEDEMONTANA France, Savoie, above Col du Petit Mont Cenis. 2200 m. Peaty, turf-filled ledges on granite outcrops. 2.9.88 (Local calcifuge plant, typically with deep-pink, white-eyed flowers but here *P. x bowlesii* (*P. pedemontana* x *P. latifolia*) occurs, varying to deeper red-violets.) (30+ seeds) D
- 789.400 PRIMULA SPECTABILIS Italy, Lombardia, Monte Tremalzo, WSW of Riva. 1900 m. Stony N & W-facing limestone slopes. 25.9.91 (Splendid, calcicole species restricted to the mountains around Lake Garda. Broad, shiny, leathery foliage and umbels of "enormous and comfortable" flowers in pink to rose shades.) (30+ seeds) D
- 790.201 PRIMULA VULGARIS (subsp. *vulgaris*) Greece, Pieria, Oros Olimbos. 1000 m. Shady banks in woodland. 10.6.90 (The primroses on Olympus are usually distinct, fine, white-flowered, yellow-eyed forms.) (30+ seeds) B
- 800.303 PULSATILLA ALPINA (subsp. *alpina*) Italy, Lombardia, below Passo di Croce Domini. 1700 m. Among grasses on steep, limestone slope. 25.9.91 (The great, snowy white *Anemone* of the Alpine pastures. Slow-growing but steadily forms its clumps of finely cut foliage in good soil and germinates well if sown fresh.) (30+ seeds) B
- 808.200 RAMONDA NATHALIAE Greece, Imathia, Oros Vermio above Nacoussa. 1200 m. N-facing limestone outcrop in woodland. 6.6.90 (Usually rated as the best of this small genus; it "wipes out all the rest of the race", writes Farrer. Comparisons are unjust but nevertheless a magnificent plant with flat, glossy rosettes and usually (but not invariably) 4-lobed flowers in pale to deep lilac with an orange-yellow centre. Comments under *Haberlea* may help in growing this from seed. Best in the alpine-house in shade.) (100+ seeds) E
- 809.500 RANUNCULUS ABNORMALIS Spain, Avila, Sierra de Gredos, NE of Pico Almanzor. 1800 m. Among rocks in snow-melt gulleys. 27.6.90 (Beautiful, tuberous-rooted species with varnished, lemon-gold buttercups with up to 10 'petals' from tufts of grassy foliage. A very choice, delicate plant but not difficult with care (20+ seeds) E
- 810.000 RANUNCULUS ACETOSELLIFOLIUS Spain, Granada, Sierra Nevada, below Pico del Veleta. 2800 m. Snow-melt gulleys on exposed, schist slopes. 25.6.90 (A distinct, high-alpine endemic of the Sierra Nevada. Greyish arrow-shaped leaves and big, pure-white, short-stemmed buttercups. By no means easy to grow.) (20+ seeds) E
- 820.200 RHAPONTICUM HELENIFOLIUM France, Hautes-Alpes, Pic de Gleize NNW of Gap. 2000 m. Limestone talus on S-facing side of summit-ridge. 20.9.91 (A robust, large-leaved herbaceous plant belonging to a distinct and possibly ancient group of relic Compositae, dotted here and there across Eurasia in widely separated and usually extremely limited habitats. The 'Flora Europaea' places these in *Leuzea*, following a 1973 Czech revision, which has otherwise not been generally adopted, and, if you want, you can keep them in *Centaurea* though they are separable from this in many ways - synonyms would be *Centaurea helenifolia*, *Leuzea rhapsantica* subsp. *helenifolia* among others. Though little-known in gardens, G.S. Thomas mentions some (under *Centaurea*) and one member of the group circulates under the name of "*Centaurea pulchra major*". This is not dissimilar in its massive heads of pale rosy-purple flowers, appearing from the involucre of papery silvery bracts (which dries beautifully) on stalwart stems up to 1.5 m. high. The big, undivided, dentate leaves are white-tomentose beneath and come from clumps which look as if they will live forever (and will probably dislike needless disturbance). For those who like big, bold plants in sunny places.) (15+ seeds) D
- 832.700 ROSA GLAUCA (= *R. rubrifolia*) France, Alpes-Maritimes, Vallon de la Gordolasque. 1800 m. Wet, stony slope. 23.9.91 (An excellent wild rose of neat, erect habit. Arching stems to about 2 m. clothed in bluish, purple-tinged foliage, of great value in the garden. Deep pink roses in early summer.) (20+ seeds) B
- SALVIA. While we have no wild collections in 1991, we list a few from cultivated seed, supplemented by seed-bank material from our last visit to Turkey in 1988. All cultivated seed is 1991 and most is from Panayoti Kelaidis in Colorado, U.S.A. While almost all of our 1984-88 *Salvia* collections have germinated somewhere, they have been most successful in dry-climate areas, such as the western U.S.A. and Australia. Unfortunately most of the out-leaved, shrubby group have been less willing to set much seed in gardens. In wetter areas, all will need as much sun and good drainage as can be arranged, if they are to be grown outside. Like many dry-climate seeds, germination can be irregular and sometimes sparse.
- 842.351 SALVIA AUCHERI var. CANESCENS Turkey, Konya, ESE of Ermenek. 1200 m. Steep clay slopes on limestone. 13.7.88 (Woody-based perennial, confined to this area, now growing quite well in the U.K. Narrow leaves, white-felted beneath. Delicate, 1 m. panicles of many, small pale and dark violet flowers.) (15+ seeds) E
- * 843.500 SALVIA CANDIDISSIMA subsp. OCCIDENTALIS Turkey, Adana, below Gezbeli gecidi. 1800 m. Loose shale slopes. 1991 seed from Denver. (60 cm. branching heads of white flowers from felted rosettes.) (20+ seeds) B
- * 844.201 SALVIA CYANESCENS Turkey, Bolu, W of Goynuk. 800 m. Loose, exposed shale slopes. 1991 seed from our 1985 coll. (Diffuse branching, 60 cm. stems of pale violet flowers with yellow lips. Felted leaves.) (30+ seeds) B
- * 844.700 SALVIA FRIGIDA Turkey, Sivas, Camlibel gecidi. 1600 m. Open slopes among grasses & *Juniperus*. 1991 seeds from our 1985 coll. (Single stemmed, pyramidal heads of many, small, white to pale lilac flowers.) (20+) B
- * 845.201 SALVIA HYPARGEA Turkey, Adana, N of Saimbeyli. 1200 m. Open rocky areas. 1991 seed from our 1984 coll. (Low clumps of narrow, grey, wool-backed foliage and stiff, 50 cm. herbaceous stems circled with lavender-blue flowers. Proving a good garden-plant, it is now well established in the garden-centres in Denver (20+) B
- * 846.100 SALVIA MICROSTEGIA Turkey, Adana, NNE of Saimbeyli. 1200 m. Open limestone slopes. 1991 seed from a 1985 coll. (Wide, single-stemmed panicles of small, white flowers on 1 m. stems.) (20+ seeds) B

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- * 847.400 SALVIA SCLAREA Turkey, Adana, Amanus Da. below Hasanbeyli. 800 m. In scrub at margins of fields. 1991 seed from our 1988 coll. (Garden-performance of this giant form has lived up to our expectations in many parts of the world, including the U.K., where it received an Award of Merit last year, when shown by the R.B.G. Kew - a distinguishing name will have to be given to it. Branching, 1.5 m. stems of lilac and white flowers set among large, bright-pink bracts - an exceptional, extremely local race.) (20+ seeds) C
- 852.002 SARCOCAPNOS BAETICA Spain, Albacete, below Riopar Viejo. 1100 m. Fissures on N-facing limestone cliffs. 22.6.90 (A very fine form of this Corydalis-like chasomphyte, forming long-lived, tufts of thick, blue-grey foliage with racemes of white, yellow-centred flowers, which, unlike the next, have no spurs. More widely distributed as a species in SE Spain & Morocco than the next and possibly easier to grow - very much an alpine-house plant in N Europe. Avoid too much shade, food and water to keep it tight.) (15+ seeds) E
- 852.400 SARCOCAPNOS CRASSIFOLIA var. SPECIOSA Spain, Granada, Sierra Nevada, Puerto de la Ragua. 1800 m. Fissures on shady, E-facing, schist cliffs. 24.6.90 (Generous racemes of white flowers with yellow-centres, which turn orange with age, and with long, fat spurs. Old plants form symmetrical, rounded hummocks of dissected thick, blue-grey foliage. Both these have germinated well and Robert Rolfe sent us a photograph of a fine plant produced within 12 months of collection! He tells us there is much variation in the seedlings, so keep most to flowering to select the best. If these become straggly in the rich, soft life of cultivation, an annual trim over with scissors after flowering keeps them in shape.) (10+ seeds) F
- 856.080 SAXIFRAGA AQUATICA France, Pyrenees-Orientales, Puigmal above Las Planes. 2100 m. Crevices on wet shale cliffs, running with water. 17.9.91 (A giant 'Mossy' forming huge cushions with erect, 60 cm. stems of pure white flowers. A striking endemic of the E Pyrenees for a moist, shady site.) (100+ seeds) B
- 858.500 SAXIFRAGA COTYLEDON France, Hautes-Pyrenees, SE of Gedre. 1300 m. Fissures on acid rocks. 30.6.90 (The unrivalled Pyrenean race of this calcifuge, Arctic-Alpine. Long panicles of white flowers.) (50+ seeds) C
- 860.300 SAXIFRAGA FLORULENTA Italy, Piemonte, NW of Colle della Finestra. 2600 m. N & W-facing fissures on granite cliffs. 29.8.88 (No sign of flowering here in 1991 so no new seed of Farrer's Ancient King. Not at all easy but we have seen fine plants from this and earlier colls., which usually germinate well.) (50+ seeds) F
- 861.000 SAXIFRAGA HOSTII subsp. RHAETICA Italy, Lombardia, Passo di Croce Domini. 1900 m. Stony alpine turf over limestone. 25.9.91 (Local race with dark-green, lime-encrusted rosettes and white sprays.) (50+ seeds) B
- 861.600 SAXIFRAGA LONGIFOLIA France, Hautes-Pyrenees, Vallee d'Ossoue. 1500-1700 m. W & SW-facing limestone cliffs. 15.9.91 (Again, very little seed in 1991 - we could find only one or two accessible spikes. "...one of the grandest in the race...the huge silver star-fish rosette ...is superb...even without those dominating regal fox-brush spires of white..." Seldom seen pure in gardens unless grown from wild seed.) (50+ seeds) D
- 862.850 SAXIFRAGA PEDEMONTANA (subsp. *pedemontana*) Italy, Piemonte, NW of Colle della Finestra. 2600 m. Fissures on cold, N-facing, granite cliffs. 22.9.91 (Very handsome but difficult, high-alpine, relic 'Mossy' with tight cushions of large-leaved rosettes and sprays of very fine, white flowers.) (50+ seeds) C
- 864.001 SAXIFRAGA SEMPERVIVUM Greece, Kavala, Pangeo above Eleftheroupoli. 1800 m. Limestone ledges and fissures. 7.6.90 (Prickly hummocks send up stems covered in pink hairs with dark violet flowers.) (50+ seeds) B
- 864.302 SAXIFRAGA SQUARROSA Italy, Lombardia, Monte Tremalzo. 1900 m. Stony, N & W-facing limestone slopes. 25.9.91 (Hard, tightly packed mounds of tiny, blue-grey, lime-encrusted rosettes with sprays of white flowers on wiry, 10 cm. stems. We are never quite sure whether these are this sp. or *S. caesia*.) (50+ seeds) B
- 864.400 SAXIFRAGA STRIBERNYI Greece, Drama, NW of Drama. 300 m. N-facing rock-fissures. 9.6.90 (A distinct endemic of the Greek/Bulgarian borders. Fine, flat rosettes, rather like *S. grisebachii*, but with branching cymes of violet-pink flowers on stems covered with red-purple hairs. Section Porophyllum.) (50+ seeds) B
- 867.600 SCABIOSA GRAMINIFOLIA France, Hautes-Alpes, Pic de Gleize. 2000 m. Stony, exposed, limestone slopes. 20.9.91 (The best, most reliable rock-garden plant in the genus. "Most beautiful and a pure joy in a hot sunny place...wide flower-heads of lilac-lavender all the summer through, making a lovely effect above the silver mass" writes Farrer. A delight in the wild also, forming great silvery cushions.) (20+ seeds) B
- 906.000 SENECIO LEUCOPHYLLUS France, Pyrenees-Orientales, Puigmal above Las Planes. 2300 m. Slate and gneiss scree on steep, open slopes. 17.9.91 (Famous endemic of the E Pyrenees surrounded by an aura of beauty and the challenge it offers the grower - rightly attracts the attention of show-judges when it appears in foliage classes. Exquisitely lobed and frilled foliage and stems clothed in pure-white velvet.) (About 20+ seeds) E
- 917.100 SILENE ELISABETHA Italy, Lombardia, Monte Tremalzo. 1900 m. Stony, N & W-facing limestone slopes. 25.9.91 (Like the preceding species, this is a beautiful aristocrat standing out from a large and largely weedy genus. "Tufts of narrow glossy foliage" from which, writes Farrer, "stray the stems of downy, claret-coloured velvet, wandering along the ground for a few inches and then rising up...to unfold one or two of those enormous ragged flowers of flaming magenta-rose...so much more tropical in the look than alpine." A spectacular alpine endemic of the mountains between Lakes Como & Garda; a challenge to grow well.) (20+) D
- 941.400 TANACETUM PRAETERITUM Turkey, Antalya, Bey Da. c. 2000 m. Limestone slopes. Coll. 1991 by P. & F. Watt. (A high altitude endemic of SW Turkey, which may still be in cultivation from a Peter Davis coll. but has never been so widespread in gardens as the more eastern *T. densum* (long grown under the misapplied name of "*Chrysanthemum haradjanii*"). The two are superficially similar in foliage and habit, though the intricately cut filigree leaves are rather harder and more silver in *T. praeteritum*, but are immediately distinct in flower as this has white ligules whereas *T. densum* has none. A worthwhile re-introduction of this woody 20 cm. high foliage-plant, which will be totally hardy in the alpine-house or scree-bed.) (About 30+ seeds) D
- * 980.200 VERBASCUM ARCTURUS Greece, Kriti, Rethimno, gorge near Selia. Limestone crevices. 1991 cultivated seed from an 1983 coll. by A. Edwards. (An endemic of the Cretan limestone gorges with downy, greyish-green basal foliage and branching 30 cm. stems of bright-yellow flowers with violet filaments. Easy if protected from winter wetness and has flowered all summer in a crevice in our cold greenhouse.) (50+ seeds) B
- * 980.850 VERBASCUM DUMULOSUM Turkey, Antalya, Gullukdagi. 1000 m. Crevices on ruins. 1991 cultivated seed from our 1984 coll. (Possibly unrivalled as the finest, dwarf, saxatile member of the genus, outstanding as an alpine-house and dry-stone wall plant. As the original Peter Davis introduction has crossed, in British gardens, at any rate, to some extent with other species, we hope to maintain this uncontaminated in cultivation. Only known to grow on the ruins of Termessos, where it may well be 'cleaned up' with herbicide at any time. Woody based mounds of felt rosettes and 15 cm. spikes of yellow flowers.) (50+ seeds) D

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- 982.551 VERBASCUM SPODIOTRICHUM Turkey, Antalya, W of Kemer. c. 200 m. On limestone and conglomerate cliffs. coll. P. & P. Watt, 1991. (Only known from the low limestones around the eastern, coastal base of Tahtali Dag and possibly allied to the Cretan *V. arcturus*, this well deserves a place in the alpine-house or unheated greenhouse - it is unlikely to tolerate wet weather in colder climates. Woody based hummocks of rounded leaves covered with dense, grey-white down send up long, lax racemes, the stems covered in glandular pubescence, of many small, bright-yellow flowers, each with a violet eye and central tuft of purple, woolly filaments - in all 20-30 cm. high in flower. Though we collected a pinch of seed S of here in 1984, this is the first significant collection of this most distinct, isolated species.) (50+ seeds) D
- 987.200 VIOLA AETOLICA Jugoslavia, Makedonija, Galicica Planina above Trpjeca. 1600 m. Grassy depressions on open limestone slopes. 5.6.90 (A charming little plant with lots of bright yellow flowers, which fits most closely, though not precisely into this species. Looks as if it may be a good garden-plant.) (30+ seeds) B
- 989.000 VIOLA CORNUTA Spain, Huesca, Puerto de Portalet. 1700 m. Open meadows on limestone. 29.6.90 (Successions of scented, long-spurred flowers in lilacs and purples from spreading tufts. Easy & reliable.) (30+ seeds) B
- 989.300 VIOLA CRASSIUSCULA Spain, Granada, Sierra Nevada, below Pico del Veleta. 2500-2800 m. Loose talus on exposed, schist slopes. 25.6.90 (One of the most exquisite Sierra Nevada endemics and the most southern of the *V. cenisia* group. It runs among the stones to form cushions set with plump, rounded, little flowers, invariably lavender-blue on these slopes. Not at all easy to grow but well worth the effort.) (20+ seeds) F
- 990.001 VIOLA DUBYANA Italy, Trentino-Alto Adige, Cima Tuflungo above Val di Ledro. 1500 m. Limestone scree. Coll. P. & P. Watt, July, 1990. (A beautiful, bright purple species, only known from a small part of N Italy and rated more highly than *V. cenisia* by Peter & Penny Watt. See Bull. Alp. Gard. Soc, Vol. 56, p.76.) (20+ seeds) E
- 992.600 VIOLA PERINENSIS Greece, Drama, Falakro, above Agio Pnevma plateau. 1800 m. Limestone talus. 9.6.90 (Only grows on the high limestones of the Greek/Bulgarian borders. Thick-textured leaves and short-spurred flowers with prominent upper petals. All here are violet-purple (var. *bojadschiewii*) not yellow) (20+ seeds) E
- 993.150 VIOLA SCHARIENSIS Jugoslavia, Makedonija, Sar Planina above Tetovo. 2000 m. Loose stony slopes and alpine turf. 13.6.90 (A distinct plant with profuse lavender flowers, comparatively growable in a well-drained site in the U.K., misplaced by us over the years in both *V. albanica* and *V. grisebachiana* but recently and justifiably described as a new species only known from the Sar Planina bordering Albania.) (20+ seeds) D

SECTION III : SEED FROM CULTIVATED PLANTS AND OTHER AREAS - This section is something of a rag-bag where we list

all the seed we cannot place elsewhere : mainly cultivated plants without field data or those grown for so long that data is irrelevant ; there are some wild collections from areas outside those we are concerned with in Sections I and II and we have put a few here because data was sparse or identities not quite certain. In almost all cases, seed is from 1991 collections , but there are one or two items from 1990, where we felt the item was too valuable to scrap - these have been stored cold & dry as for other seed-bank items. While we have excluded summer-dormant material from Sections I & II, except in a few cases where we had new collections, we are listing everything in hand in this section. 'Bulb' enthusiasts might, therefore, find more to interest them here than elsewhere. We have had our southern hemisphere customers particularly in mind in doing this, as we know they prefer to sow such low-temperature germinators in the January-March period. Section I & II material from our summer, 1990 list is still available (provided we have not run out of seed of a particular item) for southern hemisphere sowing but, if using the July list, please list plenty substitutes. Northern hemisphere customers would be best to wait for the summer, 1992 list, for August-September sowing of genera such as *Cyclamen* & *Helleborus*. This section has grown to be somewhat longer than usual - we suspect because we have been in Wales for much of the past summer and have collected more seed from our garden here than before - but, on the other hand, there is not very much of some items, so be more prepared for disappointments than in the other sections and, if possible, list a few substitutes for Section III material.

While our main aim is to offer you seed collected by ourselves, our lists would be much the poorer were it not for the additional material contributed by some friends in Britain and abroad. You will find some seed credited to them in Sections I & II but their help is particularly evident in Section III, where space does not allow us to name the source. For such seed we are grateful to : John Andrews (California, USA), Helen Barton (Devon, UK), Dinah Batterham (Dorset, UK), John Blanchard (Dorset, UK), Simon Bond (Gloucestershire, UK), Jim Almond (Shropshire, UK), Peter Chappell (Hampshire, UK), Paul Christian (Clwyd, UK), Don Elick (Japan), Bert Hopwood (Devon, UK), Terry Hatch (New Zealand), Dave Hoskins (Hampshire, UK), Melvyn Jope (Surrey, UK), Panayoti Kelaidis (Colorado, USA), Will McLewin (Cheshire, UK), Tom Norman (Dorset, UK), Ivan Rankin (New Zealand), Wayne Roderick (California, USA), David Shahak (Israel), Alberto Castillo (Argentina), Norman Stevens (Cambridge, UK), Mike Tucker (Somerset, UK), Peter & Penny Watt (Hampshire, UK), Michael Wickenden (Kirkcudbrightshire, UK), Nancy Wilson (California, USA).

If we have omitted anyone, our apologies! Our sincere thanks to them all and to all our customers for continuing to support our work in attempting to collect and distribute seed of a wide range of new and interesting plants.

MOIST-STORED SEED - The following 1991 seeds have been stored moist at room temperature (c. a mean of 15°C/60°F) since receipt. Germination should be initiated (only bulblet or root development the first cold period) at under 5°C/40°F ; leaf production follows a second temperature drop - in autumn for the *Lycoris*.

LYCORIS PUMILA Grown in Japan by Don Elick from material received from Shanghai Botanic Garden, this is a really magnificent, blood-red spider-lily, 40-50 cm. high. Although in leaf in winter, Don tells us it will stand temperatures down to -10°C/10°F but it needs a high summer soil-temperature (over 20°C/70°F) to initiate flower buds - an obvious candidate for a bulb-frame in the U.K., especially as the bulb-roots are perennial.) (5 seeds) E

TRILLIDIUM GOVANIANUM From material grown at Goteborg, Sweden, derived from SEP 264 : Pakistan, Hazara, Kaghan valley above Shogran resthouse. 3000 m. An extraordinary link between *Trillium* and *Paris*, here at about the western extremity of its distribution. A 10-20 cm. high woodland plant with weird, lurid purple flowers (15 seeds) E

TRILLIUM OVATUM Collected in N California by Nancy Wilson. The more delicate, western version of the better-known, eastern *T. grandiflorum*. A plant of both coniferous and deciduous woodland, around 30 cm. high with big, white, pink-flushing flowers. Seed of all these will be sent moist and should be sown as soon as possible - 2-3 months at 2-5°C/35-40°F should initiate root germination. Only a rise to just over 10°C/50°F afterwards.) (15+ seeds) D

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- ABUTILON VITIFOLIUM** Splendid, 2 m., Chilean shrub. Downy, grey leaves and lavender mallow-flowers. (30+ seeds) B
- ACANTHOLIMON ? ACEROSUM** This & the following coll. P. & P. Watt, Nov., 1991 : Turkey, Antalya, Bey Da. c.1750 m.
This has 10 cm. flowering stems - *A. venustum* also grows in SW Turkey. Difficult to say how much seed is viable. C
- ? PUBERULUM** Sessile flower-heads - *A. ulicinum* group is also in the area. Not much of either of these. C
- AGAPANTHUS 'HEADBOURNE HYBRIDS'** From hardy clones of these blue African Lilies, mostly darker shades. (20+ seeds) B
- ALLIUM BORSCHZEWSKII** Clumps of narrow, glaucous leaves. Umbels of pink stars. 60 cm. C Asian species. (15+ seeds) B
- CHRISTOPHII** (= *A. albopilosum*) Huge, round heads of pale violet stars on 40 cm. stems. (15+ seeds) B
- KARATAVIENSE** Dense, spherical heads of purple-pink. Beautiful, blue-grey foliage. 20 cm. (15+ seeds) B
- MACLEANII** (= *A. elatum*) Dense, rounded umbels of bright violet-pink on stems of 1 m. or more. (15+ seeds) B
- OBLIQUUM** Round, pale yellow umbels. 60 cm. Like all the others here from Central to SW Asia. (15+ seeds) B
- REGELII** Unique in the genus with an inflorescence of up to 6 whorls of pink flowers. Rarely seen. (10 seeds) D
- ROSENBACHANUM 'ALBUM'** Rounded, loose umbels of white flowers with green ovaries. 1 m. or more. (15+ seeds) B
- SUWOROWII** Hemispherical umbels of rose-violet stars. Allied to the above but with leathery tunics. (15+ seeds) C
- ALSTROEMERIA DILUTA** (subsp. *diluta*) Coll. Chile, VII, Talca, near San Rafael. c. 300 m. Very local, 10-15 cm. high species with white to pink flowers, with red-streaked upper segments, only described in 1986. (10+ seeds) E
- DILUTA** subsp. **CHRYSANTHA** Coll. Chile, IV, Limari, Mantos de Hornillos. Usually yellow but can vary to yellowish pink or pale-orange with red-streaked upper segments. Endemic to the Coquimbo coast-ranges, 60-400 m. (10+ seeds) E
- HOOKERI** (subsp. *hookeri*) Coll. Chile, where it is widespread in the central area from sea-level to about 500 m. Dwarf, narrow-leaved plants, up to about 20 cm. high, with umbels of pink, green-tipped flowers. (15+ seeds) C
- LIGTU** (subsp. *ligtu*) Coll. Chile. Accompanied by a photograph of a luminous pink form but can vary. (15+ seeds) C
- LIGTU** subsp. **INCARNATA** Coll. Chile, VII, Cerro de los Cipreses. c. 1500 m. Restricted in the wild, always with a pink ground-colour and rather blurred, brown-red pencilling on the short, broad, upper segments. (10+ seeds) D
- LIGTU** subsp. **SIMSII** (= *A. haemantha*) Coll. Chile. Larger than either of the above, reaching 160 cm. in nature, with huge umbels of up to 50 flowers in bright orange to tomato-red with brown and yellow marking. (15+ seeds) D
- LIGTU HYBRIDS** Widely grown in British gardens and reputedly derived from crosses between the preceding two in the 1930's. Every shade of pink, orange, flame and biscuit-yellow. Remarkably hardy when established. (20+ seeds) B
- PELEGRINA** Coll. Chile, V, Pectora, Pichicuy. From coastal rocks and cliffs and tender in the U.K. Very large pink to lilac flowers, streaked purple on & above a yellow zone on the inner segments. About 30 cm. (10+ seeds) D
- PULCHRA** Cultivated seed from B.C. & W. 4762. Hardy in the S in U.K. White or pale lilac tipped red. (15+ seeds) C
- VERSICOLOR** Coll. Chile, VII, Cerro de los Cipreses. c. 1500 m. Unlike any other with pale to brownish yellow flowers speckled evenly all over with purple dots. 6-40 cm. high in the wild - may be hardy in U.K.) (10+ seeds) E
- ANEMONE RIVULARIS** Lovely, 60 cm. high, Himalayan herbaceous plant. White, blue-backed cups in profusion. (20+ seeds) B
- AQUILEGIA DISCOLOR** Blue and white flowered columbine endemic to the Picos de Europa. 15 cm. high. (20+ seeds) B
- ARISAEMA FLAVUM** Much divided foliage and small, yellowish spathes. Fairly hardy in the U.K. 1 m. (10 seeds) B
- TORTUOSUM** Extraordinary spathes. Vigorous clone of this Himalayan, hardy in Somerset, U.K. 1 m. (10 seeds) C
- TORTUOSUM - E. NEEDHAM COLL.** From material coll. Nepal by Edward Needham but no further data available. (10 seeds) D
- ARUM CONOPHALLOIDES** (should be *A. rupicola* according to P. Boyce) From a Norman Stevens Turkish coll. (10 seeds) C
- CYRENAICUM** Tender Libyan relative of *A. palaestinum*. Large spathes with purple interiors - striking. (10 seeds) C
- DIOSCORIDIS** var. **PHILLISTAEUM** The race endemic to W Syria. Green spathes blotched with maroon-black. (8 seeds) D
- ELONGATUM** Striking type-race from N Iran and SW USSR. Short-stemmed, brown-purple spathes. (8 seeds) C
- HYGROPHILUM** Original material from Israel. Narrow, green, twisted spathes with purple spadices. (8 seeds) C
- ORIENTALE** One of the finest with huge, boat-shaped, brown-purple spathes. Reasonably hardy in the U.K. (8 seeds) C
- ASARINA PROCUMBENS** Procumbent with soft-yellow snapdragons. Good in a cold greenhouse in the shade. (30+ seeds) A
- ASTRANTIA MAXIMA** Strawberry-pink heads carried singly on 50 cm. stems from running mats of 3-lobed leaves. (20+) C
- BABIANA STRICTA** S African corm of borderline hardiness in U.K. Shades of blue-violet to red-violet. (20+ seeds) B
- BELLEVALIA PYCNANTHA** Bulb with Muscari-like heads of little, squashed, blue-black grapes. 20 cm. Hardy. (20+ seeds) B
- BERGENIA - RED HYBRIDS** Mainly from our own clones, like 'Bartok' & 'Bizet' with weather-resistant, red-tinted winter-foliage and bright carmine flowers, plus some from newer German hybrids, 'Abendglocken', etc. (50+ seeds) C
- WHITE HYBRIDS** From the best of the white clones derived from Eric Smith's crosses with *B. stracheyi* 'Alba' - 'Brahms', 'Britten', etc. Very compact, tough, weather-resistant leaves and dense heads of flower. (50+ seeds) C
- CISTUS OSBECKII-FOLIUS** Splendid, purple-pink flowered Canary Is. endemic, border-line in U.K. (20+ seeds) B
- CALOCHORTUS ALBUS** Pendant, white flowers. One of the easiest to grow in the U.K. This and the following are from stocks cultivated by Dr. P. Christian, who is successfully growing a good range of the Californians. (20+ seeds) B
- CLAVATUS** Erect, golden-yellow bowls with brown anthers. Likely to differ from our 1989 wild coll. (15+ seeds) C
- SPLENDENS** Elegant Mariposa with wide-open, soft lavender flowers on 30-50 cm. stems. (15+ seeds) C
- SUPERBUS** Usually white with purple basal markings in a yellow zone. Erect, tulip-shaped flowers. (20+ seeds) B
- VENUSTUS** An extremely variable plant, most often white with a gold base and intricate basal marking. (20+ seeds) B
- CAMASSIA QUAMASH** Erect spires of deep violet-blue flowers to about 50 cm. Likes to be wet in spring. (20+ seeds) B

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- CAMPANULA HETEROPHYLLA An excellent, prostrate endemic of the Cyclades too seldom seen in cultivation. Rosettes of smooth, spatulate leaves and radiating stems of wide-open, lavender-blue flowers. Perfectly perennial. (50+ seeds) D
- CLEMATIS CAMPANIFLORA Vigorous Portuguese plant with masses of small, pale violet, scented bells. To 6m. (20+ seeds) B
- FLAMMULA Big panicles of small, white, sweetly scented flowers. Climbs to about 5 m. Coll. October, 1991, on Skopelos in the Aegean by M. Jope. Usually fairly hardy but does best in a hot, dry situation. (20+ seeds) B
- RSHDERIANA Lovely autumn-flowering climber with masses of fragrant, primrose-yellow bells. 5 m. (20+ seeds) B
- TIBETANA subsp. VERNAYI Often called the "orange peel clematis" and given the misapplied name C. orientalis. Very thick-textured, yellow bells and pinnate, glaucous leaves. A fairly vigorous climber to 4 m. (20+ seeds) B
- CODONOPSIS LANCEOLATA Coll. by Don Elick : Japan, Nara Pref., Omine Range, c. 400 m. 12.11.91. An herbaceous climber to 5 m. with pale green bells marked purple inside. Often in alluvial soil along streams in woods. (15+ seeds) C
- COLCHICUM TURCICUM Long, pale red-purple flowers in autumn. Narrow, twisted, glaucous leaves. (10+ seeds) D
- CONANTHERA CAMPANULATA Chilean member of the Tecophilaeaceae with branching stems to about 20 cm. carrying violet-blue, pendant bells over a very long period in early summer. A delight in frost-free conditions. (15+ seeds) D
- COOPERIA DRUMMONDII White-flowered, Zephyranthes-like bulb from Texas ; seed from Argentina. (10 seeds) C
- CORYDALIS RUPESTRIS A chasmophyte from Iran with small tufts of dissected, grey leaves and golden-orange flowers. "A jewel for the alpine-house" writes Henrik Zetterlund. This & the next give no problem from dry seed. (20 seeds) E
- WILSONII Larger than the above, with 15 cm. spikes of brilliant-yellow flowers from clumps of grey-blue leaves. No problem under glass but resents winter-wet outside - starve it to prevent it becoming too lush. (20+ seeds) B
- CROCUS ADANENSIS From material coll. Turkey, Adana, above Haruniye, c. 750 m. Member of the C. biflorus group with white-throated, lilac flowers, only known from this locality and described in 1975. Rare in cultivation. (8 seeds) E
- ASUMANIAE From several colls. made in the Akseki area in SW Turkey. Vigorous, pale-lilac in autumn. (15+ seeds) C
- BIFLORUS subsp. NUBIGENUS From J. Persson 86-4 : Greece, Lesbos. One of the most endearing of Crocuses with rich pale-blue flowers, feathered outside, and with striking black anthers, in early spring. (10 seeds) D
- BIFLORUS subsp. PULCHRICOLOR Outstanding form of this rich violet-blue Crocus, developed by Dr. P. Christian. Native to a cold, wet area around Bolu & Uludağ. in NW Turkey and well adapted to British gardens. (20+ seeds) C
- HADRIATICUS Autumn-flowering from W & S Greece. White with a yellow throat and scarlet stigma. (10 seeds) C
- PELISTERICUS From material introduced by Henrik Zetterlund : HZ 85-67, Yugoslavia, Makedonija, Karadzica Planina in peaty turf. Snow-melt high-alpine with deep violet flowers, which must not be dried out in summer. (8 seeds) F
- CYCLAMEN The following is more or less a 'names only' list of what we still have available from 1991 seed. It is included for the benefit of southern hemisphere growers but there are several items which may not be available in 1992 and also one or two which have come to hand since we compiled our July list, q.v. for more details on these.
- C. AFRICANUM (358.000 - Algeria, Kabylie) (10+) C C. HEDERIFOLIUM (364.003 - Greece, Evia.) (20+) B
- C. BALEARICUM (358.500 - Spain, Islas Baleares) (20+) C C. HEDERIFOLIUM f. ALBUM (White) (15+) B
- C. CILICIMUM (359.000 - Turkey, Antalya) (15+) B C. HEDERIFOLIUM 'APOLLO' (Superlative leaves) (15+) D
- C. CILICIMUM (359.003 - Turkey, Konya) (15+) B C. HEDERIFOLIUM 'WHITE APOLLO' (15+) E
- C. COUM - MIXED FORMS (Reds, whites, pinks) (15+) C C. HEDERIFOLIUM - SILVER LEAVES (10+) E
- C. COUM - PLAIN LEAVED, WHITE (10+) C C. INTAMINATUM - PLAIN LEAVED (20+) B
- C. COUM - SELECTED GOOD LEAVES (15+) D C. INTAMINATUM - WELL-PATTERNED LEAVES (15+) D
- C. COUM - SELECTED SILVER LEAVES (10+) E C. LIBANOTICUM (15+) C
- C. CYPRIUM (15+) C C. PERSICUM (15+) C
- C. GRAECUM (363.003 - Greece, Lakonia) (15+) D C. PURPURASCENS - SILVER LEAVES (10+) E
- C. GRAECUM (363.007 - Greece, near Tolon) (15+) D C. TROCHOPTERANTHUM (Carmine forms) (10+) E
- C. GRAECUM - M. Jope 86-3 (Greece, Poros) (15+) D C. TROCHOPTERANTHUM - PALE PINK FORM (10+) E
- C. GRAECUM - M. Jope 91-80 : coll. October, 1991 - Greece, Skopelos, Panormos. N Sporades island population. (15+) D
- CYPELLA HERBERTII Orange-yellow Tigridia-like flowers on branching 50 cm. stems. Marginally hardy in U.K. but easy under glass. Coll. Argentina, Buenos Aires Prov. by A. Castillo - flowers here in spring and autumn. (30+ seeds) B
- DAPHNE GIRALDII Deciduous shrub, c. 60 cm. high with yellow flowers. Likes a warm, well-drained site. (8 seeds) C
- MEZEREUM var. RUBRA From a good red-purple Dutch clone. This & the next need selection from seed. (10 seeds) B
- MEZEREUM 'BOWLES VARIETY' The best white race. Vigorous, upright growth. Yellow fruits. (10 seeds) B
- TANGUTICA An excellent evergreen shrub, about 60 cm. high, with white, purple-backed flowers. (8 seeds) B
- DICHELOSTEMMA MULTIFLORUM (Brodiaea multiflora) Bulb with rounded umbels of violet flowers in summer. (15+ seeds) B
- PULCHELLUM (Brodiaea capitata) Tight, lilac-blue umbels above purplish bracts. Both are about 50 cm. (15+ seeds) B
- DIERAMA PULCHERRIMUM Consummately graceful S African Irid with arching, 2 m. stems of pendant bells in early summer. More or less evergreen, grassy tufts of leaves. Extremely hardy in the U.K. From various pink forms. (20+ seeds) B
- FROM 'BLACKBIRD' Only a few may be as deeply coloured as this Slieve Donard clone. (15+ seeds) C
- FROM 'DWARF LILAC' Maybe nearer to D. pendulum. A proportion should come near the parent. (15+ seeds) C
- FROM 'WHITE FORM' We have not flowered seedlings from this clone and cannot tell what may result. (10+ seeds) D
- ECCREMOCARPUS SCABER Fast-growing Chilean climber can be treated as annual in U.K. Orange and yellow. (30+ seeds) A
- ERYNGIUM DECAISNEANA Reputedly the correct name for E. pandanifolium - one of the S Americans with evergreen tufts of spiny-edged, sword-shaped leaves & branching stems of small heads, up to 2 m. Tenderish in U.K. (30+ seeds) B
- SERBICUM A hardy perennial with leathery, cut basal leaves. Spiny blue heads. About 60 cm. (30+ seeds) B
- X ZABELII The hybrid, E. alpinum X E. bourgatii, will vary from seed - good blue heads. 50 cm. (30+ seeds) B

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- ERYTHRONIUM REVOLUTUM Possibly the best garden-plant among the Americans in the U.K. Rose-pink flowers. (20+ seeds) C
'WHITE BEAUTY' Supposedly sterile clone - nothing to do with *E. oregonum* Paul Christian corrects us. (15+ seeds) D
- FRITILLARIA ATROPURPUREA Purple-brown mottled with yellow and white. Inland version of *F. affinis*. (15+ seeds) C
- BIFLORA Pacific Coast species with brown-purple, green-striped bells. U.K. seed of this & the above. (10+ seeds) C
- CRASSIFOLIA (subsp. *crassifolia*) Seldom seen, dwarf type-race. Large, yellow-green and maroon bells. (15+ seeds) D
- MELIAGRIS The elegant Snakeshead of wet, W European meadows. From white and various purple forms. (30+ seeds) A
- PONTICA Vigorous form of this hardy woodlander. Big, pale-green, brown-tinted bells on 50 cm. stems. (30+ seeds) B
- RADDEANA Beautiful, dwarfer, daintier version of *F. imperialis* with pale yellow bells on 40 cm. stems. Not much trouble in a bulb-frame in the U.K., where stock stems from Paul Furse colls. in NE Iran. (15+ seeds) D
- STENANTHERA Central Asian with pale-pink flowers with purple nectaries, about 15 cm. high. By far the easiest of the challenging Rhinopetalums to grow in a bulb-frame in the U.K. Some fine seed from N. Stevens. (15+ seeds) F
- FUCHSIA PROCUMBENS Creeping New Zealander with strange, tubular, yellow and green, blue-anthered blooms. (20+ seeds) B
- GENTIANA ACAULIS From a fine, free-flowering garden-form originally from Froyle Mill in Hampshire. (50+ seeds) B
- MAKINOI From a fine, royal-blue form of this wet-growing, Japanese perennial. Erect 50 cm. stems from close clumps with dark blue trumpets in autumn. Later the lanceolate leaves usually colour to red shades. (50+ seeds) C
- GERANIUM CLARKEI From glowing 'Kashmir Purple' but we have 'Kashmir White' nearby. 50 cm. high. (10 seeds) B
- MACRORRHIZUM From 'Czakov', the deepest, most intensely coloured carmine clone of this ground-cover. (15+ seeds) B
- PRATENSE ALBIFLORUM The white flowered Meadow Cranesbill. Usually comes fairly true. 1 m. (15+ seeds) B
- WALLICHIANUM 'BUXTON'S VARIETY' Prostrate with lavender-blue, white-centred flowers all summer. (10+ seeds) B
- GILLENIA TRIFOLIATA Elegant, 1.5 m. high, hardy perennial. White flowers from red calyces. (15+ seeds) C
- GLADIOLUS ATROVIOLEACEUS Hardy, SW Asian, dark violet-purple species, usually of drier habitats. 50 cm. (15+ seeds) C
- ITALICUS (= *G. segetum*) Hardy and widespread from S Europe into Asia. Bright-pink flowers. Up to 1 m. (20+ seeds) B
- MACULATUS subsp. *MERIDIONALIS* Salmon-flowered, winter-grower from the Cape. Keep frost-free. (10+ seeds) C
- PALUSTRIS Hardy, red-purple species from habitats wet in spring. A dainty plant about 50 cm. high. (30+ seeds) B
- HABRANTHEUS TUBISPETHUS ROSEUS Coll. by A. Castillo, 1991 : Ezeiza, Buenos Aires Prov., Argentina. (20+ seeds) C
- HEDYCHUM DENSIFLORUM From the 'Assam Orange' clone of the KW 13875 coll. A ginger-lily which seems totally hardy in the U.K. Up to 1.5 m. high with dense spikes of scented, deep orange flowers. Exotic foliage. (10+ seeds) C
- HERBERTIA LAHUE subsp. *AMOENA* Coll. by A. Castillo : Ezeiza, Buenos Aires Prov., Argentina. Little, summer-dormant corm like a tiny, violet Tigridia, 6-10 cm. high. From alkaline soils in sun. Best frost-free in U.K. (30+ seeds) B
- HOSTA STIEBOLDIANA Magnificent, large, blue-grey leaves, veined and puckered. Pale grey-purple flowers. (20+ seeds) B
- X TARDIANA From the clones 'Halcyon' and 'Eric Smith', derived from Eric Smith's cross between the above and *H. tardiflora* - dwarfer with smooth, grey-blue leaves and better flowers. Seedlings will vary greatly. (15+ seeds) C
- VENUSTA A tiny, creeping species with fine, purple flowers on stems of about 25 cm. Green leaves. (10+ seeds) C
- HYDRANGEA MACROPHYLLA subsp. *SERRATA* From the exquisite clone 'Diadem', much dwarfer, earlier and paler green in its leaves than any other here. Lovely lace-cap heads of pale blue to pinkish in our acid soil. 1 m. (100+ seeds) C
- IRIS DOUGLASSIANA Most accommodating of the Pacific Coast group in the U.K. Pale to deep purple flowers. (15+ seeds) A
- KERNERIANA Beautiful soft-yellow Turkish Spuria, about 30 cm. high with a slender habit. (10+ seeds) C
- MAGNIFICA The largest Juno and the easiest to grow. Up to 1 m. with pale-blue flowers in spring. (15+ seeds) B
- ORIENTALIS Imposing Spuria with greyish leaves and stout stems to over 1 m. White with yellow patch. (15+ seeds) A
- PRISMATICA Grassy clumps of foliage and pale violet-blue flowers on slender stems. Likes moist shade. (10+ seeds) C
- SUBBIFLORA Splendid Portuguese Bearded Iris. Pure violet. 50 cm. Hot, dry site or bulb-frame in U.K. (15+ seeds) B
- TROJANA Distinct, W Turkish Bearded Iris. Pale-blue standards ; red-purple falls. 70 cm. (10+ seeds) C

THE ISRAELI ONCOCYCLUS IRISES

For the most part, the SW group of these spectacular irises comprises much more robust plants with larger leaves and larger flowers than the group from the Irano-Turanian steppes. We have grown all the following planted out under glass in the U.K. in the past but they do appreciate moving air and a little warmth in the coldest, wettest weather. These are all from Israeli grower, David Shahak - seed is notoriously unpredictable and can take a very long time to germinate. Various 'short-cuts' are possible but conventional sowing and patience can be the most reliable.

- IRIS HAYNEI Dense brown veining gives this a dusky purple appearance. Black-brown signal-patch. 40 cm. (10+ seeds) C
- HERMONA Creamy-white flowers, much more densely veined brown-purple on the falls - a bicolour effect. (10+ seeds) C
- JORDANA Very robust, maroon-purple with a black signal-patch and striking yellow beard. 50 cm. (10+ seeds) C
- LORTETTI A dense speckling of tiny maroon dots and fine veins on a white ground appear pink. 50 cm. (10+ seeds) C
- SAMARIAE Possibly a local race of the above but always recognizable. Very 'tucked-in' falls. 30 cm. (10+ seeds) C
- David Shahak's "gene pool hybrids" are an attempt to produce more vigorous, disease resistant, artificial species by crossing the wild parent then back-crossing the progeny over several generations to maintain desirable characteristics.
- IRIS MARIAE HYBRIDS From this difficult desert plant with pinkish violet flowers. Black beard & patch. (10+ seeds) C
- SUSIANA HYBRIDS The ancient, long cultivated parent is heavily virused. Purple-black veins on grey. (10+ seeds) C
- URMIENSIS HYBRIDS Our 1966 colls. of this yellow Iranian steppe iris were used to produce these. (10+ seeds) C

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- LATHYRUS TUBEROSUS European perennial pea, with leafy stems up to 1 m. high and bright red-purple flowers. (12+) B
- LAVATERA ARBOREA 'VARIEGATA' Lilac-flowered, 3 m. biennial - variegated leaves come true from seed. (30+ seeds) A
- LEYCESTERIA CROCOTHRYSOS Arching 2 m. stems with yellow racemes. Kingdon Ward's "Golden Abelia". (30+ seeds) C
- LEUCOJUM NICAEENSE Delightful, dwarf, pure-white, spring-flowering bulb. Grow in Cyclamen-conditions. (15+ seeds) B
- ROSEUM Exquisite, tiny Corsican with pink bells on wiry stems in autumn. 10 cm. Alpine-house. (15+ seeds) C
- LEWISIA TWEEDI Maybe the loveliest but not the easiest of the genus. Pale apricot, pink-flushed. (15+ seeds) C
- LIBERTIA CAERULESCENS Pale blue, 30 cm. high, irid, which Dr. T. Norman assures us is the true plant. (30+ seeds) C
- LILIUM AURAPUM Wild coll. seed from Japan, sent by Don Elick. Seed sent by Don previously germinated well and flowered with surprising rapidity. Huge, gold-striped, maroon speckled flowers are unrivalled. (12+ seeds) E
- MARTAGON 'ALBUM' Lovely, ivory-white, green-tinged form of this growable species. Comes quite true. (20+ seeds) B
- MARTAGON 'QUARRY WOOD STRAIN' Very variable from pinks to dark forms. Always an easy garden-plant. (30+ seeds) A
- MONADELPHUM var. SZOVITSIANUM Superlative, pale-yellow Caucasian. Usually reliable in UK conditions. (15+ seeds) C
- POMPONIUM Narrow-leaved, scarlet French species, from the stock long-grown by Joe Elliott. (10+ seeds) D
- POLYPHYLLUM Parents grown from a 1983 Chris Chadwell seed coll. : KBE 93 : Kashmir, NW of Pahlgam. 2200 m. Steep slope beneath forest. Exquisite but rather difficult. Pendant ivory flowers dotted with purple. (15+ seeds) E
- REGALE Huge, white, scented trumpets, flushed brown-pink outside. A superb, easy garden-plant. (20+ seeds) A
- TSINGTAUENSE Distinct NE Asian. Bright-orange, upward-looking flowers. Good outside in NE USA & UK. (15+ seeds) D
- LOBELIA BEQUAERTII Coll. Uganda, central Ruwenzori, near Bigo Swamp at over 3000 m. by Michael Wickenden in 1990. Obelisk-like, 2 m. spikes with purple-blue flowers from huge, purplish rosettes. Has germinated. (30+ seeds) E
- WOLLASTONII Coll. Uganda, SW Ruwenzori, Batoda Plateau by Michael Wickenden in 1990. Up to 4 m. high with grey-blue woolly, pendulous bracts and powder-blue flowers. Grows up to 4300 m - these are the ultimate alpinists. (30+) E
- LYONOTHAMNUS FLORIBUNDUS var. ASPLENIFOLIUS Relic, 10 m. high, evergreen shrub from Santa Catalina Is. off the S Californian coast. Corymbs of white flowers. Peeling 'driftwood' trunk. Seed grown in Devon, U.K. (50+ seeds) D
- MECONOPSIS BETONICIFOLIA 'ALBA' Pure-white version of the Blue Poppy for cool, moist conditions. (50+ seeds) B
- MIMULUS AURANTIACUS These are sticky-leaved Californian shrubs about 1 m. Soft-orange flowers all summer (50+ seeds) B
- PUNICEUS Uniquely coloured, brownish crimson flowers. See M. bifidus in Section II for comments. (50+ seeds) B
- NARCISSUS BULBOCODIUM var. GRAELLSII From a 1983 John Blanchard coll. : Spain, Sierra de Guadarrama. A distinct, dwarf, green-tinged white race, surprisingly little-known in cultivation. No trouble in a frame. (15+ seeds) D
- BULBOCODIUM var. NIVALIS JWB 90-21 : Portugal, Serra da Estrela. Dwarf, yellow, snow-melt race. (10+ seeds) C
- CORDUBENSIS Sect. Jonquillae. Deep yellow endemic of S Spain, near N. fernandesii. Good grower. (10+ seeds) C
- FERNANDESII Sect. Jonquillae. From several wild sources - seed will be sent with data. Yellow. (10+ seeds) C
- PAPYRACEUS Pure-white, winter-flowering, scented Tazetta. Originally from material coll. Gibraltar. (10 seeds) B
- PAEONIA CAMBESSEDESII From wild material of this Mallorcan endemic, coll. P. & P. Watt. Beautiful, grey-green, crimson-backed leaves and rose-pink flowers. The dwarfiest species and possible in the alpine-house. (8 seeds) D
- MLOKOSEWITSCHII The famous, pale-yellow Caucasian endemic. Usually an excellent garden-plant in U.K. (10 seeds) C
- PRIMULA HAZARICA From SEP 400 : Pakistan, Swat, Ushu valley near Mahodan. 3200-3800 m. N-facing, moist rocks. Thin textured, densely farinose leaves. Large, pale to dark bluish lilac, scented flowers. Hand-pollinated (30+ seeds) F
- SCOTICA Tiny, farinose species, surely the most exquisite of British endemics. Deep purple flowers. (50+ seeds) B
- RODGERSIA PINNATA 'ALBA' Magnificent, 1.5 m., perennial foliage-plant. Creamy white flowers. (100+ seeds) B
- PINNATA 'SUPERBA' Raspberry-pink flowers and wrinkled, bronze foliage. 1 m. Will not come 100% true. (100+ seeds) B
- ROMULEA BULBOCODIUM - KNIGHTSHAYES FORM Rich violet, gold-centred 'crocuses'. Hardy in S England. (30+ seeds) B
- BULBOCODIUM - WHITE FORM From a fine, white form with a yellow throat grown by Norman Stevens. (30+ seeds) B
- MACOWANII var. ALTICOLA Most hardy S African from very high altitudes. Bright yellow backed brown. (15+ seeds) B
- RUPICAPNOS AFRICANA NW African chasmophyte with grey-blue leaves & corydalis-like, pink flowers. (20+ seeds) B
- SALVIA BULLEYANA Handsome, leafy Chinese perennial. Yellow flowers with maroon lips. 60 cm. (20+ seeds) B
- HIANS Hardy, 60 cm. high, Himalayan herbaceous perennial. Violet-blue. A fine border-plant. (20+ seeds) B
- SAXIFRAGA - RED MOSSIES From the best and brightest red hybrids here, where they form big hummocks. (100+ seeds) A
- SCILLA PERSICA From the 1963 BSBE coll. in Iran. Pale-blue. 20 cm. From meadows flooded in spring. (15+ seeds) B
- SELINUM TENUIFOLIUM Described by E.A. Bowles as "the queen of umbellifers" - foliage very finely cut into a soft-green filigree. Stems rise to about 1.5 m. with flat, white heads. Likes a cool, moist soil in sun. (30+ seeds) B
- TROPAEOLUM SPECIOSUM Unrivalled, hardy, S Chilean climber with delicately cut foliage and scarlet flowers. This loves a rich, peaty soil in our cool, moist climate but is not everybody's plant. Steel-blue fruits. (5 seeds) B
- TULIPA BINUTANS Dwarf, yellow-flowered species from high-altitudes in Central Asia. Little-known as yet. (20+ seeds) C
- CRETICA Purple-pink flowers on 10 cm. stems. Unlike T. saxatilis, not usually stoloniferous. (10+ seeds) C
- SPRENGERI Latest of all tulips with elegant, orange-scarlet flowers. Grows best in light shade in the garden in the U.K. Seed also seems to germinate better if sown outside - we'll send enough to do this! (30+ seeds) B
- VERATRUM NIGRUM Majestic spires of maroon-black stars. Pleated basal leaves. Slow-growing but permanent. (20+ seeds) B
- VIOLA CORNUTA 'ALBA' Long-spurred, white flowers all summer on ground-covering mats. Comes true. (30+ seeds) A
- WORSLEYA RAYNERI From a dark violet-blue form of this extraordinary monotypic genus of the Amaryllidaceae, only known from Organ Mts. of S Brazil. Evergreen, strap-like leaves and funnel-shaped flowers come from bulbs with long, trunk-like necks. Possibly needs min. 10°C/50°F. Seed grown by Terry Hatch in New Zealand. Few. (5 seeds) F
- ZANTEDESCHIA 'GREEN GODDESS' Beautiful jade-green spathes edged with ivory. Border-line hardiness in UK. (10+ seeds) B

PRICE CODE A : \$1.50 ; £1.00 ; DM3, - ; FF10. - PRICE CODE D : \$4.00 ; £2.50 ; DM 7,50 ; FF25. -
 B : \$2.50 ; £1.50 ; DM4,50 ; FF15. - E : \$5.50 ; £3.50 ; DM10, - ; FF35. -
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