NEWS FROM : JIM & JENNY ARCHIBALD, 'BRYN COLLEN', FFOSTRASOL, LLANDYSUL, DYFED, SA44 5SB, WALES, UK : SEPTEMBER, 1992

We hope that this autumn list, in which there is a heavy emphasis on summer-dormant species, will reach most of you in time for you to sow seed of the many species of bulbs, corms and tubers listed for germination to occur over the coming winter. There is, of course, ample time available for southern hemisphere growers. While the present list is especially rich in such species, we think specialists in both alpine-plants and the larger hardy-plants will still be able to find much to stimulate their interest here. We have omitted any listing or mention of South American species but will return to these in our next list, when we hope to give some updated information on our 1991 collections from Chile & Argentina. We are confident that you will find the present list upholds the high standard which we have set ourselves in our seed-collecting over the past years and we look forward to hearing from you all once again.

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 have caused us some problems. While we have continued pricing in FF, we must ask French customers not to send cheques in FF and especially not to use cheques on 'La Poste'. These have proved very difficult to negot--iate. A Eurocheque made out in £ sterling is excellent ; a Giro payment in sterling is used by many French customers - you can price in FF and have the current equivalent sent to us in £ sterling ; FF cash sent to us by registered letter is also no problem. If fluctuations in exchange rates mean that 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 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 possible substitutes will be very helpful - we shall not use them unless we have to and, if we do, we always try to send more than the value of the items we cannot supply. We do not pay in your cheque until after your order has been sent - so 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. While we are a tiny business, a two person team, we are unusual, if not unique, in the field of specialised seed-collection in that we not only have to finance our work abroad but also to derive all our income from this business - we have to handle a lot of orders in a short space of time. 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 packet--ing and hope, once again, 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. We are glad to say such occurrences are very rare.

WHO ARE THE CONSERVATIONISTS ?

In the June, 1992, Alpine Garden Society Bulletin, Dr. Sylvia Martinelli concludes the account of Fritillaria in North America, to which we draw your attention later in the list, with some remarks on "conservation" : "Many horticulturists propagate fritillarias from wild-collected seed and several species are fairly stable in cultivation, so that they could be returned to the wild at a future date." This has been qualified by an editorial footnote, which we assume reflects the policy of the Alpine Garden Society : "There is little evidence that such species can be successfully re-introduced to the wild. Indeed it is often very difficult for populations of some species to rebuild their numbers once they have been depleted by one cause or another. The best and surest way to ensure their survival is to leave them alone and never to dig up plants in the wild - even seed-collecting can have a markedly deleterious effect over a number of years."

We are all so brain-washed through being subjected to an endless stream of such didactic statements that few who read this would think to question its truth or to demand the evidence, if any, on which it is founded. Moreover, it is made in qualification of an account by someone, who has considerable experience of these plants in the wild, by someone who has none at all and, in addition, is apparently gifted with clairvoyance. In brief, it is a statement typical of many "conservationists", which epithet we shall retain in inverted commas for reasons which are (or, we hope, will be) obvious. Dr. Martinelli appears to us to be reasonably literate and clearly wrote "could be returned" ; she did not write "can" or "will be". In view of her earlier accounts of habitat destruction : "...bull-dozing a hillside covered in F. purdyi to build houses, covering over F. recurva to make a car park...", we should think it unlikely that there will be any 'spare' habitat available for such plants in the near future - but who can know? In our list of Fritillaria you will find seed from two populations, whose habitats no longer exist. One, from which we have refrigerated seed collected in 1989, is now under concrete. The other is under water. Both are now doubtless experiencing some problems in trying "to rebuild their numbers." Fortunately, in the latter case, a few bulbs were "dug up" by Stan Farwig and Vic Girard. All the rest have vanished under the water (or, more usually, mud) of the Indian Valley Reservoir, one time type-locality for Brodiaea coronaria var. rosea (indeed a "rare and endangered" plant, if it is one), along with thousands of Calochortus luteus and Lewisia rediviva. The Californian serpentine habitats are so impoverished and useless for agriculture that they are "asking" to be used for garbage-dumping and land-fill. The same applies to the 'barrens' of Utah, amazing repositories of specialised plants. Species in this list collected on such sites include Erythronium multiscapoideum at Magalia, Arctomecon humilis near St. George and Calochortus nuttallii at Tridell. The fate of such habitats, however, is nothing to what is destined to befall the oil-shale barrens of the Uintah Basin. Do "conservationists" imagine federally listing a species as "rare and endangered" will matter a jot when it is growing on a heap of oil-shale owned by a multinational oil company. As a Mormon rancher, running his cattle on the shale barrens, said to us "They tell me that the oil companies will put it back better than it was before." Sure they will! Sure they will!

Such habitat destruction is, of course, rapidly increasing throughout the world - an inevitable consequence of expanding human population. In a recent letter from friends, who have travelled widely through Europe and Turkey for decades, they write that there are now "vast areas of tree-planting right where Crocus baytopiorum and Fritillaria carica subsp. serpenticola grow. When facing such devastation, we get very cross with the very aggressive anti-collect -ing propaganda of the Alpine Garden Society." All of us who have travelled in search of plants over a long period of time could recount a catalogue of such "devastation" but find little evidence of the success of the "conservationists". Even in Britain, the designation of a habitat as a "site of special scientific interest" appears to afford singularly little protection. The same is true in North America. As an American friend remarked "These nuts go mad if you dig up a couple of bulbs but do nothing when some guy runs a bull-dozer blade right through the whole damn lot." From the start the "conservation" movement had been characterised by short-sighted, narrow-minded cant. Fortunately, there are now a few voices being raised to put forward more original ideas with more realistic foundations.

In an assessment of the status of the rhinoceros in the wild, Martin Booth writes "Conservation has been an abysmal failure. Depleted rhino numbers prove the point. Despite the charities' vast donations and publicity drives, wildlife is still dwindling, wild places are still vanishing under flames and ploughs." After outlining his "long-term ideal", he continues, "At present, because of the ill-conceived concepts and blinkered thinking of conservation charities, this is likely to remain an unattainable dream." A few weeks ago, Sara Parkin, one time luminary of the British Green Party, left with the statement, "I have been forced to the conclusion that the Green Party is a liability to green politics." In the world of horticulture, a few of us have known for years that "the ill-conceived concepts and blinker -ed thinking" of many "conservationists" were a liability to conservation. It is always a serious mistake to dismiss such people as "nuts" and an even more serious one to obsequiously cringe before them as the Alpine Garden Society has done. This very small number of bigots and extremists poses a real threat to the conservation of plants in cultivation and to the future development of horticulture. Because they make a lot of noise, they have been thrown some cosmetic legislation by politicians - legislation which does nothing to protect the habitats of the species in question. Unfortunately, this legislation could be made to appear fully justified because the horticultural industry in Holland had taken no measures to put its own house in order and the international horticultural societies and organisations made no attempt to project a positive image of themselves. Once established, however, this legislation can be used as a completely open-ended means to create an ever-expanding and complex bureaucratic structure to limit the cultivation of plants and introduction of new material to horticulture. A botanist friend recently wrote, "Did you know Ilex aquifolium has been proposed (for listing by the Convention on International Trade in Endangered Species) - Christmas will never be the same again."

We can but hope this is a manifestation of the insanity of a faction in its death throes. Even if it is, we may all still have to pass through the period of madness. The curator of a European botanic garden told us last year that he was "almost beaten up" by the representative of an American botanic garden at an international conference, simply because he had illustrated his lecture with a photograph of a species, which his fellow-delegate considered to be "rare and endangered", in cultivation in Europe. A few weeks ago, we received a letter from Nancy Wilson in California, one of the very few people in the U.S.A. involved with growing pure Narcissus species, saying that the American Daffodil Society was considering "banning" the cultivation of Narcissus species. You cannot believe this insanity? Do not listen to us - read the account by Dr. Harold Koopowitz in the 1990 issue of 'Herbertia' on "Conservation and Bulbous Plants". Dr. Koopowitz is co-author of "Plant Extinction : A Global Crisis." published in 1990 and dutifully reviewed for the Alpine Garden Society by its then president, Mr. F.F.H. Charlton, who writes, "This book is certain- -ly propagandist - but in the best sense. You should read, and ponder, the author's suggestions..." We sincerely hope that the Alpine Garden Society and all the other horticultural societies, who have so far tended to maintain a more discreet silence on such matters, will "read, and ponder" Dr. Koopowitz's 'Herbertia' article. He writes, "One should also be aware that there is a sentiment among the growing conservation movement that wild species should not be cultivated or kept in private hands."

Dr. Koopowitz concludes his article, "When the international ban on trade in wild species of the slipper orchid, Paphiopedilum came into effect several countries also banned artificially propagated species. Consequently in Australia trade in P. delenatii, which has not been collected in the wild for over 50 years, was also banned despite the fact that there are hundreds of thousands of artificially propagated plants in cultivation, all of which were derived from a single specimen collected decades ago. We must be careful that this situation does not happen to bulbous plants, as well. Many bulbous plants are endangered but often they prove easy to cultivate and propagate. Examples of such species are Gladiolus aureus, G. watermeyeri, G. citrinus, Moraea loubeseri, M. atropunctata and Ixia maculata, which have been saved from the brink of extinction by being brought into cultivation."

The only possible future for many plant-species may be in cultivation. Writing in 1967, Dr. Desmond Morris in his "Zoologist's Study of the Human Animal", "The Naked Ape", wrote, "In 260 years' time, if the rate of increase stays steady - which is unlikely - there will be a seething mass of 400, 000 million naked apes crowding the face of the earth...The consequence of this for all forms of wild life is obvious...We need not dwell on this nightmare...Long before our populations reach the levels envisaged above we shall have broken so many of the rules that govern our biological nature that we shall have collapsed as a dominant species." As human beings, we have to retain some optimism regarding the survival of our own species and entertain some remote hope that horticulture will continue to survive and develop as a feature of our civilization. If it does not then vast numbers of plant-species are most certainly going to vanish forever. Gardeners are an unique group of people. No other section of the population has hundreds of years' experience in the conservation and propagation of an enormous diversity of plant-life. In no other field of conservation has there been more success. The list of species established in cultivation but either extinct or with extremely small wild-populations is incredibly long. Without thinking hard, we can mention such species as Metasequoia glyptostroboides, Ginkgo biloba, Franklinia alatamaha, Berberidopsis corallina, Eucryphia glutinosa, Tecophilaea cyanocrocus, Iris winogradowii, Paeonia mlokosewitschii, Cyclamen libanoticum - at about five to a line, we have no doubt we could fill this page - and the next in time. We should all be standing up and shouting "Look at us! Look at what we are doing! Aren't we clever!" Instead of demanding respect for our achieve- -ments, our horticultural societies expect <u>us</u> to respect "experts" so ignorant - or so dishonest - that they would have us believe all Cyclamen are "endangered" in the wild. This is simply insulting to our intelligence. Tens of thousands of plant species - and possibly the human species - are likely to vanish long before the last Cyclamen goes. A clear statement on where we stand is long overdue from all horticultural societies. In the interests of the future of horticulture and of conservation, it had better be the right one. The American Rock Garden Society has had the good sense to do this in summer, 1992. While this statement is in places a little verbose, it is overall eminently good sense : 1. We support habitat protection 2. We oppose wholesale collecting of wild plants for immediate resale 3. "We support the practice of knowledgeable individuals collecting seeds, cuttings, or divisions of wild plants for the purposes of growing, studying, selecting, hybridizing, and ultimately propagating and distributing to other growers." A much more positive projection of horticultural achievement must follow from us all. We shall do our part - turn to our last page of cultivated seed - "Look what we are doing! Aren't we clever!"

In the interests of balance, we must look at the recent achievements of the "conservationists". According to TRAFFIC, which apparently has a division occupied in ferreting around horticultural establishments sniffing out "rare and endangered" plants being threatened by gardeners, three "successful" prosecutions have been brought by British Customs & Excise on the advice of "experts" at Kew. One of these was taken against Dr. Adriana Hoffmann, an inter- -nationally respected botanist and leading figure in the Fundacion Claudio Gay, the Chilean conservation organis- -ation. She was found with two cactus plants in her handbag, without the necessary documentation ; fined £200 and deported. Let us conclude with the words of this "convicted plant smuggler" writing on the conservation of Chilean petaloid monocotyledons "It is a great challenge for the future to complete the missing data by collecting properly and systematically for herbaria, to learn more about the relationships between taxa, their biology, ecology and conservation problems and, also, how to grow them properly." Are you with Dr. Hoffmann.... or with the eco-thugs?

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

SECTION I : SEEDS COLLECTED IN NORTH AMERICA, MAY - JULY, 1992, BY JIM & JENNY ARCHIBALD

While the majority of seeds listed here were collected by ourselves during the May-July period, 1992, we have also included, in alphabetical order, seed from other collectors, principally John Andrews, whose collections from the intermountain region, along with earlier and later Californian collections greatly extend the range of species we were able to contribute. Some J. Andrews collections from 1991 are included but with a very few exceptions we have not made use of material we have stored under refrigerated conditions on this occasion. Collections made in 1992 were adequate for a fairly extensive range to be offered. One or two earlier, 1987 and 1989, collections are now listed as seed from cultivated plants. As most collections are from California, this is abbreviated to "Cal."

REFERENCE NUMBERS 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.

NOMENCLATURE for Californian species, which comprise the majority of our collections, generally follows Munz & Keck 'A Californian Flora' (1959). This is somewhat outdated, a little insular and often far from being functionally perfect. It was hoped that the revised edition of the Jepson 'Manual of the Flowering Plants of California', which is due to appear shortly, might update and supercede Munz. However, from the little we have seen of contributions to this, it is unlikely to approach anything near the standards set by the continuing 'Intermountain Flora' or 'A Utah Flora' (Welsh, 1987). Both the latter works are almost invariably used for taxa occurring within their areas.

13139 ABRONIA VILLOSA var. AURITA Cal., Riverside Co., Garner Valley. 1380 m. Open, level areas in sandy clay. 25.6.92 (The only annual in the list - too few of you want to grow them - and a superlative one. A Sand Verbena with sticky, hairy, leaves and procumbent stems with heads of large, fragrant flowers in stunning, intense, purplish rose-pink, followed by big, winged fruits. Sow it in the bulb-frame!) (10+ fruits) A

12809 ADIANTUM JORDANII Cal., Solano Co., Vaca Mts., Mix Canyon. 300 m. Shaded rocks and steep banks in woodland 1.6.92 (The Californian Maidenhair, a summer-dormant, Pacific Coast endemic - a beautiful fern, possibly best in a pan in a shaded alpine-house. Packets of this and other ferns will include plenty spores.) B

13237 ADIANTUM PEDATUM var. ALEUTICUM Oregon, Douglas Co., above Rock Creek, NW of Glide. 320 m. On & at base of shaded cliffs. 6.7.92 (A superlative and elegant, hardy fern, well suited to the British climate.) B

13050 ALLIUM DICHLAMYDEUM Cal., Sonoma Co., above Shell Beach, S of Jenner. 20 m. Ledges on coastal cliffs. 18.6.92 (We have only a few collections of this important genus among Californian bulbs. This is one of the best larger ones. Fine heads of bright pink on 20-30 cm. stems. No trouble in a bulb-frame.) (20+ seeds) A

13213 ALLIUM FALCIFOLIUM Cal., Humboldt Co., Friday Ridge SSW of Willow Creek. 1580 m. Stony areas in openings among conifers. 4.7.92 (A very choice, little plant, local but widespread on the Coast Range serpentines. Heads of bright red-purple flowers on short, 6 cm. stems between two, thick, falcate leaves.) (15+ seeds) B

13207 ALLIUM HOFFMANII Cal., Trinity Co., near Red Lassic, N of Zenia. 1660 m. Serpentine talus on open slopes. 3.7.92 (A very narrow serpentine-endemic. One of the handsome 'tumbleweed' types, like the SW Asian Section Acanthoprason. Short-stemmed, purple-pink umbels with a single, flat, fleshy leaf.) (15+ seeds) D

12988 ALLIUM PLATYCAULE Cal., Modoc Co., Warner Mts., E of Davis Creek. 1750 m. Open, gravelly patches among Artemisia & Juniperus. 14.6.92 (Another 'tumbleweed' species with heads of deep rose, pale-tipped flowers with dark anthers on short, flat stems between two, thick, falcate leaves. 5-10 cm. high. (15+ seeds) C

* 11410 AQUILEGIA BARNEBYI Colorado, Rio Blanco Co., above Piceance Creek, NW of Rio Blanco. 1980 m. Steep-sided gulley in loose, fragmented shale. 1992 cultivated seed from our 1989 coll. (When we decided to grow one species from this genus in isolation under glass here, it was not too difficult to settle on this one. It is a very local plant whose habitat is largely owned by multinational oil companies with a view to exploiting the oil shale deposits when the price is right. This extraordinary endemic of the oil-shale barrens of the Uinta Basin, discovered by Ripley & Barneby in 1948, is most distinct in its glaucous basal leaves, downy, sticky, 50 cm. stems and orange-pink and cream flowers with projecting, yellow anthers.) (20+ seeds) C

* 11451 AQUILEGIA LARAMIENSIS Wyoming, Albany Co., Laramie Mts., above Friend Creek. 2280 m. Granite fissures and often under overhangs. 1992 cultivated seed from 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. near the summit of Laramie Peak is in 'A Century of Alpines'.) (20+ seeds) C

AQUILEGIA SCOPULORUM J. Andrews coll. : Utah, Garfield Co., Red Canyon. 2200 m. Limestone cliffs & screes. 29.7.91 (Beautiful, bluish leaves, similar to those of A. jonesii. In this locality this reaches about 30 cm. in height and the flowers with their characteristic, long, straight spurs are wholly blue.) (20+ seeds) C

13045 ARABIS BLEPHAROPHYLLA Cal., Marin Co., SSW of Tomales. 15 m. Fissures on W-facing coastal cliffs. 18.6.92 (Early-flowering, Californian endemic with rich pink flowers. Excellent and easy under glass.) (20+ seeds) A

ARCTOMECON HUMILIS J. Andrews coll. : 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 up to 70 huge, white poppies on erect, branching stems 10-25 cm. tall. Its limited habitat is being invaded by housing developments, used for garbage dumping and eroded by "off-the-road" "recreational" vehicles. It is important that the cultivation and propagation of such plants is investigated. This germinated well with Robert Rolfe in 1991 - it can be done!) (20+ seeds) E

ARENARIA HOOKERI J. Andrews, 1992 coll. : Utah, Emery Co., Molen Reef, E of Moore. 1935 m. (A classic, firm dense, cushion-plant which can cover itself with stemless, fine, white flowers. Very seldom seen in gardens but widespread, though local, from Nevada to Nebraska - here in its var. desertorum.) (15+ seeds) C

13193 ARGEMONE MUNITA subsp. ARGENTEA Cal., Inyo Co., White Mts., NE of Big Pine. 2000 m. Stony, gravelly banks. 29.6.92 (A splendid Prickly Poppy with glaucous, lobed leaves and branching, 60 cm. stems carrying many diaphanous, white, Romneya-like flowers. This race is perennial but unlikely to be long-lived - best sown direct in a hot, dry site - and distinct in its whitish stems and copiously prickly leaves.) (20+ seeds) A

PRICE CODE A	:	$2.50	;	£1.50	;	DM4,50	;	FF15. -	PRICE CODE D	:	$5.50	;	£3.50	;	DM10, -	;	FF35. -
B	:	$3.50	;	£2.00	;	DM6, -	;	FF20. -	E	:	$7.00	;	£4.50	;	DM13, -	;	FF45. -
C	:	$4.00	;	£2.50	;	DM7,50	;	FF25. -	F	:	$10.	;	£6.00	;	DM18, -	;	FF60. -

ASCLEPIAS CRYPTOCERAS J. Andrews, 1992 coll. : Utah, Carbon Co., S of Price. 2040 m. (One of the very few dwarf species, attractive in its large, flat, bluish leaves and large heads of complex, pale greenish yellow and rose-purple flowers. A plant of clay or shale barrens to be attempted in a deep pot or bed.) (15+ seeds) B

ASTRAGALUS ASCLEPIADOIDES J. Andrews, 1992 coll. : Utah, Carbon Co., S of Price. 2040 m. (Erect stems about 30 cm. high with simple, rounded leaves mimic Asclepias cryptoceras, with which it often grows on selenium-rich barrens. A Colorado Basin endemic and possibly the most singular of this massive genus.) (15+ seeds) B

ASTRAGALUS COCCINEUS J. Andrews, 1991 coll. : Cal., Inyo Co., White Mts. near Toll House Springs. 1980 m. Loose, stony, clay slopes. 23.6.91 (Neither John nor ourselves were successful in collecting any seed of this in 1992. Unsurpassed in the brilliance of its elongated, glowing scarlet flowers set against hummocks of white, woolly foliage and followed by amazing, white-velvet, horned pods. Although it usually germinates with ease, we have found it very difficult to grow but others have been much more successful - a small plant sown directly into tufa at Goteborg Botanical Garden is illustrated in 'A Century of Alpines'.) (10 seeds) E

ASTRAGALUS LOANUS J. Andrews coll. : Utah, Sevier Co., E of Glenwood, King's Meadow Canyon. 1960 m. Loose, igneous gravels. 29.6.91 (Extremely compact, narrow endemic, like the next and A. uncialis in Subsect. Newberryani. Pads of silky, silver leaves and white, lavender-tipped flowers with striking pods.) (10 seeds) E

ASTRAGALUS MUSINIENSIS J. Andrews coll. : Utah, Emery Co., Molen Reef, E of Moore. 1935 m. (An opportune '92 re-collection from the same area as our 1989 coll., now finished. A distinct, central Utah endemic - little tufts of grey-green leaves, pink and purple flowers and beautiful, big, pinkish papery pods.) (10 seeds) E

12989 ASTRAGALUS PURSHII var. TINCTUS Cal., Modoc Co., Warner Mts. E of Davis Creek. 1750 m. Gravelly clay among sparse Artemisia. 14.6.92 (Low tufts of grey-white foliage with purple-pink racemes. With us it has grown well and stayed compact in poor conditions under glass and with D. Hoskins it set seed well in 1992 (from our 1989 coll., 11138, in the same locality). We have amalgamated cultivated seed with this wild coll.)(15 seeds) C

ASTRAGALUS UNCIALIS J. Andrews coll. : Utah, Millard Co., N of Sevier Lake. 1460 m. Stony 'wash' leading into Sevier Lake (dry). 29.6.91 (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 disproport--ionately large for the plant's diminutive stature." Certainly the first introduction .) (10 seeds) E

* 10903 ASTRAGALUS UTAHENSIS Utah, Sevier Co., SE of Salina. 2000 m. Stony clay in openings among Quercus and Juniperus. 1992 cultivated seed from M. Smith from our 1989 coll. (Mike Smith (Norfolk, UK) writes that one of his plants "is now overflowing a 12 inch pan having set over 150 seed pods." While we had hope this might prove one of the easier species, it is extremely encouraging to be able to list British-grown seed of this and A. purshii. This augurs well for the eventual maintenance of some of the other, dwarfer species - when discussing these with Dr. Barneby in 1987, he considered the main problem in cultivating these (in his case in the NE USA) was inducing seed to set. Growing these plants completely in character may not be possible without supplementary lighting but that can be said for most alpine and steppe-plants. Marcus Jones, pioneer of Utah botany and a devotee of this genus, considered this species the most beautiful flower in the state. Mats of white-felted leaves and short-stemmed racemes of brilliant carmine-purple flowers followed by pods covered in dense, shaggy, shining, creamy white hairs. Flowers very early in the spring.) (15 seeds) C

ASTRAGALUS SP. (Westgard Pass) J. Andrews coll., 1992 : Cal., Inyo Co., White Mts., near Westgard Pass. 2225 m. Limestone shelves. (When John discovered this he thought he had come across a hybrid between A. coccineus and A. purshii ; I suggested something near A. funereus, a very local Grapevine Mts. endemic, described by Barneby as "one of our most ornamental astragali" which "might well resemble" such a hybrid ; Elizabeth Neese feels it is certainly a new species. Material has gone to Dr. Barneby at New York and he will decide in due course. Essentially an amethyst-purple version of A. coccineus. Very few seeds.) (10 seeds) F

13091 BLOOMERIA CROCEA var. AUREA Cal., San Luis Obispo Co., NE of San Luis Obispo. 170 m. In heavy clay among grasses on open slope. 22.6.92 (This attractive, small Californian genus of cormous plants is near Allium and Brodiaea but distinct in several characters. Wide, open umbels of starry, pale yellow flowers, the segments with dark, median lines, on wiry, 20-30 cm. stems. Not difficult but seldom seen.) (20+ seeds) B

13112 BLOOMERIA CROCEA var. MONTANA Cal., Ventura Co., Wagon Road Canyon. 1450 m. Openings among scrub. 23.6.92 (The varieties are mainly distinguished on filament characters but this is a montane, chaparral plant.) (20+) B

BRODIAEA. Munz retains this genus as a broad grouping. Currently, splitting it into a number of genera is is more generally accepted. Consequently, we also list species under Dichelostemma and Triteleia.

13277 BRODIAEA ELEGANS Cal., Shasta Co., S of Shingletown. 850 m. Open slopes with scrub and Pinus. 9.7.92 (Widespread, lovely, late-flowering corm with violet-blue trumpets on 30 cm. stems. Easy to grow.) (20+ seeds) A

CALOCHORTUS

In 1989, we listed an extensive range of this genus, comprising 35 collections and about one-third of the species in the genus. In this list you will find well over half of the entire genus and almost double the number of collections - a result which was not actually anticipated in our initial plans for 1992. We had intended concentrating on seed collections of Erythronium and the Calochortus of Section Calochortus which flower very early. The 1992 season was not only extremely dry in the north, disastrous for many colonies of Erythronium with regard to flowering, but also at least a full month earlier than normal throughout California. While we missed out on the earliest species, it was possible to make collections which, in a later season, might not have been ready until August. Quantities of seed in many cases, however, are small. This particularly applies to some of the most southern species, which we have not listed before, from down towards the Mexican border. There will not be enough of these to go around so please suggest a few substitutes if you are ordering these. We may not be able to collect these again for some time.

The genus, centred on California and with about seventy species, extends east from Washington to the Dakotas in the north and southwards to Guatemala. While we have extended our collections both north and south in 1992, we are still missing the most northern and southern species - it is not physically possible to do much more in a single season. Our collections would not have been possible without invaluable assistance from American friends. We have been able to build on the help given to us in 1989 by John Andrews and Wayne Roderick, through the kindness of Stan Farwig and Vic Girard in sharing their unrivalled knowledge and experience, built up through decades of growing and searching for this genus, especially in California. It would have been impossible for us to collect seed of some of the Oregon species without the assistance given to us by Frank Callahan, another tireless enthusiast engaged in a serious and long-running investigation of this genus. We are also very grateful to British enthusiast David King, not only for telling us of his knowledge of the plants in the wild but for growing and promoting the cultivation of this genus. Since our 1989 list, seed-grown bulbs of several species have been offered commercially - we hope many more will follow.

PRICE CODE A	:	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D	:	$5.50	£3.50	DM10, -	FF35. -
B	:	$3.50	£2.00	DM6, -	FF20. -	E	:	$7.00	£4.50	DM13, -	FF45. -
C	:	$4.00	£2.50	DM7,50	FF25. -	F	:	$10.	£6.00	DM18, -	FF60. -

CALOCHORTUS

13052 C. ALBUS (Italian Bar) Cal., Tuolumne Co., above S Fork Stanislaus River, NE of Columbia. 750 m. Steep, scrub-covered slopes in deciduous woodland. 19.6.92 (The Fairy Lantern with pendant, white flowers on stems of about 20 cm. One of the easiest to raise from seed and flower in the U.K. under glass.) (20+ seeds) A

13149 C. ALBUS (Julian) Cal., San Diego Co., ENE of Julian. 1280 m. Mica-schist outcrop, in shade, on wooded slope. 25.6.92 (From the southernmost locality away down near the Mexican border.) (15+ seeds) C

13080 C. ALBUS var. RUBELLUS (York Mt.) Cal., San Luis Obispo Co., W of Templeton. 400 m. Steep, stony shaded banks in deciduous woodland. 22.6.92 (An extraordinary population with flowers of translucent ruby-pink - many populations S from Santa Cruz are pink-flushed but these are exceptionally dark.) (20+ seeds) C

12805 C. AMABILIS (Mix Canyon) Cal., Solano Co., Mix Canyon NW of Vacaville. 550 m. Steep, scrub-covered slopes. 1.6.92 (Nodding, globular flowers in clear, deep yellow on branched, 30 cm. stems. A species of the N Coast Ranges, proving quite easy to grow under glass in the U.K., where it flowers earlier than C. albus.) (20+) A

12812 C. AMABILIS (Butts Canyon) Cal., Lake Co., SE of Middletown. 350 m. Among Arctostaphylos on stony serpen--tine slopes. 1.6.92 (Not seen in flower but almost certainly this - very much dwarfer here with glaucous stems and leaves but this is very likely a result of the impoverished, serpentine habitat.) (20+ seeds) B

12789 C. AMOENUS (Mineral King Road) Cal., Tulare Co., above E Fork Kaweah River, NE of Three Rivers. 750 m. Steep slopes & ledges on rocky outcrops. 27.5.92 (Deep rose-coloured version of the preceding two, native to the western foothills of the Sierra Nevada, illustrated in the March, 1992, A.G.S. Bull., p. 30. These three species are the only members Subsect. Pulchelli listed here. Maybe not quite so easy as the other two.)(20+) B

12785 C. AMOENUS (Camp Wishon) Cal., Tulare Co., above Tule River NE of Springville. 1250 m. Shaded cliff ledges in deciduous woodland. 27.5.95 (We have not seen these in flower - possibly little difference.) (20+ seeds) B

11727 C. BRUNEAUNIS (Conway Summit) Cal., Mono Co., N side Conway Summit S of Bridgeport. 2230 m. Among Artemisia on open 'flats' overlaid with volcanic debris. 28.8.89 (Apart from the fact we were rather early for seed of this in 1992, this colony is currently 'disrupted' by road-widening work. Closely allied to the eastern C. nuttallii, its distribution forms an arc round the NW rim of the Great Basin. White flowers with purple spots above the glands and green-striped petals, which are the diagnostic character. 30 cm.) (20+ seeds) C

C. BRUNEAUNIS (Santa Rosas) Nevada, Humboldt Co., Santa Rosa Range, Paradise Valley above Solid Silver Creek. 1530 m. J. Andrews coll., 1989 (This is a steppe-plant used to extremely cold winters.) (20+ seeds) C

13186 C. BRUNEAUNIS (Westgard Pass) Cal., Inyo Co., White Mts., Westgard Pass. 2230 m. Openings among Artemisia on level, gravelly 'flats'. 29.6.92 (A few early, 1992 seeds for those preferring a fresh coll.) (10+ seeds) C

11681 C. CLAVATUS (Reservoir Canyon) Cal., San Luis Obispo Co., NE of San Luis Obispo. 150 m. Steep, stony slopes in canyon bottom. 26.8.89 (Too early for seed in 1992. Sumptuous, erect, bowl-shaped flowers of rich, gold-yellow with (in this form) brown anthers and a red-brown line around the dense basal hairs.) (15+ seeds) B

12701 C. ? COERULEUS (Magalia) Cal., Butte Co., NE of Oroville, N of Magalia. 760 m. Among Cupressus on stony serpentine slopes. 20.5.92 (We are still absolutely at sea over naming the little Cat's Ears, placed by Ownbey in Subsect. Eleganti ; a problem obviously aggravated by our never having been early enough in the field to see a wide range in flower. These are all delightful little plants with hairy flowers, basically white or cream but variably tinted with rose or purple, anything from 3 - 15 cm. high. See also comments under C. westonii, C. tolmiei and C. sp. 13205, etc. These three should be C. coeruleus but C. tolmiei is alleged to extend S into the upper Sacramento Valley - much, much more field-work is needed.) (15+ seeds) B

12710 C. ? COERULEUS (Pulga) Cal., Butte Co., N Fork Feather River, SW of Pulga. 420 m. Steep, stony, serpentine slopes, S-facing but often shaded by scrub. 21.5.92 (Like the above growing with Erythronium.) (15+ seeds) B

12845 C. ? COERULEUS (Weaverville) Cal., Trinity Co., NE of Weaverville. 750 m. Stony slopes in coniferous forest 4.6.92 (This should be C. tolmiei or the same as our 13205 but it is not - keys out as C. coeruleus - we have seen it in flower! Small dark-brown seeds ; no apiculus on the anthers. Lilac. Shiny leaf.) (15+ seeds) B

12142 C. CONCOLOR (Morris Ranch) Cal., Riverside Co., San Jacinto Mts., Morris Ranch Road. 1570 m. Among chapar--ral in granite grit. 25.6.92 (The huge Goldenbowl Mariposa, up to 60 cm. high with big yellow tulips, marked inside with dark-red, between May and July in the wild. A few early seeds only.) (10+ seeds) C

13240 C. COXII (Boomer Hill) Oregon, Douglas Co., W of Myrtle Creek. 450 m. Among grasses and sparse conifers on steep, serpentine slopes. 6.7.92 (The two recently described Oregon species, this and C. umpquaensis, really upset Ownbey's classification into sections (one reason we have seen little value in indicating the botanical divisions of this genus as they stand). Described in 1988, this is a very narrow serpentine endemic, about 15 cm. high with a shiny leaf and up to 7 bowl-shaped flowers, appearing pink and gold - actually white with red striae densely covered & fringed with yellow to white hairs, with a broad lavender chevron above the impressed green gland. This dwarf species should find immediate favour with the skilled alpine-specialist and should also be well-suited to alpine-house or bulb-frame conditions in the U.K. Our sincere thanks to Cliff & Bernee Bryden, worthy guardians of an unique plant, for their hospitality and allowing us access to the colonies on their land to collect seed for distribution.) (15+ seeds) E

13153 C. DUNNII (Inspiration Point) Cal., San Diego Co., Inspiration Point, SE of Julian. 1350 m. Open slopes with sparse chaparral, in red clay overlaid with volcanic debris. 26.6.92 (A very narrow edaphic endemic, rest--ricted to gabbro-derived clays from SW San Diego Co. into the Guadalupe Mts. in adjacent Mexico. More or less a miniature Mariposa, about 30 cm. high, Erect white flowers, marked red-brown. Very few.) (10+ seeds) E

11548 C. EURYCARPUS (Sawtooth Valley) Idaho, Custer Co., Sawtooth Valley S of Obsidian. 1980 m. Stony clay among Artemisia. 6.8.89 (Too early and too far W for this in 1992. Elegant, bowl-shaped flowers on wiry, 30-50 cm. stems. White or lilac-pink, blotched with maroon and broadly striped with green outside. A steppe-species, this should be growable in cold areas, kept cool and dry in winter when it would be under snow.) (20+ seeds) B

12733 C. EXCAVATUS (Gerkin) Cal., Inyo Co., Gerkin (Owens Valley, S of Bishop). 1350 m. Among Rosa & Salix scrub in clay (now dry). 23.5.92 (A very local species, whose predilection for vernally damp sites may be its undoing, as the rape of the Owens Valley water to appease the insatiable needs of Los Angeles will surely lead to a steady lowering of the water-table and possible elimination of its few habitats. We can only hope it will be growable. Widely bell-shaped, pale-lavender flowers with red-brown anthers.) (15+ seeds) E

PRICE CODE A	:	$2.50	;	£1.50	;	DM4,50	;	FF15. -	PRICE CODE D	:	$5.50	;	£3.50	;	DM10, -	;	FF35. -
B	:	$3.50	;	£2.00	;	DM6, -	;	FF20. -	E	:	$7.00	;	£4.50	;	DM13, -	;	FF45. -
C	:	$4.00	;	£2.50	;	DM7,50	;	FF25. -	F	:	$10.	;	£6.00	;	DM18, -	;	FF60. -

13174 C. FLEXUOSUS (Daylight Pass) Cal., Inyo Co., Amargosa Range, Daylight Pass between Grapevine Mts. & Funeral Mts. 1315 m. Among stones along dry gulleys, often through scrub. 28.6.92 (The strangest Mariposa always very local but widespread through the deserts S & E from here all the way to SW Colorado. Sinuous stems, 30-40 cm. long if straightened, twine through scrub or simply twist & spiral on the ground would be excellent in a pot if it can be grown - very little water if plunged. Up to 4, erect, white lilac-tinged flowers, purple-spotted and yellow-banded inside. A fine flowering followed heavy rain here in 1992.) (20+) D

11443 C. GUNNISONII (Glendo) Wyoming, Converse Co., SW of Glendo. 1980 m. Open grassland on low, rolling hills. 22.7.89 (Mainly distributed E of the Rockies - too far away for us in 1992. Usually white or pale lilac here with gold basal hairs & intricate purple markings. A late-flowering, summer-grower from cold areas.) (20+) B

13248 C. HOWELLII (Eight Dollar Mt.) Oregon, Josephine Co., Eight Dollar Mt. SW of Selma. 450-500 m. Among sparse Arctostaphylos & Pinus on open, S-facing slopes overlaid with volcanic debris. 7.7.92 (Of very limit--ed distribution in this corner of Oregon. Utterly distinct until C. umpquaensis surfaced - about 30-50 cm. high with erect flowers, the white petals covered in hairs, darkening centrally to a smoky brown area above the gland, disconcertingly reminiscent of a furry toy panda. Surprisingly Charles Grey records he grew this in the 1930's and found it "very satisfactory in cultivation" - we hope it proves so again.) (15+ seeds) D

11646 C. HOWELLII (Lone Mountain Rd.) Oregon, Josephine Co., SW of O'Brien. 470 m. Among Artemisia on open slopes with volcanic debris. 21.8.89 (Though only a few miles away at the same altitude, this colony flowers about a month later - in flower when we collected the above seed! Rather duskier grey and brown tones.)(10+ seeds) D

C. INVENUSTUS (Mt. Pinos) Cal., Ventura Co., Mt. Pinos. 2680 m. In granite grit among alpine-steppe veget--ation in summit area. J. Andrews coll., 1992 (Quite dwarf here, about 15 cm. high, with one or two erect pale lavender flowers stained basally with deep purple. A lovely species barely in cultivation.) (20+ seeds) B

13125 C. INVENUSTUS (Bandido Camp) Cal., Los Angeles Co., San Gabriel Mts., Bandido Camp. 1740 m. Among Artemisia with sparse Pinus on open, granitic slopes. 24.6.92 (More slender, dainty form 20 cm. high. A few.) (10+) B

13184 C. KENNEDYI (Deep Springs Valley) Cal., Inyo Co., Deep Springs Valley SW of Gilbert Summit. 1620 m. Open, stony slope with sparse Artemisia. 29.6.92 (A mythical, reputedly impossible species, unrivalled in the incredible brilliance of its colour. This will not appreciate a superfluity of water at any time, possibly best only moist in spring, and may need a high soil temperature in late summer to ripen the bulbs. It can be grown in Britain - Charles Grey exhibited it at the RHS Show in June, 1934, where it received an A.M. We just missed seeing this colony in flower in late May but believe it tends more to the luminous orange form which ranges E from here across the Mojave desert into N Arizona. A high, cold locality.) (20+ seeds) B

13110 C. KENNEDYI (Wagon Road Canyon) Cal., Ventura Co., Wagon Road Canyon. 1450 m. Stony areas in openings among scrub. 23.6.92 (At the SW limit for the species, almost certainly a red like the next.) (15+ seeds) B

13114 C. KENNEDYI (Lockwood Valley) Cal., Ventura Co., Lockwood Valley, 1540 m. Open meadows & among sparse Artemisia. 23.6.92 (The western race, from the same locality as our 1989 coll., with flowers of rich, solid vermilion-red with black anthers. Young bulbs from 1989 seed are growing without difficulty.) (20+ seeds) B

13177 C. KENNEDYI var. MUNZII (Wild Rose Canyon) Cal., Inyo Co., Panamint Range, Wild Rose Canyon, WNW of Charcoal Kilns. 2130 m. Open areas among Artemisia in gravelly soil. 28.6.92 (The highest altitude race, recorded from over 1850 m. in the Clark, Providence & Panamint Mts., only differs in being yellow - but what a yellow - as eye-burning as the scarlets & oranges with black-purple basal markings & anthers.) (20+ seeds) E

11267 C. LEICHTLINII Cal., Plumas Co., NNW of Quincy. 980 m. Dryish gravelly slopes in openings among Pinus. 30.6.89 (No seed set here (where much of the area is being logged at present, anyway) or in Sierra Valley in 1992. White (sometimes bluish or pinkish) flowers with dark spots above the glands & golden bases. A Mariposa distributed down the colder, drier inland E slope of the Sierra Nevada.) (15+ seeds) C

13026 C. LUTEUS (Clear Lake) Cal., Lake Co., N of Clearlake. 410 m. Among grasses on open slope. 17.6.92 (The race from the Coast Range foothills, rather smaller, daintier plants than the next with clear yellow flowers, tinged green basally and with fine, brown, basal markings. A Mariposa, 20-50 cm. high.) (20+ seeds) A

13060 C. LUTEUS (Chinese Camp) Cal., Tuolumne Co., SW of Chinese Camp. 380 m. Open, grassy areas. 19.6.92 (The race from the opposite side of the Central Valley, in the western foothills of the Sierra Nevada. More robust with great, golden tulip-shaped flowers, varying from almost white to deep yellow.) (20+ seeds) A

11540 C. MACROCARPUS Idaho, Butte Co., W of Craters of the Moon. 1520 m. Among volcanic debris on E & SE-facing slopes. 5.8.89 (Placed in a Subsection of its own, the ultimate in elegance with bowl-shaped flowers with elongated, reflexing outer segments. Lilac to purple with green-banded petals. 50 cm. high.) (15+ seeds) C

13283 C. NUDUS Cal., Plumas Co., NNW of Quincy. 1000 m. Margins of moist meadows among conifers. 10.7.92 (A sweet little plant, the only member of Subsect. Nudi listed, restricted to wet meadows among the coniferous forest of NE California. About 15 cm. high with erect lavender flowers marked with purple basally.) (15+ seeds) C

C. NUTTALLII (Price) Utah, Carbon Co., S of Price. J. Andrews coll., 1992. (John has seen this in flower and it is definitely the widespread white form of this eastern Mariposa - a lovely, clean-looking flower with exquisite basal markings. This is a cold area in winter -it should be growable in a frame.) (15+ seeds) C

10885 C. NUTTALLII (Tridell) Utah, Uintah Co., E of Tridell. 1700 m. Ridges of sand, clay & pebbles (ancient river deposits) with sparse Juniperus. 8.6.89 (John Andrews could find no seed here in 1992 - use of this habitat for land-fill garbage-dumping proceeds. According to all accounts, the marvellous sugar-pink race, which seems to flower much earlier than many of the white ones in Utah. Grow it cold and dry.) (20+ seeds) C

13086 C. OBISPOENSIS (Reservoir Canyon) Cal., San Luis Obispo, E of San Luis Obispo. 150 m. Crevices on loose, serpentine cliffs. 22.6.92 (A member of Section Cyclobothra, Subsection Weediani, but unlike any of the other allied ones listed here - one of the most distinct & highly evolved in the genus with many small flowers on stiff, branching stems. Reflexed sepals and hairy-tufted, purple-tipped, bright yellow petals look more like a piece of miniature feather millinery than a flower. A very local plant indeed.) (15+ seeds) C

13134 C. PALMERI (Strawberry Valley) Cal., Riverside Co., San Jacinto Mts., S of Idyllwild. 1580 m. Among grass in open meadow with sparse Pinus. 25.6.92 (A lovely, little Mariposa, a grassland plant looking for all the world like grass pinks in a European meadow with its pink flowers. A few early seeds only.) (10+ seeds) D

13266 C. PERSISTENS (Gunsight Peak) Cal., Siskiyou Co., W of Yreka, High Ridge NNW of Gunsight Peak to Deadwood Lookout. 1800 m. Loose serpentine talus on open slope. 8.7.92 (A dwarf, alpine, scree-plant which should receive the attention of the alpine-house specialist. Only known from this area and quite unlike anything else in the genus - remarkably tulip-like in its big, broad, fleshy basal leaf and 2 large, bowl-shaped flowers on a short, 10 cm. stem. Bright pink with yellow hairs above the gland - a beautiful plant which must be established & maintained in cultivation. Only a few large seeds are in each big capsule.) (8 seeds) E

PRICE CODE A	:	$2.50	;	£1.50	;	DM4,50	;	FF15. -	PRICE CODE D	:	$5.50	;	£3.50	;	DM10, -	;	FF35. -
B	:	$3.50	;	£2.00	;	DM6, -	;	FF20. -	E	:	$7.00	;	£4.50	;	DM13, -	;	FF45. -
C	:	$4.00	;	£2.50	;	DM7,50	;	FF25. -	F	:	$10.	;	£6.00	;	DM18, -	;	FF60. -

13118 C. PLUMMERAE (Soledad Canyon) Cal., Los Angeles Co., San Gabriel Mts., head of Indian Canyon S of Soledad Canyon. 1350 m. In chaparral on slopes of decomposed granite. 23.6.92 (A superlative, large, late species in Subsect. Weediani. About 60 cm. high with huge rose-pink, golden-haired bowls.) (15+ seeds) D

13089 C. SIMULANS (Reservoir Canyon) Cal., San Luis Obispo Co., NE of San Luis Obispo. 170 m. In heavy clay among grasses on open slope. 22.6.92 (A beautiful, little-known species near C. catalinae & C. venustus. White, more or less flushed lilac with striking dark basal markings. Kath Dryden flowered this in 1992 from the 1989 coll. - an extremely encouraging achievement which should dispel doubts about slowness to flower.)(20+) C

13103 C. SPLENDENS (Sulphur Spring Canyon) Cal., Ventura Co., Sulphur Spring Canyon off Lockwood Valley Road. 1280 m. Openings among Artemisia in sandy clay. 23.6.92 (Similar to the Lockwood Valley population listed in 1989 - a Mariposa with wide-open flowers of soft lavender with long, wispy, white basal hairs.) (20+ seeds) A

13021 C. SPLENDENS (Walker Ridge) Cal., Lake Co., Walker Ridge. 600 m. Among grasses & scrub on steep, E-facing slope. 17.6.92 (From near the northern limit for the species. Deep purple basal markings.) (20+ seeds) B

12757 C. STRIATUS (Lancaster) Cal., Los Angeles Co., N of Lancaster. 760 m. Open, level sites among alkaline--desert scrub. 25.5.92 (A most distinct endemic of the Californian Mojave Desert, just extending into Nevada - a Mariposa with many pale lavender flowers, veined with maroon-purple - exactly like the petals on Geranium cinereum 'Ballerina'. It may require individual treatment - for the adventurous!) (20+ seeds) C

13009 C. SUPERBUS (Table Mt.) Cal., Butte Co., N of Oroville, Table Mt. 150 m. Open grassy slopes in heavy clay. 15.6.92 (This introduces a group of allied and highly variable Mariposas. This,C. venustus & C. vestae are superficially similar in aspect & are separated botanically on the shape of the gland - in this linear,like an inverted V - but within each "species" the variability in colour & markings is quite staggering. Each population is quite different and it is essential to distinguish between them - this is the reason we have placed the locality in brackets after most collections here. Most would be immediately intelligible to American specialists who know these in the wild and we hope that they will become increasingly important to growers. We were pleased to see Kath Dryden had quoted localities in her 1992 listing of bulbs. Once you have grown & flowered a few you will understand about variation. While most species vary between colonies, it is particularly the case with C. superbus & C. venustus ; it is essential to have some criterion to distinguish populations and the locality seems the most sensible. We have not seen this coll. in flower but believe it is an "average" one, mainly white with purple basal markings & blotch on a yellow zone.) (20+) A

13198 C. SUPERBUS (Shoo Fly Road) Cal., Eldorado Co., N of Placerville. 720 m. Openings among Pinus. 30.6.92 (Far from "average" in amazingly subtle ground-colour shades like faded violet & rose silk.) (15+ seeds) D

12976 C. TOLMIEI (Boomer Hill) Oregon, Douglas Co., W of Myrtle Creek. 370 m. Among grasses on steep, open, serp--entine slopes. 13.6.92 (Though we have not seen these three colls. in flower we are reasonably happy in placing all under C. tolmiei. All are of different height & habit - expect rose or purple-tinted white flowers, bearded all over the inside of the petals. All these Pussy Ears are early-flowering.) (15+ seeds) B

12998 C. TOLMIEI (Shingletown) Cal., Shasta Co., S of Shingletown. 1000 m. Openings in mixed woodland, mainly deciduous Quercus, often in deep shade. 15.6.92 (A giant, large-flowered form according to David King.)(15+) B

12916 C. TOLMIEI (Takilma) Oregon, Josephine Co., E of Takilma. 850 m. Open, turfy, stony slopes with sparse conifers. 7.6.92 (A dwarf plant, growing here with Erythronium howellii, Silene hookeri, etc.) (15+ seeds) B

12974 C. UMPQUAENSIS (Callahan Creek) Oregon, Douglas Co., S of Tiller, above Callahan Creek. 460 m. Steep, open stony serpentine slopes. 12.6.92 (Described in 1989, closely allied to C. howellii and somewhat similar in its very hairy, cream-white, purple-black centred panda-flowers but most obviously distinct in its larger, drooping seed-capsule. Paul Christian (Clwyd, UK) already has this well established and so far describes it as "easy", which is good news as it is a very local serpentine endemic. This colony, about 40 km. (25 miles) S of the type-locality, seems to differ in a few features and may need another name eventually.) (15+ seeds) E

13058 C. VENUSTUS (Italian Bar) Cal., Tuolumne Co., NE of Columbia, above S Fork Stanislaus River. 650 m. Steep, open, stony slopes. 19.6.92 (We shall not add to comments under C. superbus - the species, distinguished by its rather square gland, is the ultimate in variability. Here mainly whites patterned dark red.) (20+ seeds) A

13063 C. VENUSTUS (Greeley Hill) Cal., Mariposa Co., NE of Coulterville, Greeley Hill. 1000 m. Open grassy slope. 19.6.92 (White to occasional pink ground-colour. Everyone's idea of a Mariposa. Not difficult.) (20+ seeds) A

13076 C. VENUSTUS (Adelaida Road) Cal., San Luis Obispo Co., W of Paso Robles. 550 m. Among long grass on open banks. 22.6.92 (Stan Farwig's 'aurora borealis' population - exceptionally variable pink and rose shades of ground-colour with occasional whites and an infinity of basal markings among golden hairs.) (15+ seeds) D

11703 C. VENUSTUS (Mt. Pinos) Cal., Kern Co., above Cuddy Valley to Mt. Pinos. 2120 m. Openings among Pinus. 27.8.89 (White or soft lilac with a ghostly thumbprint of pale blood-red at the tip of each petal.) (15+) C

C. VENUSTUS (Cuddy Valley) Cal., Kern Co., Cuddy Valley. 1840 m. Openings among Pinus. J. Andrews coll., 1991 (A famous & unique colony in a series of subtle red shades, like scarlet velvet faded to varying degrees. Of course, the complex basal markings are lost but the yellow basal hairs stand out.) (15+ seeds) D

13288 C. VESTAE (Coyote Valley) Cal., Lake Co., NE of Middletown. 290 m. Among grasses in heavy clay. 12.7.92 (Huge, spectacular flowers in solid white (very occasional pinks) with purple-pencilled bases and big brown -purple blotches in yellow zones. Double-crescent glands & a different chromosome number.) (20+ seeds) A

13160 C. WEEDII (Santa Ysabel) Cal., San Diego Co., SE of Santa Ysabel. 920 m. Among scrub on steep slopes in granite grit. 26.6.92 (Huge, brilliant-yellow bowls covered inside with long hairs and variably marked with red-brown. A big plant, 60 cm. or more high, from the far south. A few early seeds only.) (10+ seeds) D

13070 C. WESTONII Cal., Kern Co., above Rancheria Road S of Alta Sierra. 2050 m. In shade of coniferous woodland. 21.6.92 (A tiny subalpine Cats Ear stranded on the top of the Greenhorn Mts. at the S end of the Sierra Nevada. Another very local species which should be established & maintained by the alpine-specialist. Thanks to Stan Farwig's influence, Bryan Ness will treat this as a distinct species. Seed like C. nudus!) (10+) E

13205 CALOCHORTUS SP. Cal., Trinity Co., Lassics Lookout Road above Zenia. 1630 m. Stony openings in coniferous woodland. 3.7.92 (Listed in our 1989 list, under 11824, as C. coeruleus var. fimbriatus, we feel this has little to do with C. coeruleus - maybe nearer the above. Our photograph of it is in "A Century of Alpines" Plate 57 - a tiny furry thing, covered in white hairs, stained at the base with wine-purple.) (15+ see s) D

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C	:	$4.00	;	£2.50	;	DM7,50	;	FF25. -	F	:	$10.	;	£6.00	;	DM18, -	;	FF60. -

12950 CALYPTRIDIUM UMBELLATUM (Spraguea umbellata) Oregon, Jackson Co., S of Howard Prairie Lake. 1500 m. Gravel slopes. 10.6.92 (A neat, little Lewisia relative with flat rosettes of dark-green, leathery leaves. Prostrate radiating stems carry packed, papery umbels of tiny, rose-pink flowers. An effective pan-plant.) (50+ seeds) A

CAMASSIA. We commend these excellent bulbs as growable, trouble-free plants for British gardeners. Their spires of starry flowers recall Eremurus but vary from pale blue to violet-blue in colour. In nature they thrive in places which are seasonally wet but in cultivation do not seem to miss the summer drought. In California, we are concerned with two species, C. leichtlinii and C. quamash, but, going north, the situation becomes more complex, though there are only about five species in the genus. We have not seen the following collections in flower so thought it best not to assign names at present. All will be well worth cultivation.

12971 CAMASSIA SP. Oregon, Douglas Co., S of Tiller, above Callahan Creek. 460 m. Steep, open, stony serpentine slope. 12.6.92 (About 30 - 50 cm. high, growing here with Calochortus, Erythronium, Triteleia) (20+ seeds) A

12939 CAMASSIA SP. Oregon, Josephine Co., Applegate River Valley SE of Murphy. 350 m. Stony clay among deciduous oaks. 8.6.92 (Up to almost 1 m. high but we suspect height is much influenced by the habitat.) (20+ seeds) A

13241 CAMASSIA SP. Oregon, Douglas Co., W of Myrtle Creek. 450 m. Among grass on steep, serpentine slopes. 6.6.92 (Growing here with Calochortus coxii. Very dwarf, about 20 cm. high, but the soil is poor & thin.)(20+ seeds) A

13000 CEANOTHUS PROSTRATUS Cal., Shasta Co., S of Shingletown. 1000 m. Openings in mixed woodland. 15.6.92 (Total--ly prostrate, rooting mats 1-2 m. across with toothed, spiny leaves and blue flowers. A name misapplied frequently in cultivation. Completely hardy but needs a really hot, dry position to flower well.) (15+ seeds) A

13012 CEANOTHUS PROSTRATUS var. OCCIDENTALIS Cal., Lake/Sonoma Co., NW slope of Mt. St. Helena. 700 m. Steep, serpentine slope among Arctostaphylos scrub. 17.6.92 (A local race of limited range NW and SE.) (15+ seeds) A

12962 CHEILANTHES GRACILLIMA Cal., Siskiyou Co., W of Yreka, NNW of Gunsight Peak. 1750 m. Fissures on igneous cliffs. 11.6.92 (A small, dainty, lacy, tufted fern. Fronds backed with cinnamon-brown wool. 10 cm. high.) B

13003 CLEMATIS LASIANTHA Cal., Shasta Co., SW of Shingletown to Battle Creek Bottom. 500 m. Among boulders in opening among scrub. 15.6.92 (A Californian climber and possibly the most horticulturally desirable of the three native species. Not showy with creamy flowers about 5 cm. across. Downy stems and leaves.) (20+ seeds) A

CRYPTANTHA COMPACTA J. Andrews, 1992 coll. : Utah, Millard Co., SE of Garrison. 1980 m. (A type-locality coll. of this Utah endemic, one of the few, densely caespitose, cushion-forming members of the genus. Heads of white, yellow-centred flowers above bristly, greyish leaves. Our 1989 coll. of the Garfield Co. endemic C. ochroleuca, with which this is confused in the 'Intermountain Flora', has been kept relatively compact under alpine-house cultivation. This needs skill in the U.K. - these are not easy plants to grow.) (10 seeds) C

13258 DARLINGTONIA CALIFORNICA Oregon, Josephine Co., SW of O'Brien. 480 m. Wet areas, with constant seepage, on slopes. 8.7.92 (Extraordinary monotypic genus of insectivorous plants from Oregon and N California. Great, winged, translucent pitchers, about 50 cm. high, overtopped by bizarre, yellow-green and dull-purple flowers. A montane plant and perfectly temperature hardy in the U.K. but it does have very specialised cultural needs - it does not appreciate being stood in a saucer of water under glass all summer!) (50+ seeds) B

12728 DELPHINIUM NUTTALLIANUM Cal., Sierra Co., SE of Sierraville. 1870 m. Gravelly areas among Artemisia. 22.5.92 (Almost certainly the purple form of this 30 cm. high, summer-dormant species, which dies back to a little bundle of tuberous roots in summer. These are too little-known in cultivation - try a bulb-frame.)(20+ seeds) B

12737 DELPHINIUM PARISHII Cal., Inyo Co., Deep Springs Valley, SW of Gilbert Summit. 1620 m. Open stony slope with sparse Artemisia. 23.5.92 (A beautiful, pale azure-blue form of this taller species, distributed around the western edges of the Mojave and Colorado deserts. Erect, 50 cm. high, racemes of downy, white-eyed flowers. Like the preceding, this is a summer-dormant perennial but this retires to a woody root-stock.) (30+ seeds) B

12768 DICENTRA CHRYSANTHA Cal., Santa Barbara Co., Cuyama River valley, E of Santa Maria. 450 m. Steep open slope among scrub. 25.5.92 (One of the more 'way-out' members of the genus. Erect stems of about 1 m. with stiff blue-grey leaves carry panicles of upward-facing, bright yellow flowers of typical 'bleeding heart' shape in reverse. A Californian endemic and classic 'fire-follower', which is difficult to germinate.) (20+ seeds) B

12931 DICENTRA OREGANA Oregon, Josephine Co., SW of Selma above Mike's Gulch. 820 m. Loose, N-facing, serpentine talus. 7.6.92 (Only known in a few places on the serpentines along the Oregon/California line, this choice perennial is essentially a somewhat dwarfer version of D. formosa with more shallowly cordate, cream, rose--tipped flowers. About 15-20 cm. high with beautifully cut, glaucous leaves - very variable here.)(20+ seeds) C

13067 DICHELOSTEMMA VOLUBILE Cal., Tulare Co., near Camp Wishon NE of Springville. 1150 m. Among scrub on steep, open, rocky slope. 20.6.92 (One of the few climbing 'bulbs'. Sturdy, contorted stems, anything up to 2 m. long twine through scrub. Quite large, compact umbels of rose-pink flowers with white staminodes. Not at all difficult under warm, dryish conditions or in a bulb-frame - certainly 'something different'.)(20+ seeds) B

DODECATHEON. With the exception of D. jeffreyi, all the following collections of this beautiful genus of the Primulaceae are summer-dormant species requiring a resting period. These are too little grown by "bulb" enthusiasts. As not all have been seen in flower, identifications are somewhat tentative in a few cases.

* DODECATHEON CLEVELANDII subsp. INSULARE 1992 seed grown by Wayne Roderick from his original coll. : Cal., Santa Cruz Island, Christie Ranch. (This is a big, striking plant, up to 40 cm. high, with large heads of shooting-stars, lacking the yellow spots on the filament tubes and with maroon-black anthers.) (30+ seeds) B

DODECATHEON ? CLEVELANDII ssp. SANCTARUM J. Andrews coll., 1992 : Cal., Santa Barbara Co., Figueroa Mountain NNW of Santa Ynez. 1180 m. (John was not happy about assigning this to D. clevelandii but we cannot see what what else this can be from so far south in the Coast Ranges - on the W side of the San Rafael Mts.(30+ seeds) B

12984 DODECATHEON CONJUGENS Cal., Modoc Co., Warner Mts., E of Davis Creek. 1750 m. Among Artemisia on gravelly clay slopes. 14.6.92 (More or less a cold-climate, steppe version of D. clevelandii, distributed east to Montana and Wyoming and just entering California in this NE corner - a snow-melt species.) (30+ seeds) B

12841 DODECATHEON HENDERSONII Cal., Trinity Co., above Canyon Creek, N of Junction City. 1640 m. Stony serpentine slopes with sparse scrub. 4.6.92 (The most widespread northern species - usually in dry shade.) (30+ seeds) A

12816 DODECATHEON ? HENDERSONII Cal., Lake Co., Walker Ridge NE of Clearlake. 500 m. Steep, open, grassy slopes. 1.6.92 (This may be D. clevelandii ssp. patulum at the northern end of its distribution.) (30+ seeds) A

13270 DODECATHEON JEFFREYI Cal., Trinity Co., Scott Mts. SW of Scott Mountain Summit. 1590 m. Open, wet meadow, surrounded by conifers. 9.7.92 (Always a plant of permanently wet, montane habitats, this should be easily grown in open-garden conditions in areas with cold, wet climates. Lavender-pink flowers. 30 cm.) (30+ seeds) B

PRICE CODE A	:	$2.50	;	£1.50	;	DM4,50	;	FF15. -	PRICE CODE D	:	$5.50	;	£3.50	;	DM10, -	;	FF35. -
B	:	$3.50	;	£2.00	;	DM6, -	;	FF20. -	E	:	$7.00	;	£4.50	;	DM13, -	;	FF45. -
C	:	$4.00	;	£2.50	;	DM7,50	;	FF25. -	F	:	$10.	;	£6.00	;	DM18, -	;	FF60. -

DENDROMECON RIGIDA

13066 DENDROMECON RIGIDA Cal., Tulare Co., NE of Springville. 1150 m. Among scrub on steep, rocky slopes. 29.6.92 - Although William Lobb's seed collection introduced this to British gardens around 1854, this remains a sought-after species, seldom available commercially simply because of the difficulty of vegetative increase. It has a reputation for tenderness in Britain but this may well be due more to lack of summer heat to ripen its wood and its definite intolerance for saturated growing conditions. We grew it without any problems for many years in Dorset. Planted in a raised bed against the south-facing end of a greenhouse - the hottest, best-drained site we had available - and backed by violet-blue Clematis x durandii, it was a source of great pleasure all summer. With quite a wide distribution it varies a good deal and as many as twenty species have been suggested but at present the genus is generally accepted as comprising only one - or possibly two - species. This is a fairly average population of this woody-stemmed poppy - about 2 m. high with the brilliant yellow, four-petalled flowers held above the narrow, leathery, bluish foliage. From quite a high altitude in the western foothills of the Sierra Nevada, we hope this re-introduction will prove hardy and see this lovely plant more widely established in cultivation. Incidentally, the mature seed is olive-green. (20+ seeds) B

DRABA QUADRICOSTATA J. Andrews coll., 1992 : Cal., Mono Co., W of Conway Summit, above Mormon Meadow. 2300 m. Rock-fissures on volcanic ridge. (A very narrow, Sierra Nevadan endemic, which comes with enthusias--tic recommendation from John, essentially an alpine & cushion-plant man, as possibly the most densely caespitose of all the Californian cushions. Possibly new to cultivation. Pale yellow flowers.) (20+ seeds) C

EPILOBIUM OBCORDATUM J. Andrews coll., 1991 : Cal., Modoc Co., ridge above Pine Creek Basin. 2680 m. East--facing ridge-top. (Most widespread of a group of late-flowering alpines, "really beautiful and gorgeous ... a rare choice treasure" wrote Farrer. Stunning magenta satin flowers on running mats.) (10+ seeds) B

ERIOGONUM DOUGLASII J. Andrews coll., 1991 : Cal., Modoc Co., Warner Mts., above Pine Creek Basin. 2670 m. (Close to the more widespread E. caespitosum. Hard, white mats about 30 cm. across. Yellow heads, flushing red, 3 cm. across on 4-10 cm. stems. Not the plant illustrated as this in a 1991 ARGS Bulletin)(15+ seeds) C

ERIOGONUM KELLOGII J. Andrews coll., 1991 : Cal., Mendocino Co., Red Mt. 1180 m. Rocky slopes and screes. Only known from Red Mt. - large, dense, flat woolly mats with 5 cm. stems carrying heads of pink flowers, flushing orange as they age. Virtually untried in cultivation, like most listed here.) (15+ seeds) D

13187 ERIOGONUM OVALIFOLIUM Cal., Inyo Co., White Mts., Westgard Pass. 2230 m. Openings among Artemisia in gravel 29.6.92 (A neat, white-leaved, medium-sized race of this endlessly variable 'species' - especially good pink heads here. Almost always proves one of the best in cultivation, staying well in character.) (15+ seeds) C

ERIOGONUM SHOCKLEYI J. Andrews coll., 1991 : Nevada, Nye Co., Grant Range, below Cherry Creek Summit. 1660 m. (Mounds of tiny, white-felted leaves and almost stemless, cream heads maturing to apricot and rust shades. Most widespread of the pulvinate-caespitose Sect. Capitata. Like the rest, cleaned seed.)(15+ seeds) D

ERIOGONUM SOREDIUM J. Andrews coll., 1991 : Utah, Beaver Co., Frisco (WNW of Milford). 2010 m. Limestone slopes. (Densely pulvinate with firm, woolly, grey-white mounds to 50 cm. across. Almost stemless heads of white, sometimes pink-flushed, flowers. Only known from above the ghost-town of Frisco.) (15+ seeds) E

ERIOGONUM URSINUM var. NERVULOSUM S. Bach coll., 1992 : Cal., Napa Co., Devilhead Road NNW of Lake Berry--essa. 460 m. N-facing serpentine scree. (Another very local plant - not unlike a red-flowered version of E. ovalifolium. Rhizomatous mats with leaves densely white tomentose beneath and congested umbels of red flowers on stems of only 5 cm. - a much more reduced and desirable version of the type-race.) (15+ seeds) D

ERITRICHIUM HOWARDII H. Zetterlund 91-200, coll. 1991 : Wyoming, Park Co., Dead Indian Pass NW of Cody. 2800 m. Limestone gravel patches and rock-fissures. (From the same site as our 1989 coll. (11491), this is much more growable and to us more beautiful than E. nanum. Dense cushions of silver rosettes, up to 10 cm. across, covered with purest blue, forget-me-not flowers on 5 cm. stems. Keep it cool in summer.) (15+ seeds) E

ERYTHRONIUM : See next page.

13276 FREMONTODENDRON CALIFORNICUM Cal., Shasta Co., S of Shingletown. 850 m. Among Arctostaphylos, Pinus, etc. on open slopes. 9.7.92 (A marvellous shrub, surely the only member of the Sterculiaceae growable in colder climates, collected in what is possibly its most northern locality. More or less evergreen, 3-lobed leaves on stiffly branching shrubs. Spectacular, wide-open, rich-yellow, saucer-shaped flowers.) (15 seeds) B

13290 FREMONTODENDRON CALIFORNICUM subsp. NAPENSE Cal., Lake Co., above St. Helena Creek near Napa Co. line. 490 m. In chaparral on steep, loose slope. 12.7.92 (A very distinct and very local race, only occurring at the point where Napa, Lake & Yolo Cos. meet. Much smaller, almost entire leaves on slender twigs and with the yellow flowers usually tinged rose. Also differs in capsule and seed characters. Few only.) (8 seeds) D

FRITILLARIA : This genus follows Erythronium and precedes Iris, in the following pages.

GILIA STENOTHYRSA J. Andrews coll., 1992 : Utah, Emery Co., Molen Reef, E of Moore. 1930 m. (Restricted to 'barrens' around the Uintah Basin, the exquisite basal rosettes of overlapping, beautifully cut, flat, grey-felt leaves send up a 30 cm., cylindrical spike of white to pale lavender-blue flowers.) (15+ seeds) D

13204 HACKELIA CALIFORNICA Cal., Trinity Co., Lassics Lookout Road above Zenia. 1630 m. Stony openings in coni--ferous woodland on serpentine. 3.7.92 (An eye-catching herbaceous perennial, about 50 cm. high from a woody crown. Wide panicles of large, pure-white forget-me-nots. Progressing slowly here from 1989 seed.) (10+) B

13163 HESPEROCALLIS UNDULATA Cal., San Bernardino Co., ESE of Barstow, off National Trails Highway. 610 m. Low hills in sand overlaid with volcanic debris. 27.6.92 (An exquisite bulb - a monotypic genus confined to the Mojave - linear, white-margined, blue-green leaves and white lilies, striped silver-green outside, on short stems, from 3-15 cm. high. Possibly difficult! The flat, black seeds are brittle - take care!) (15 seeds) C

HYMENOXYS LAPIDICOLA J. Andrews coll., 1992 : Utah, Uintah Co., Blue Mountain. 2020 m. (This extraordinary pulvinate-caespitose species, surely the most compact and reduced member of this genus, has been very well documented in both ARGS and AGS publications (see Bull.Alp.Gard.Soc. 60, 2, p.133 (June, 1992)). Only known from sandstone fissures and detritus on Blue Mt., this is so far proving surprisingly growable under alpine -house conditions in the UK. The compressed rosettes of leaves form firm mounds and produce solitary, stem--less, gaillardia-like, yellow heads - the epitome of many enthusiasts' desires!) (10+ seeds) E

PRICE CODE A :	$2.50	£1.50	DM4,50	FF15, -		PRICE CODE D :	$5.50	£3.50	DM10, -	FF35. -
B :	$3.50	£2.00	DM6, -	FF20. -		E :	$7.00	£4.50	DM13, -	FF45. -
C :	$4.00	£2.50	DM7,50	FF25. -		F :	$10.	£6.00	DM18, -	FF60. -

ERYTHRONIUM

This was not the season to choose for making a comprehensive collection of western Erythronium species. With little snow-cover and about half the normal precipitation in northern California and southern Oregon, many stands of these plants were just 'ticking over'. In many cases, about one in 500 plants had flowered with even fewer setting seed. Hopes of collecting additional seed at higher altitudes were dashed by heavy snowfalls in June which smashed down plants in full flower. Nevertheless, with much travelling, much searching and many time-consuming disappointments plus some invaluable help from friends, we are listing what seems on paper an impressive and unprecedented range. The other side is that quantities of several collections are very small. In several cases we could collect ample seed easily but in others only a few are available. Although this genus has its centre of diversity in northern California, it has a wide, circumboreal distribution and appears to have inherited qualities from ancient ancestors, which evolved and spread when cool northern forests encircled the world. As a result, most species are surprisingly easy to cultivate in open-garden conditions in cooler, moister climates, such as the U.K. There is still not wide experience of many of these in general cultivation, however, and, for the present, we should suggest caution in attempting these in pure sphagnum-peat (never sedge-peat for anything!) - a mixture of half granite chippings and half peat or leaf-soil might be more appropriate. In nature, most grow in very well-drained habitats usually in light shade. When they frequent areas which are hot and dry in summer, the corms are likely to be growing very deeply among stones, where soil temperature and moisture remain constant. In few cases do they actually grow in humus, though the sparse, surface litter-layer doubtless provides them with their source of slow-release nutrition. Their preference for serpentine areas is marked - singularly inhospitable, infertile soils, deficient in nitrogen, phosphorus and calcium with high concentrations of magnesium. Remember one of the most successful species in Britain is E. revolutum, most commonly a plant of moist habitats in high rainfall, coastal areas extending as far north as British Columbia. Initially, it would seem more prudent to try species from warmer, drier summer habitats in well-drained, sunnier sites in cool wet climates.

13216 ERYTHRONIUM CALIFORNICUM Cal., Humboldt Co., Friday Ridge, SSW of Willow Creek. 1580 m. Stony areas in openings among conifers, on serpentine. 4.7.92 (Leaves beautifully mottled with brown. One to several, creamy-white flowers, deepening to gold in the throats. Endemic to the N Californian Coast Ranges)(20 seeds) B

12928 E. CITRINUM Oregon, Josephine Co., above Josephine Creek SW of Selma. 500 m. Stony openings among conifers on serpentine. 7.6.92 (Restricted to localities in the Coast Ranges on either side of the Oregon/California line. Flowers white to cream with lemon-yellow bases. Mottled leaves.) (20+ seeds) C

12906 E. CITRINUM Cal., Del Norte Co., ENE of Gasquet. 420 m. Steep, rocky slopes, usually among dense scrub of Rhododendron, Vaccinium, etc. 6.6.92 (Growing here in a rather more mesic habitat than most.) (15+ seeds) C

12862 E. CITRINUM var. RODERICKII Cal., Trinity Co., above Scott Mountain Creek. 1200 m. Shaded slopes in coniferous forest. 4.6.92 (A type-locality coll. of this recently described taxon (see comment under the next coll.) - the nearest recorded populations of E. citrinum, E. californicum and E. hendersonii are each about 35 km. (22 miles) distant to the N, S and NW respectively. We suspect this owes some characters to two, or all, of them and that further investigations of the populations in the area might be revealing.) (10+ seeds) E

12850 E. ? CITRINUM var. RODERICKII Cal., Trinity Co., Trinity River valley S of Bear Creek. 960 m. Stony openings in coniferous forest. 4.6.92 (This is from the same place as our 1989 coll. (11018) listed under E. californicum with purple anther filaments. We have not seen this or the above in flower but suspect they are the same - in a straight line, little more than 6 km. separates the two localities.) (15+ seeds) E

E. "CLIFTONII" See our coll. of E. multiscapoideum (12709) for this undescribed taxon.

* E. ELEGANS 1992 seed cultivated in Sweden from a type-locality coll. by J. Andrews : Oregon, Tillamook Co., Mt. Hebo. c. 950 m. Open, rocky slopes with Gaultheria & Vaccinium. Described in 1985 and known from three localities - only here is it abundant. Apparently closest to the plain-leaved E. montanum & E. klamathense but the leaves can be mottled, suggesting ancient introgression by E. revolutum. 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 a very significant garden-plant - "huge flowers - easy - lovely.") (10+ seeds) D

11525 ERYTHRONIUM GRANDIFLORUM Utah, Cache Co., Bear River Mts., above Tony Grove Lake. 2400 m. Open, stony flats with Artemisia. 2.8.89 (A few seed-bank seeds left of the type-race with dark red anthers. Centered on northern Idaho, this is infrequent as far south as Utah - also an unusual habitat for this species.) (15+ seeds) C

11394 ERYTHRONIUM GRANDIFLORUM subsp. CHRYSANDRUM Colorado, Montrose Co., Uncompahgre Plateau, Columbine Pass. 2900 m. Openings in mixed woodland (Populus & Abies). 15.7.89 (The most western race of this widely distributed species. Characterized by the golden-yellow anthers, this is the dominant race in the Rocky Mts. and most adjacent areas, often growing as a snow-melt plant at high altitudes. An outstanding plant with bright yellow flowers and plain green leaves, generally accepted as one of the finest.) (20+ seeds) B

13010 E. HELENAE Cal., Lake/Sonoma Co., NW slope of Mt. St. Helena, SW of Middletown. 700 m. Steep serpentine slopes among Arctostaphylos scrub. 17.6.92 (One of the most local species, confined to the Mayacama Mts. in the Mt. St. Helena area. Described by Applegate in his monograph as "a strikingly beautiful and responsive plant in cultivation" this has a noted capacity to increase vegetatively in gardens. With mottled leaves and pure white flowers, this is quite close to E. californicum but has golden-yellow anthers.) (15+ seeds) C

12814 E. HELENAE Cal., Lake Co., Butts Canyon, SE of Middletown. 350 m. Among Arctostaphylos scrub on stony, serpentine slopes. 1.6.92 (This is unlikely to vary much but we shall use this as a 'back-up'.) (15+ seeds) C

12945 E. HENDERSONII Oregon, Jackson Co., N of Medford. 450 m. Open grassland and openings among deciduous oak scrub. 10.6.92 (A very beautiful, robust species with purplish stems and darkly mottled leaves. Pale to deep lavender-pink flowers with deep purple throats surrounded by white or yellowish zones. While extending south into California, this is essentially a species of deciduous oak woodland in the upper drainage area of the Rogue River. Applegate notes that in cultivation in Oregon it increased well vegetatively.) (20+ seeds) B

12938 E. HENDERSONII Oregon, Josephine Co., Applegate River Valley SE of Murphy. 350 m. Stony clay under oaks. 8.6.92 (From the SW limits of the species distribution, where it approaches E. citrinum territory.) (15+) B

12942 E. HENDERSONII Oregon, Jackson Co., Jacksonville, near old cemetery. 500 m. Among scrub in deciduous oak woodland. 10.6.92 (We have not seen these colonies in flower and do not know how much they will vary.) (15+) B

12915 E. HOWELLII Oregon, Josephine Co., E of Takilma. 850 m. Among sparse conifers on open, turfy, stony slopes. 7.6.92 (Related to the preceding and to E. citrinum but with no basal appendages on the anthers. White flowers, usually yellow basally and maturing to pink ; white anthers ; mottled leaves. Another very local species little known in cultivation, only collected from around the vanished town of Waldo.) (20+ seeds) C

PRICE CODE A :	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D :	$5.50	£3.50	DM10, -	FF35. -
B :	$3.50	£2.00	DM6, -	FF20. -	E :	$7.00	£4.50	DM13, -	FF45. -
C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

ERYTHRONIUM continued

E. IDAHOENSE Persson & Zetterlund 92-292 : Idaho, Kootenai Co., Worley. 800 m. Pine forest in sandy clay (Limited to quite a narrow strip along the Idaho/Washington line, N & S of Coeur d'Alene, and virtually unknown in cultivation in Europe, this is in Section Concolorae, with unmarked foliage, near E. montanum and E. grandiflorum but appears to be a perfectly distinct species. Pure-white flowers with greenish yellow centres and white anthers. This is from the same locality as the 1926 type-collection.) (10+ seeds) D

12954 E. KLAMATHENSE Oregon, Klamath Co., S of Four Mile Lake. 1800 m. Dry, shaded situations in stony soil under Pinus. 10.6.92 (Also with unmarked leaves, in Sect. Concolorae, but closest to E. purpurascens. Most distinct from it in its habit, milk-white flowers with pure yellow centres and yellow anthers and well separated geographically but, like it, a high altitude species, extending to about 2500 m.) (15+ seeds) D

12700 E. MULTISCAPOIDEUM Cal., Butte Co., N of Magalia (NE of Oroville). 760 m. Among Cupressus sargentii on stony, serpentine slopes. 20.5.92 (Mottled leaves and white flowers with pale greenish-yellow centres and white anthers. With no close affinities among the other western species, it is the only one which has stoloniferous corms like some of the eastern ones. The typical form is little-known in gardens.) (20+ seeds) C

12709 E. MULTISCAPOIDEUM (E. "cliftonii") Cal., Butte Co., S of Pulga, above N Fork Feather River. 420 m. Steep, stony serpentine slopes and screes. 21.5.92 (This population, more or less a giant form of the species, has never been correctly described botanically. It is proving fairly adaptable and growable in the UK.(20 seeds) D

E. NUDOPETALUM Persson & Zetterlund 92-132 : Idaho, Custer Co., above Bear Valley Creek. 1900 m. Pine--forest on silt. (Described by Applegate in 1933 and only known from Bear Valley, this has remained an obscure plant unknown in cultivation. More recently it has been suggested it should be "lumped" with E. grandiflorum but as neither the collectors nor ourselves have seen this in flower we retain the name as in Elmer Applegate's 1935 monograph on the genus, the standard work for which Applegate undertook exten--sive fieldwork. Plain leaves and yellow flowers with dark red or maroon anthers.) (10+ seeds) E

12968 E. OREGONUM subsp. LEUCANDRUM Oregon, Douglas Co., above Callahan Creek S of Tiller. 460 m. Steep, open serpentine slopes and among conifers. 12.6.92 (A superlative species with mottled leaves, very near to E. revolutum but with white flowers often maturing to pink, with more definite basal markings of orange, dark-red or brown around the yellow bases. This is the southeastern race, distinguished by its white, not yellow, anthers, distributed from central Oregon to the Rogue River area and very little known in gardens compared to the typical more northern race. The latter is usually quite easily cultivated.) (20+ seeds) B

13242 E. OREGONUM subsp. LEUCANDRUM Oregon, Douglas Co., W of Myrtle Creek. 450 m. Among grasses and sparse conifers on steep, serpentine slopes. 6.7.92 (We have seen neither of these colls. in flower.) (15+ seeds) B

E. PLURIFLORUM J. Andrews coll., 1992 : Cal., Madera Co., (Sierra Nevada E of Merced), Shuteye Peak. 2360 - 2400 m. NW-facing granite ledges. (Described in 1990, though the first collection was made in 1907 and misidentified by Applegate and others as E. purpurascens. It is indeed allied to this and E. pusaterii but has been shown to be an extraordinary and distinct species by recent investigations in its limited and somewhat inaccessible habitat on Chiquito Ridge between Shuteye and Little Shuteye Peaks, where it flowers as late as July. Plain, bright-green leaves and stems up to about 30 cm. carrying up to 10 - exceptionally over 20 - nodding, bright-yellow flowers maturing to bronze or pinkish. Like nothing else!) (10+ seeds) E

12718 E. PURPURASCENS Cal., Plumas Co., Greenville. 1090 m. Coniferous woodland, in clay with thin humus layer. 22.5.92 (Plain green leaves and yellow-centred, white flowers becoming purple-tinged. The most widespread of this trio of high altitude species, most numerous around the upper drainage of the Feather River reaching to almost 2500 m., but still very little known in cultivation. An early, low altitude coll.) (15+ seeds) D

E. PUSATERII J. Andrews coll., 1992 : Cal., Tulare Co., (Sierra Nevada, E of Visalia), Moses Mountain. 2500 m. E-facing, granitic slope. (Again described in 1990 - the first collection by Purpus in 1895 was also placed under E. purpurascens then later Samuel Pusateri's material was described as a var. of E. grandi--florum in 1964. The most southern of the western species, a few disjunct populations confined to the area around the headwaters of the Kaweah and Tule Rivers, it resembles a larger version of E. purpurascens with well-developed appendages on the perianth segments. A snow-melt plant flowering in June-July.) (10+) E

13055 E. TUOLUMNENSE Cal., Tuolumne Co., NE of Columbia, above S Fork Stanislaus River. 750 m. Steep, scrub--covered slopes in deciduous woodland. 19.6.92 (Unmottled leaves and bright yellow flowers. Easily grown and increases well vegetatively but in the wild a remarkable relic of very limited distribution, though recent investigation has shown it to be much more locally abundant than previously thought.) (15+ seeds) B

FRITILLARIA

About 20% of this genus occurs in N America and, as with Erythronium and Calochortus, the centre of distribution is N California, where, unlike the European and SW Asian species, they still appear to be actively evolving, sometimes involved in hybridisation and, with the more widespread ones, showing considerable variation within the current concepts of the species. Enthusiasts would do well to grow the same "species" from as many localities as possible and we suggest, as we have done with Calochortus, that labelling with the locality may be as important as anything. From a gardener's viewpoint, by far the most useful account available is that written by Dr. Sylvia Martinelli and accompanied by some fine photographs by David Haselgrove, published in the March & June, 1992, AGS Bulletins (Bull. Alp.Gard.Soc. Vol.60, Nos. 1 & 2). Dr. Martinelli's account is essentially based on personal experience - she has seen 15 out of what she considers to be the 18 acceptable Californian species in flower in the wild. While she general--ly knows each species in only one or two localities, she has gone to considerable length to enlarge on the overall variation covered by each specific name. The nomenclature used in her account follows the standard flora by Munz and is similar to that used in our 1989 list. We have now been able to see the account by B. Ness destined to be published in the forthcoming Jepson 'Manual'. This appears uninspired and uncritically derivative from work done by Roger MacFarlane. It has not been viewed enthusiastically by several Californians who have an extensive knowledge of these plants in the wild. Nevertheless, it is likely to be accepted as standard so to be realistic we have used the names which will appear in this almost exclusively. As MacFarlanes' names are already well known in the UK, it causes no problems there! The successful cultivation of these plants is becoming much more evident in recent years. They have caused many disappointments and continue to be unpredictable in many cases. The basic criteria would appear to be well-drained, lime-free, low nutrient composts and, in the UK, giving them their first winter-watering late, about the end of December. Excess nitrogen should be avoided, especially for those species exclusive to serpentine.

FRITILLARIA

12806 F. AFFINIS (F. lanceolata) Cal., Solano Co., Vaca Mts., Mix Canyon NW of Vacaville. 550 m. Steep, scrub-covered slopes. 1.6.92 (Widely distributed down the Coast Ranges and very variable, usually with the wide, nodding bells mottled in brown-purple and yellow. 50 cm. high. Usually one of the easiest.) (20+ seeds) A

10500 F. AGRESTIS Cal., Alameda Co., E of Livermore. 170 m. Heavy clay in open, level grassland. 13.5.89 (A seed-bank coll. which it is impossible to repeat as this colony is now destroyed by development. The version of F. biflora from the grassland of the Central Valley, widespread but with most of its habitat now eliminated. Stout, 50 cm. stems with up to 8, greenish-cream bells, purple-brown inside. An adobe-clay plant)(20+ seeds) B

12985 F. ATROPURPUREA Cal., Modoc Co., Warner Mts. E of Davis Creek. 1750 m. Among Artemisia with sparse Juniperus on gravelly clay slopes. 14.6.92 (The inland version of F. affinis, most widespread of the "species" extending E to N Dakota and S to New Mexico. Usually with wide bells mottled in purple-brown and yellow or white but extremely variable. In our experience a plant of montane steppe. Not easy to grow.) (20+ seeds) C

F. BIFLORA J. Andrews coll., 1992 : Cal., San Luis Obispo Co., near Hearst Creek above San Simeon Bay. 10m. Coastal grassland. (A coastal species extending far S to around the Mexican border, flowering as early as February and possibly best grown frost-free. Dark brown-purple, green-striped bells and 20-30 cm. high but extremely variable even within a single colony. Remember the coast is very cool in summer.) (20+ seeds) B

F. BIFLORA J. Andrews coll., 1992 : Cal., San Luis Obispo Co., Arroyo de la Cruz. 15 m. (20+ seeds) B

13274 F. EASTWOODIAE (F. phaeanthera) Cal., Shasta Co., S of Shingletown. c. 1000 m. Openings in mixed woodland, mainly Quercus. 9.7.92 (A very dubious "species" which appears to be a fairly recent hybrid between F. recurva and F. micrantha, varying between the two extremes. This particular colony reputedly inclines more to F. recurva and Dr. Martinelli describes the colour as from all red or all apricot to brown-orange edged with yellow and orange with yellow inside. About 40 cm. high with whorled, bluish foliage.)(20+ seeds) C

F. FALCATA J. Andrews coll., 1992 : Cal., Stanislaus Co., above Adobe Creek. 490 m. Unstable serpentine talus on steep, N-facing slope. (A dwarf, serpentine endemic of very restricted distribution, which merits every effort to establish and maintain it in cultivation. A few glaucous, fleshy leaves, folded and curved, surround the short-stemmed, upward-facing, bowl-shaped flower - brown-speckled but very variable.) (15+) E

13040 F. LILIACEA Cal., Marin Co., NW of Nicasio. 15 m. Among Baccharis scrub on low, grassy coastal hills. 18.6.92 (Of very limited distribution N & S of San Francisco. Handsome and distinct with bright-green leaves and 30 cm. stems carrying up to 5, pendant, creamy white bells, pencilled or tinted with green. One of the most easily grown, especially if kept frost-free in winter and cool in summer.) (20+ seeds) B

13062 F. MICRANTHA Cal., Mariposa Co., Greeley Hill NE of Coulterville. 1000 m. Open, grassy slopes among thin, coniferous woodland. 19.6.92 (Distributed along the western foothills of the Sierra Nevada and, according to Munz up to 90 cm. high with up to 10 nodding bells. Here it is 30-50 cm. Whorled, bluish leaves and flowers, which, according to Martinelli, vary greatly in colour and markings in chestnut to yellow shades)(20+ seeds) B

13054 F. MICRANTHA Cal., Tuolumne Co., NE of Columbia, above S Fork Stanislaus River. 750 m. Steep scrub-covered slopes in deciduous woodland. 19.6.92 (Extremely variable here in form & colour apparently.) (15+ seeds) B

F. PINETORUM J. Andrews coll., 1992 : Cal., Kern Co., Mt. Pinos. 2600 m. Granite slopes. (One of the more obscure species, virtually unknown in cultivation and only sparsely documented by Martinelli (or anyone). Allegedly widespread in the southern Sierra Nevada but extremely local. Close to F. atropurpurea with purple yellow-green mottled flowers but these face outwards or upwards, the bulb has rice-grains and the capsule is markedly different. A high altitude plant possibly for careful, alpine-house cultivation, this will be best kept dryish in winter, wet in spring and cool when it is dormant, as for F. atropurpurea.) (15+ seeds) E

13015 F. PLURIFLORA Cal., Lake Co., Walker Ridge. 600 m. Open, grassy areas in heavy clay. 17.6.92 (One of the most distinct and beautiful but a great challenge. Stems of about 30 cm. with up to 7, rather conical bells of a rich and pure, unmarked pink. One of the adobe clay species, it remains a problem to grow.) (20+ seeds) C

12992 F. PUDICA Cal., Modoc Co., S of Davis Creek. 1450 m. Open, gravelly sites. 14.6.92 (Unlike any other North American - except in its bulb, it resembles the SE Turkish F. minima. Nodding, clear yellow bells on 20 cm. stems. A northern plant, widespread E to Colorado, usually in stony areas of montane steppe.) (20+ seeds) B

12852 F. PURDYI Cal., Trinity Co., Trinity River valley S of Bear Creek. 960 m. Open, stony slope. 4.6.92 (This endemic of the Coast Range serpentines at the NE extremity of its distribution (it extends much further N than shown in Martinelli's map). Dwarf with a few, wide bells, described by Martinelli as "voluptuously curved", "the shiniest, most delectable, fritillaria flowers." Usually very variable in brown veining, tinting and marking on a greenish white ground. Now being quite successfully cultivated.) (20+ seeds) D

13029 F. PURDYI Cal., Lake Co., S of Lakeport. 450 m. Serpentine talus on steep, open slope. 17.6.92 (15+ seeds) D

* F. PURDYI Cal., Lake Co., Little Indian Valley. c. 420 m. (Another collection from a colony which no longer exists, its habitat submerged by Indian Valley Reservoir. Stan Farwig & Vic Girard collected some bulbs before the flooding, in 1977, and have maintained the stock, from which this is the 1992 seed. They describe this as superficially like F. falcata with the flowers erect or outward-facing. Faintly tessellated.) (15+) D

12840 F. RECURVA Cal., Trinity Co., above Canyon Creek N of Junction City. 1640 m. Steep, stony, serpentine slopes with sparse scrub. 4.6.92 (Like nothing else in the genus with its narrow, nodding bells in luminous scarlet with just a hint of ghostly chequering. Martyn Rix considers it "not difficult to grow...kept dry in summer" but neither is it easy. Largely a plant of montane woodland & scrub - keep it cool!) (15+ seeds) C

12849 F. RECURVA Cal., Trinity Co., Trinity River valley. 960 m. Stony slopes in coniferous forest. 4.6.92 (15+) C

12813 F. RECURVA var. COCCINEA Cal., Lake Co., Butts Canyon SE of Middletown. 350 m. Among Arctostaphylos on serpentine slopes. 1.6.92 (Intensely coloured, local, lower altitude, chaparral race.) (10 seeds) E

F. STRIATA J. Andrews coll., 1992 : Cal., Kern Co., Greenhorn Mts., Rancheria Road NE of Bakersfield. 760m. (Closest to F. pluriflora, which grows about 400 km. to the N, but utterly distinct in its pendant bells with the segments recurved at the tips. Described by Alan Galloway, the discoverer, as "white or creamy with purplish dotted striae" (appearing pink) and "with the most delicious fragrance". Little known.) (15+ seeds) E

F. VIRIDEA J. Andrews coll., 1992 : Cal., San Benito Co., above Clear Creek W of San Benito Mt. 820 - 1000 m. (A narrow, serpentine endemic, as local as the preceding and even less known in cultivation. Included under F. affinis in Munz, this lacks rice-grain bulblets and has the pendant bells only on one side of the stem. According to Martinelli these are very variable in markings and green/brown/yellow tones.) (15+ seeds) E

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IRIS

The Pacific Coast Irises (Series Californicae) exemplify better than either Erythronium or Fritillaria, the degree to which speciation is actively occurring in this area. Variation, intergradation and hybridization are considerable and, while Dr. Lee Lenz's 1958 classification (adopted by Munz and by Brian Mathew in 'The Iris") is a brilliant and fully acceptable compromise unlikely to be bettered, it should not be imagined his taxa are always clearly defined units in the wild. We had hoped to see most of these in flower in 1992 but we were again confounded by the season and saw no more than in 1989. Our seed collections, however, are much more extensive and we are listing an almost complete range except for I. tenax in the N and I. hartwegii subsp. australis in the S. In most cases, we have relied on information in Lenz's account to make collections in localities likely to provide seed of the "true species" but some known hybrid populations are included. Most garden material is, of course, of hybrid origin and it should be appreciated that many of the wild plants are likely to be both less showy and less easy to grow than garden hybrids. Most colonies grow in light woodland or among scrub, often on steep slopes. Victor Cohen in "A Guide to the Pacific Coast Irises' (1967) states "...the most important single factor in the cultivation of these irises is drainage...the soil itself is usual--ly neutral to slightly acid in nature...and is often full of grit and stone." In cool, temperate climates, a site in full sun may be preferable to the part-shade most favour in the wild ; one or two might be best in a bulb-frame.

12921 IRIS BRACTEATA Oregon, Josephine Co., Waldo Hill, S of Waldo on Sanger Peak Road. 650 m. Open, stony areas among scrub. 7.6.92 (Most distinct with thick, broad leaves and large, showy flowers - always in yellow, veined with deep maroon or brown. Extremely limited in its distribution, this is from near Howell's 1884 type-locality and from the site of a L.W. Lenz & E.K. Balls coll.) (20+ seeds) B

13233 I. CHRYSOPHYLLA Oregon, Douglas Co.(near Lane Co. line), Calapooya Divide, ridge E of Huckleberry Mt. 1120 m. Among scrub at margins of coniferous forest. 6.7.92 (Essentially a plant of S Oregon, between the Cascades and the Coast Ranges, with cream, gold-veined flowers and narrow, glaucous leaves.) (20+ seeds) B

12917 I. CHRYSOPHYLLA Oregon, Josephine Co., E of Takilma. 850 m. Open, turfy, stony slope with sparse conifers. 7.6.92 (A much dwarfer, almost stemless form though in these flowers tend to hide among the leaves.) (10+) B

13052 I. DOUGLASIANA California, Sonoma Co., Irish Hill above Coleman Creek. 150 m. Grassy slopes with coastal exposure. 18.6.92 (A tough, vigorous plant in cultivation in the UK, with no particular soil preferences. Wayne Roderick tells us most in this area are rich purples. Fine clumps of dark green foliage.) (20+ seeds) B

13221 I. DOUGLASIANA Oregon, Curry Co., N of Brookings. 270 m. Shaded banks in mixed woodland. 5.7.92 (Growing here with I. thompsonii (q.v.), the two were easily distinguishable in foliage. Not seen in flower.) (15+) B

12807 I. FERNALDII California, Solano Co., Vaca Mts., Mix Canyon. 550 m. Steep, scrub-covered slopes. 1.6.92 (Restricted to the Coast Ranges around San Francisco Bay. Unique, narrow, grey leaves and creamy yellow flowers. Growing well here under glass from our 1989 coll. but thrives outside with B. Mathew.) (15+ seeds) B

13056 I. HARTWEGII subsp. COLUMBIANA Cal., Tuolumne Co., NE of Columbia. 650 m. Steep, open, stony slopes. 19.6.92 (Extremely local, only known from around the type-locality, and "much more attractive" than the type race, according to Victor Cohen. Virtually a pale yellow version of splendid I. munzii, which occurs 225 km. to the S. Little-known in cultivation but growing well with us under glass from our 1989 seed.) (15+ seeds) C

13282 I. HARTWEGII subsp. PINETORUM Cal., Plumas Co., N of Quincy. 1070 m. Openings in coniferous forest. 10.6.92 (A Plumas Co. endemic and the only taxon starting to creep over to the E slope of the Sierra Nevada. Much dwarfer than the long-stemmed, small-flowered, type-race, it often opens two of its creamy-yellow flowers simultaneously. Possibly unknown in cultivation, this should be extremely temperature-hardy.) (15+ seeds) C

13225 IRIS INNOMINATA Oregon, Curry Co., N of Agness/W of Illahe. 400 m. Steep, stony slopes, facing E & SE, in coniferous zone. 5.7.92 (In its dwarfest, "purest" forms, this is the jewel of this group as far as rock-gardeners are concerned. Tufts of very narrow, dark, glossy leaves and stems, to 20 cm. tall, with flowers, varying from cream to orange and from pink to purple. It was the yellows we were anxious to re-collect, as so much stock in cultivation is now of "contaminated", larger hybrids, so we followed Victor Cohen's 1965 journey. Of this locality he writes : "On the rich, well-drained wooded slopes, riding ever higher above the Rogue, this iris was most abundant, displaying beautiful large flowers in rich golden-yellow and orange" Fully hardy and well-adapted to the UK climate in a lime-free raised bed or rock-garden scree.) (15+ seeds) C

13227 I. INNOMINATA Oregon, Coos/Curry Co., around the divide of the Rogue & Coquille River drainages. 650-700 m. Steep, stony slopes. 5.7.92 (As Cohen "travelled further north, towards the Iron Mt. and beyond it to the Coquille River, the flowers became pale apricot or light creamy-buff, richly veined in red-brown.") (15+) C

12897 I. INNOMINATA Cal., Del Norte Co., Gasquet Mt. NNW of Gasquet. 390 m. At margin of dense undergrowth on steep, wooded slopes. 6.6.92 (About 5 km. (3 miles) SE of Cohen's locality for the deep purple forms.) (15+) B

13203 I. MACROSIPHON Cal., Lake Co., NE of Lake Pillsbury. 1300 m. Openings among Pinus in stony clay. 3.7.92 (A very variable species from the hills bordering the N Central Valley. Often blue-purple, John Andrews told us there are yellow colonies here. This form has fairly dwarf, narrow-leaved tufts.) (15+ seeds) B

12787 I. MUNZII Cal., Tulare Co., above Coffee Camp E of Springville. 520 m. Among boulders on sides of scrub-filled gulley. 27.5.92 (Limited to a few colonies above the Tule and Kaweah Rivers in the southern Sierra Nevada, this is the largest flowered and most spectacular of this group. Broad, evergreen leaves and stout, stems of about 60 cm. with up to 4 flowers, described by Cohen as "from pale powder-blue through lavender to purple...delicately veined in violet or turquoise-blue." While we shall try this under unheated glass, along with I. fernaldii & I.h. columbiana, in our wet Welsh climate, from this area, where such plants as Dendro--mecon and Calochortus amoenus grow, it should be temperature-hardy against a S-wall in the UK.) (15+ seeds) C

12825 I. PURDYI HYBRIDS Cal., Mendocino Co., W of Boonville, near Faulkner Park. 200 m. Open & part-shaded slopes among conifers. 2.6.92 (From the only known site of the complex trihybrid I. purdyi x I. macrosiphon x I. douglasiana (L.W. Lenz & E.K. Balls 16530). We have not seen these in flower - indeed the fact we were too late to see I. purdyi in flower precluded a reliable seed-collection of it in a "pure form". It appears to be "becoming extinct" (from a taxonomist's viewpoint) through introgression by other species.)(20+ seeds) B

13215 IRIS ? PURDYI X TENUISSIMA Cal., Humboldt Co., Friday Ridge SSW of Willow Creek. 1580 m. Stony areas in openings among conifers. 4.7.92 (We have seen these in flower - while obviously I. tenuissima these have larger, flatter flowers with broader falls, in creamy shades, veined with purple. The hybrid of this paren--tage cited by Lenz (L.W. Lenz 18320) was collected nearby but at over 1000 m. less elevation.) (15+ seeds) B

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C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

12867 IRIS TENAX subsp. KLAMATHENSIS Cal., Humboldt Co., Klamath River Valley NNE of Orleans. 180 m. Among grass on open stony slope at margin of woodland. 5.6.92 (Perhaps the most local and obscure of the taxa described by Lenz. Although we have only been able to search for it out of flower in a poor season, we have so far only found a few plants in one site. In foliage & habit, superficially like I. innominata with narrow leaves stained red or pink at the bases and, according to Cohen, flowers of pale creamy apricot, gold in the throats and veined red-brown on the falls..."deserving of specific status"...) (10 seeds) D

13206 IRIS TENUISSIMA Cal., Trinity Co., Lassics Lookout Road above Zenia. 1660 m. Stony openings in coniferous woodland. 3.7.92 (A dainty, delicate plant with narrow, greyish foliage. Flattish flowers in creamy white, sometimes faintly veined with purple. Brian Mathew grows it well in a sunny site in Surrey (UK)) (15+ seeds) B

13275 IRIS TENUISSIMA Cal., Shasta Co., S of Shingletown. 1000 m. Openings in mixed woodland. 9.7.92 (Not seen in flower here but it apparently does not vary much. All forms should be utterly hardy in the UK)(15+ seeds) B

13222 IRIS THOMPSONII Oregon, Curry Co., Carpenterville Loop, N of Brookings. 270 m. Banks in mixed woodland. 5.7.92 (Considered by Lenz to be a hybrid between I. douglasiana and I. innominata, this has been the subject of much recent research and field-work and its reinstatement as a "good species" is proposed. This seed is from a site precisely delineated by the investigators - there are certainly two distinct groups of plants growing together! We are not sure how much this differs from purple I. innominata (12987). (10 seeds) C

KECKIELLA. This is Penstemon, Section Hesperothamnus. A distinct group of shrubby species justifiably split.

13083 KECKIELLA CORDIFOLIA San Luis Obispo Co., NE of San Luis Obispo. 150 m. Steep, stony slopes above stream. 22.6.92 (A 2 m. high, evergreen shrub with panicles of downy, scarlet flowers. Still in cultivation in the UK from the 1848 Hartweg introduction but seldom seen. Can be successful against a S wall in UK.)(50+ seeds) A

* 11618 KECKIELLA CORYMBOSA Cal., Humboldt Co., SE of Kneeland. 660 m. Fissures & ledges on cliffs. 1992 cultivated seed from our 1989 coll. (Sown direct into a dry-stone wall in our greenhouse, this has stayed in character, with mats of small, evergreen leaves and soft-scarlet flowers. Should be fully temperature-hardy)(30+ seeds) C

13004 KECKIELLA LEMMONII Cal., Shasta Co., SW of Shingletown. 500 m. Among boulders in opening among scrub. 15.6.92 (A shrub about 1.5 m. high, less spectacular in flower than the other two here but with intriguing pale yellow, hooded flowers with purple guide-lines on the lips. Should be fully hardy if dryish)(50+ seeds) A

LEPIDIUM NANUM J. Andrews coll., 1991 : Nevada, White Pine Co., W of Ely. 2060 m. (The classic, Great Basin endemic : "its hummocks look like those of some extra-tight Dionysia, of a peculiarly intense shade of sap--green...this is the Draba to end all Drabas..." wrote Dwight Ripley in 1944. It is being grown successfully by skilled cultivators, becoming more compact as it ages and even flowering quite generously.) (20+ seeds) E

LEPTODACTYLON CAESPITOSUM J. Andrews coll., 1991 : Nevada, Eureka Co., W of Eureka. 1890 m. (Another classic cushion, local on barrens from here to Nebraska. Bristly, hard-packed, brownish-green mounds in which the tiny cream flowers hide. A phlox-relative, growing here with Lepidium & other 'buns'.) (15+ seeds) C

LESQUERELLA TUMULOSA J. Andrews coll., 1992 : Utah, Kane Co., SE of Cannonville, Kodachrome Basin. 1500 m. (By far the most condensed of the genus, a pulvinate-caespitose species forming dense, hard mounds of downy leaves with yellow flowers on 1-4 cm. stems. An extremely local endemic of "white, bare shale knolls" in a small area of Kane Co. and virtually unknown and untried in cultivation. If it can be grown in character, it is destined to become an essential cushion-plant for devotees of this genre. A new challenge)(15+ seeds) E

13007 LEWISIA CANTELOWII Cal., Plumas Co., above N Fork Feather River at Belden. 710 m. On vertical, shaded cliff in moss. 16.6.92 (Extremely local and close to the L. cotyledon group but with 30 cm. high panicles of tiny, pale-pink flowers opening over a long period. The rosettes of toothed leaves are handsome.) (20+ seeds) C

12959 LEWISIA COTYLEDON Cal., Siskiyou Co., W of Yreka, NNW of Gunsight Peak. 1750 m. Fissures on serpentine out--crops along summit ridge. 11.6.92 (Possibly rather more common in cultivation than in nature! The type form has plane-margined leaves and usually pink-flushed white flowers striped deeper pink on each petal.) (20+) C

12843 LEWISIA COTYLEDON var. HECKNERI Cal., Trinity Co., N of Junction City, above Canyon Creek. 1640 m. Fissures on vertical, shaded, serpentine cliffs. 4.6.92 (A disjunct taxon limited to this area, which Lewisia enthus--iasts should try to conserve in a pure state in cultivation. Strongly toothed leaves and flowers which are about twice the diameter of the type-race. Much cultivated material is now of hybrid origin.) (20+ seeds) C

12880 LEWISIA NEVADENSIS Cal., Humboldt Co., Friday Ridge SSW of Willow Creek. 1420 m. Opening in coniferous forest, in stony turf. 5.6.92 (A summer-dormant species, more widespread than most species in the genus. A few late flowers we saw here in 1989 were shell-pink but this may have been exceptional.) (20+ seeds) B

MAURANDYA PETROPHILA Cal., Inyo Co., Grapevine Mts. above Titus Canyon. 1100 m. Fissures & under overhangs on N & NE-facing limestone cliffs. J. Andrews coll., 22.6.91 ("...the undisputed queen of all Antirrhinae", "the most extreme development of the genus", wrote Dwight Ripley in 1942. Flowers "peer from the stiff ros--ettes like sumptuous primroses - primroses just opening with the flowers still a little crumpled, of a serene and candid yellow." Never before - and maybe never again - collected. Dionysia conditions?)(10 seeds) E

13208 MIMULUS AURANTIACUS Cal., Trinity Co., W of Zenia. 700 m. Steep rocky slopes & cliff-ledges. 3.7.92 (The best-known of this group of Pacific Coast shrubs from a high, cold locality. This and the following are much better included in a separate genus, Diplacus, but as Munz and most of British garden-literature lists them under Mimulus we do likewise. Apricot-orange flowers on 1 m., evergreen shrubs all summer.) (50+ seeds) A

13284 MIMULUS BIFIDUS (Diplacus grandiflorus) Cal., Sierra Co., E of Downieville. 1200 m. Steep, gravelly, granite slopes. 11.7.92 (Dwarfest & highest growing of these shrubs, from the western foothills of the N Sierra Nevada. Low, mounded growth, 60 cm. high, with notched flowers in an exquisite apricot-cream.) (50+ seeds) B

13068 MIMULUS LONGIFLORUS subsp. CALYCINUS Cal., Tulare Co., NE of Springville. 1150 m. Steep, rocky slopes. 20.6.92 (This replaces the above in the S Sierra Nevada. Upright, 60 cm. shrubs with yellow-green, sticky foliage and distinctive flowers of clear, light lemon-yellow. These should all germinate quickly)(50+ seeds) B

13195 OENOTHERA CAESPITOSA subsp. MARGINATA Cal., Inyo Co., White Mts., Toll House Springs. 1980 m. Steep, loose clay slope. 29.6.91 (Huge, bowl-shaped, white flowers, flushing pink with age, on long tubes from rosettes of toothed foliage. A superlative and variable species usually proving quite easy to grow.) (15+ seeds) B

OXYTROPIS OREOPHILA var. JUNIPERINA J. Andrews coll., 1991 : Nevada, Eureka Co., W of Eureka. 1870 m. (A few seeds left of this downy, silver hummock. Stemless violet pea-flowers. Possibly difficult.) (10 seeds) E

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B :	$3.50	£2.00	DM6, -	FF20. -	E :	$7.00	£4.50	DM13, -	FF45. -
C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

13087 PAEONIA CALIFORNICA Cal., San Luis Obispo Co., NE of San Luis Obispo. 150 m. Among scrub on steep, stony slopes. 22.6.92 (Local, little-known relative of P. brownii with larger, black-red petals with pink margins. Growing well from our 1989 coll. but little seed in 1992. In growth over winter ; summer-dormant.) (8 seeds) D

13119 PELLAEA MUCRONATA Cal., Los Angeles Co., San Gabriel Mts., above Soledad Canyon. 1350 m. Among scrub on decomposed granite slopes. 23.6.92 (Summer-dormant fern with erect, stiff, prickly, 20 cm., greyish fronds.) B

12717 PELTIPHYLLUM PELTATUM Cal., Plumas Co., Butterfly Creek, N of Quincy. 950 m. Among boulders along and in stream. 21.5.92 (Splendid, giant Saxifrage-relative with huge, rounded leaves held up on 1 m. stems. A mono--typic genus endemic to N California & S Oregon, an easy garden-plant, well-known in Europe.) (50+ seeds) A

PENSTEMON - SECTION SPECTABILES

It was not our intention to confront you with another comprehensive collection of Penstemons in 1992. During our journeys through the Intermountain Area and the Rocky Mts. in 1987 and 1989, we were in the heartland of the genus. We were also collecting there rather later in the season when more Penstemon seed is ready. California, with about 60 species, is at the edge of the distribution of most sections but Section Spectabiles is particularly diverse to the south of the state and something of a speciality of the area. The only species of this group we have listed with any frequency in recent years is P. palmeri, which extends well into the Great Basin, further N & E than any other. All are similarly spectacular in flower, though there is much diversity in colour, habit and foliage. They are essen--tially species of the mountain-ranges rising from the Colorado and Mojave deserts and a few taxa are very local. While most should be perfectly temperature-hardy, they are all used to extremely dry atmosphere and are species for the sunniest, driest sites available. We recommend gardeners in the drier parts of Australia and North America to consider them ; their cultivation in areas with cool, wet summers will require more ingenuity but they are such splendid things that they are worth considerable effort. We have seed from about half the Californian taxa here.

13189 PENSTEMON FLORIDUS Cal., Inyo Co., White Mts., SW of Westgard Pass. 2200 m. Loose, stony slope along the margin of dry 'wash'. 29.6.92 (Beautiful, blue-grey, toothed foliage and stems of up to 1.2 m. with many pouting flowers of rich, clear rose-pink. Endemic to the ranges E of Owens Valley into Nevada.) (20+ seeds) B

13179 P. FLORIDUS var. AUSTINII Cal., Inyo Co., Panamint Mts., Wildrose Canyon. 2130 m. Gravelly ridges and along dry 'wash' among stones. 28.6.92 (The southern race with smaller flowers of intense rose, which seem to pout even more petulantly. Only 30-50 cm. high here and one of the finest medium-sized ones we've seen(15+ seeds) C

13178 P. FRUTICIFORMIS Cal., Inyo Co., locality & habitat as above. 28.6.92 (Growing with the preceding and a few P. palmeri but with no apparent hybrids, this is endemic to the Panamint, Argus & S Inyo Mts. around Death Valley. Without doubt one of the most beautiful Penstemons, totally distinct in its subshrubby habit with erect, 30-50 cm. high glaucous stems set with narrow, leathery, grey-blue leaves and forming clumps as much across with profuse, ample flowers in opalescent pink or palest lavender, pencilled with purple guide-lines. From a very cold area - high and dry - it merits an attempt in a frame or raised scree-bed.) (20+ seeds) C

13121 P. GRINNELLII Cal., Los Angeles Co., San Gabriel Mts., Big Tujunga Canyon. 750 m. Open, loose, stony, granite slopes. 24.6.92 (Of low, spreading habit, with decumbent stems rising to about 30 cm. Pale green, toothed foliage and pale pink or lavender-tinged flowers with prominent guide-lines.) (20+ seeds) A

13107 P. GRINNELLII subsp. SCROPHULARIOIDES Cal., Ventura Co., Wagon Road Canyon. 1400 m. Open, stony banks. 23.6.92 (The more northern race, more widespread than the type, though we have only seen it here. Fine blue green foliage and the "thick, blunt flowers are a rich, bright purple and the fat buds a dull crimson-red." (Lester Rowntree in 1936). Reputedly taller than the type, these were dwarfer than the preceding)(20+ seeds) B

13165 P. PALMERI Nevada, Clark Co., Kyle Canyon E of Charleston Peak. 1500 m. Open stony slopes. 27.6.92 (Woody-based clumps of blue-grey, toothed leaves and 2 m. wands of big, shell-pink flowers, marked inside with wine red and with yellow-bearded staminodes. Variable over its wide range but always unmistakeable.) (20+ seeds) A

13130 P. SPECTABILIS Cal., Riverside Co., San Jacinto Mts., SE of Banning. 1600 m. Open slopes on decomposed granite. 25.6.92 (Glossy, leathery, toothed foliage and stems to 1.2 m. - "the large, wide-mouthed flowers are of all the conceivable shades of pink, purple and blue" according to Lester Rowntree ; "lavender-purple with blue lobes, whitish within" according to Munz. About the same size as P. palmeri.) (20+ seeds) A

PENSTEMON, Section SPECTABILES COLLECTION (1 packet each of the above 7 species) FOR £10. ($17.00 or DM30 or FF100. -)

PENSTEMON - OTHER SECTIONS

While we have only one or two Californian collections of Penstemon to add to the above, our friend, John Andrews has been active in the Intermountain Area, in Nevada and Utah through the main season during both 1991 and 1992. The following are mainly the result of John's work. As we listed a fairly wide range of older seed in our last list, we have confined ourselves to 1991 & 1992 collections ; have no qualms about last years seed - Penstemon seed often gives better germination after many years of storage than when fresh. We have stated the Section each species belongs to but will not enlarge on this : there is a good, introductory, selective review by Panayoti Kelaidis in the recently published "A Century of Alpines". We commend the smaller members of Sections Caespitosi and Cristati to the alpine--house enthusiasts ; some of the former, from our earlier collections, are also proving growable outdoors in the U.K. in troughs or scree-beds. Full sun and first-class drainage is the general rule for all. Almost all those listed here are low temperature germinators ; in some cases, especially Sect. Caespitosi, germination is irregular.

P. ABIETINUS J. Andrews coll., 1991 : Utah, Sevier Co., E of Salina. 2100 m. (Sect. Caespitosi. A distinct, 15 cm. high, shrubby endemic of the Fish Lake Plateau. Heathlike with erect stems clad in narrow, linear leaves ; rich, clear blue flowers. Not easy with us and possibly needs a limestone-scree mix.) (15+ seeds) D

P. ACAULIS J. Andrews coll., 1992 : Wyoming, Uinta Co., W of Lonetree. 2200 m. (Sect. Caespitosi. Confined to a few barren ridges in a small area around the Utah/Wyoming line, this is the most reduced of the genus. A tiny tuft of little, linear leaves, it can eventually form a rooting mat to 30 cm. across, with stemless, flowers of clear, rich blue with golden throats. It has been grown with some success from our 1987 coll. but remains a challenge to flower well in character. We tried to collect seed twice in 1989 ; this is John's second attempt in 1992 - it is not a species you will have the chance to try very often! A few.) (10 seeds) E

P. BRACTEATUS J. Andrews coll., 1991 : Utah, Garfield Co., Red Canyon. 2220 m. Limestone rock-slides. (This certainly rivals the above as the finest dwarf. Fleshy, blue-grey leaves and 5 cm. blue heads.) (10 seeds) E

PRICE CODE A :	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D :	$5.50	£3.50	DM10, -	FF35. -
B :	$3.50	£2.00	DM6, -	FF20. -	E :	$7.00	£4.50	DM13, -	FF45. -
C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

PENSTEMON continued

P. CAESPITOSUS var. DESERTIPICTI J. Andrews coll., 1992 : Utah, Garfield Co., W of Ruby's Inn. 2260 m. Openings among Artemisia. (Most reduced race of this species - prostrate mats almost as tight as P. acaulis but with little, narrow, grey leaves. Lavender-blue flowers with yellow-bearded palates.) (15+ seeds) D

13106 P. CENTRANTHIFOLIUS Cal., Ventura Co., Wagon Road Canyon. 1400 m. Open, stony banks & among scrub. 23.6.92 (Sect. Gentianoides. The western cousin of P. utahensis, from the S Californian Coast Ranges into Mexico. Blue-grey basal leaves and tubular flowers of luminous scarlet all up the 60 cm. stems. Stunning)(30+ seeds) B

P. CLEBURNEI J. Andrews coll., 1992 : Wyoming, Sweetwater Co., McKinnon. 2190 m. Stony 'barrens' with sparse Juniperus. (Sect. Cristati. Exquisite dwarf version of P. eriantherus. Greyish basal leaves and large lavender flowers with wine-purple guidelines and yellow staminodes clustered on very short stems)(10+ seeds) C

PENSTEMON DAVIDSONII J. Andrews coll., 1991 : Cal., Modoc Co., Warren Peak. 2760 m. Volcanic scree slopes. (Sect. Erianthera. Creeping, mat-forming high-alpine. Little, rounded, leathery leaves and ascending violet--blue flowers with the woolly, white anthers typical of this section. Quite growable outside in the UK)(15+) B

P. DUCHESNENSIS J. Andrews coll., 1992 : Utah, Duchesne Co., E of Duchesne. 1680 m. (Sect. Cristati. Very local, "much showier" version of P. dolius, the tiniest of its section. Little, flat, greyish leaves with cymes of rich-blue to blue-purple flowers. Growing happily with us under glass but has not flowered.) (15+) C

P. FLOWERSII J. Andrews coll., 1992 : Utah, Duchesne/Uintah Co., S of Roosevelt. 1630 m. (Sect. Cristati. Only known from the clay badlands around Roosevelt and very recently described. The thick, bluish leaves are all cauline on the erect stems of about 15 cm. with cymes of rose-pink flowers. This is almost certainly the first time seed has been collected of what seems a most desirable species of dwarf habit.) (15+ seeds) D

P. FREMONTII J. Andrews coll., 1992 : Utah, Uintah Co., E of Tridell. 1780 m. (Sect. Glabri. A floriferous 15 cm. high species, more or less restricted to the Uintah Basin, where it is widespread and not uncommon. Downy, greyish leaves and thyrses of many deep-blue to blue-violet flowers.) (15+ seeds) B

13230 P. FRUTICOSUS Oregon, Douglas Co., Calapooya Divide, ridge E of Huckleberry Mt. 1120 m. Among loose rocks on exposed slopes. 6.7.92 (Sect. Erianthera. A very wide-rangeing and variable, shrubby species, about 20cm. high here. Glossy, leathery foliage and erect stems of flowers in lavender-blue to purple. Easy.)(20+ seeds) A

P. GRAHAMII J. Andrews coll., 1992 : Utah, Uintah Co., S of Sand Wash. 1600 m. (Sect. Cristati. The famous and extraordinary endemic of the oil-shales of the Green River drainage, one of the most distinctive and spectacular in the genus. Dwarf, 5-20 cm. tall, but with the largest flowers in its section - pinkish lavend--er with gaping mouths lined with dark violet, white-bearded palates and conspicuously projecting staminodes densely covered in golden-orange hairs. It has been grown successfully in Colorado.) (10+ seeds) E

* 11676 P. HETEROPHYLLUS Cal., Lake Co., E of Clear Lake, above Grizzly Creek. 500 m. Open, rocky slopes. Our 1992 seed from our 1989 coll. (Sect. Saccanthera. Woody-based, erect, 50 cm. stems with lavender-blue flowers, shading to rose basally - our soil is acid ; the blue species are purer blue in alkaline soils.) (30+ seeds) A

P. HUMILIS J. Andrews coll., 1991 : Nevada, White Pine Co., near Hamilton road, W of Ely. 2020 m. Limestone slopes. (Sect. Penstemon. Rooting, prostrate mats and 12 cm. stems of deep, violet-blue flowers.)(30+ seeds) A

P. JANISHIAE J. Andrews coll., 1991 : Nevada, Eureka Co., W of Eureka. 1900 m. Low, eroded limestone hills. (Sect. Cristati. Superb endemic of the W Great Basin, which, according to Panayoti Kelaidis, remains dwarfer in cultivation in Colorado than the similar, closely related P. grahamii. Flowers smaller than this but still large and ascending, in violet-pink marked red-violet with cream-bearded palates and prominent stamin--odes covered in orange wool. About 15 cm. high with grey leaves and erect stems.) (10+ seeds) D

P. MOFFATII J. Andrews coll., 1992 : Colorado, Mesa Co., Gateway. 1430 m. Steep, clay slopes. (Sect. Crist--ati. Local native of the Colorado Plateau, about 20 cm. high with sticky foliage and flowers varying from blue to blue-purple and lavender, in profusion all up the erect stems, early in the season.) (20+ seeds) B

P. MUCRONATUS J. Andrews coll., 1992 : Utah, Uintah Co., Miners Draw below Blue Mt., 2010 m. (Sect.Coerulei A very beautiful member of the P. pachyphyllus group, towards which it may be grading around here. Fleshy blue-grey leaves and pale lavender-blue flowers, delicately lined wine-red on 20 cm. stems.) (20+ seeds) B

13212 P. PURPUSII Cal., Humboldt Co., Friday Ridge SSW of Willow Creek. 1580 m. Stony areas in openings among conifers. 4.7.92 (Endemic to high altitudes in the N Californian Coast Ranges, this has proved one of the most satisfactory under glass with us, from our 1989 Mendocino Co. coll., remaining very much in character. Woody, decumbent stems ; rounded ash-grey leaves ; big, baggy, luminous imperial-purple flowers.)(20+ seeds) C

13190 P. SCAPOIDES Cal., Inyo Co., SW of Westgard Pass. 2200 m. Steep, stony limestone slopes with occasional Juniperus. 29.6.92 (Sect. Saccanthera. Distinct and desirable White Mts. endemic. Tight basal mats of downy, grey foliage, usually distinctively folded, send up delicate, glaucous stems to about 20 cm. with tubular, pubescent, blue-purple to pale-lavender flowers, with white throats and yellow staminodes.) (20+ seeds) C

P. SPECIOSUS J. Andrews coll., 1991 : Cal., Modoc Co., Warren Peak. 2800 m. (Sect. Glabri. From the very dwarf, high altitude race, which can be separated as subsp. kennedyi. Usually well under 30 cm. high with heads of large, white-throated, deep-blue flowers, shading to violet at the bases. Striking!) (20+ seeds) B

P. UTAHENSIS J. Andrews coll., 1992 : Colorado, Mesa Co., Gateway. 1430 m. Steep, clay slopes in full sun. (Sect. Gentianoides. From the same site as our previous colls. & also where Panayoti Kelaidis took the fine photograph in "A Century of Alpines" (unfortunately captioned "P. uintahensis" - a small, blue high-alpine). Clumps of leathery, blue-grey leaves and 50 cm. wands of pure, brilliant carmine-red flowers.) (30+ seeds) C

13245 PHLOX ADSURGENS Oregon, Douglas Co., S of Tiller. 750 m. Open banks in coniferous forest. 7.7.92 (One of the loveliest of the genus with prostrate, rooting stems clad with dark, leathery leaves, carrying heads of large, pink, white-eyed flowers. The western version of the violet, eastern P. stolonifera but a more choosy plant for a lime-free, humus-rich soil. It enjoys our cool, moist climate here. Varies greatly in the wild in flower shape and colour. It is never easy to collect Phlox seed in quantity ; germinates well.) (8 seeds) C

13260 PHLOX ADSURGENS Oregon, Josephine Co., E of Takilma. 500-900 m. From shaded woodland to talus on exposed slopes at the higher elevation. 8.7.92 (Forming cushions of pink flowers in scree but few seeds.) (8 seeds) C

13217 PHLOX DIFFUSA Cal., Humboldt Co., Friday Ridge SSW of Willow Creek. 1580 m. Stony areas in openings among conifers. 4.7.92 (Caespitose, mat-forming - like a softer, greener P. hoodii. Lilac to white.) (8 seeds) C

12919 PHLOX SPECIOSA Oregon, Josephine Co., E of Takilma. 850 m. Stony slopes with sparse conifers. 7.6.92 (Wide heads of purple-pink flowers with notched petals. A shrubby-based species about 15 cm. high.) (8 seeds) B

PRICE CODE A : $2.50 ; £1.50 ; DM4,50 ; FF15. -
B : $3.50 ; £2.00 ; DM6, - ; FF20. --
C : $4.00 ; £2.50 ; DM7,50 ; FF25. -
D : $5.50 ; £3.50 ; DM10, - ; FF35. -
E : $7.00 ; £4.50 ; DM13, - ; FF45. -
F : $10. ; £6.00 ; DM18, - ; FF60. -

PHYSARIA ? CHAMBERSII J. Andrews coll., 1992 : Utah, Emery Co., Molen Reef E of Moore. 1930 m. (These attractive, dwarf crucifers are never easy to identify but are all worthy plants with rosettes of greyish leaves and racemes of bright yellow flowers followed by fascinating, inflated seed-capsules.) (15+ seeds) A

PHYSARIA ? ACUTIFOLIA J. Andrews coll., 1992 : Utah, Duchesne Co., E of Duchesne. 1680 m. (15+ seeds) A

12810 PITYROGRAMMA TRIANGULARIS Cal., Solano Co., Vaca Mts., Mix Canyon. 300 m. On shaded rocks in woodland. 1.6.92 (The Goldenback Fern, a beautiful, summer-dormant species ideal for the alpine-house.) B

PRIMULA DOMENSIS J. Andrews coll., 1991 : Utah, Millard Co., House Range, Notch Peak. 2450 m. Ledges on & base of vertical limestone cliffs in part-shade. (Recently discovered & described, the largest flowered of the P. cusickiana group with rose to lavender flowers. Tends to summer-dormancy. Dionysia conditions.) (20+) E

PRIMULA NEVADENSIS J. Andrews coll., 1991 : Nevada, White Pine Co., Snake Range, Mt. Washington. 3125 m. N-facing limestone cliffs & in limestone scree under Pinus longaeva. (A few, large, violet-purple, yellow--eyed flowers on 9 cm. stems. Little-known but may be best plunged outside in summer in U.K.) (20+ seeds) E

13100 ROMNEYA COULTERI Cal., Ventura Co., Cuyama Valley near Ozena. 1100 m. Open 'flats' among scrub in sandy clay. 23.6.92 (1991 seed from overwintered capsules) (Spectacular, 2 m. high, shrubby-based poppy with a multitude of huge, crinkled, white flowers with yellow stamens and divided, glaucous foliage. This is var. trichocalyx, if you wish to 'split' it. Reputedly difficult to germinate but very hardy in U.K.) (50+ seeds) C

* 9516 RUDBECKIA LACINIATA New Mexico, Sandoval Co., Sandia Mts., S of Placitas. 2500 m. Moist areas in Abies wood 1992 seed from our 1987 coll. (A splendid, 2 m. high perennial with boldly cut foliage and large, showy, yellow coneflowers. Apparently a very fine form according to Harry Hay (Surrey, U.K.). Grows well in U.K.) A

13024 SALVIA SONOMENSIS Cal., Lake Co., S of Mt. Konocti. 550 m. Margins of Arctostaphylos scrub on open slopes. 17.6.92 (Creeping mats of rounded leaves, woolly-white beneath, send up erect, 20 cm. stems, whorled with blue-violet flowers. Strongly reminiscent of Irano-Turanian species like S. multicaulis.) (15+ seeds) B

12771 SALVIA SPATHACEA Cal., San Luis Obispo Co., E of San Luis Obispo. 150 m. Steep, stony slopes above stream in canyon bottom. 26.5.92 (A stout herbaceous perennial with sticky, aromatic stems and calyces. Large, green, woolly-backed, wrinkled, hastate leaves and 60 cm. stems, whorled with red-purple flowers.) (8 seeds) B

SCLEROCACTUS WHIPPLEI J. Andrews coll., 1992 : Utah, Carbon Co., S of Price. 2000 m. (A beautiful, little Fishhook Cactus, usually a dwarf dome but very old specimens can reach 30 cm. The name now covers most Utah Fishhooks, extremely diverse in habit, spine-formation and flower-colour, from pink to violet, white or yellow. Should be fully temperature-hardy in cold climates if kept dry, ideal in an alpine-house.)(10 seeds) B

SCUTELLARIA NANA var. SAPPHIRINA J. Andrews coll., 1991 : Nevada, White Pine Co., Hamilton Road, W of Ely. 2050 m. In clay among Artemisia. (Tiny Great Basin endemic, discovered by Ripley & Barneby and described in 1947. Little tufts of tiny, rounded, grey-green leaves set with rich gentian-blue skullcap flowers pop-up from wide-growing subterranean rhizomes - only a few cm. high. Potentially a superb alpine-house pan-plant, if it can be grown in character ; has germinated from our 1989 coll. Try an alkaline, gritty mix)(20+ seeds) E

12983 SISYRINCHIUM DOUGLASII Cal., Modoc Co., Warner Mts., E of Davis Creek. 1750 m. Gravelly clay slopes with Artemisia & sparse Juniperus. 14.6.92 (About 20 cm. high and summer-dormant, surely the finest of the genus with "a succession of most noble hanging bells in a deep and flashing imperial violet..." (Farrer). Splendid as an early-flowering, alpine-house plant or in a trough or scree-bed, maybe best if lime-free.) (20+ seeds) B

13051 SMILACINA RACEMOSA Cal., Sonoma Co., S of Jenner. 20 m. In dense scrub along moist gulley on coastal cliff. 18.6.92 (A choice, slow-growing, herbaceous perennial near Polygonatum. Astilbe-like panicles of creamy flowers followed by red berries. Well-suited to British gardens in good soil in part-shade. 1 m.)(15+ seeds) A

SPHAERALCEA CAESPITOSA J. Andrews coll., 1992 : Utah, Millard Co., E slope of Needle Range, SE of Garrison. 1980 m. (Possibly the only member of this showy genus of the Malvaceae to excite the alpine-house purist : endemic to dolomite and calcareous gravels in a very small area near the Utah/Nevada line and all but untried in cultivation. Woody based with stems 2-25 cm. tall; thick-textured, little, round, wrinkled, whit--ish leaves, barely lobed, and tightly clustered, orange flowers. By far the most reduced and compacted species in N America, like other Great Basin endemics, this should appreciate all the year round cultivation in alpine-house conditions - day-time temperatures are high here in summer. Grow in full sun.) (10 seeds) E

TOWNSENDIA APRICA J. Andrews coll., 1992 : Utah, Sevier Co., S of Fremont Junction. 2090 m. NE-facing slope on clay hills overlaid with volcanic rubble. (An extremely local endemic confined to clay hills derived from Mancos Shale. A pulvinate-caespitose perennial, only about 2 cm. high, with tiny grey-leaved rosettes carry--ing a stemless, golden-yellow flower-head sunk in the middle. It would be neither responsible nor possible to collect more than a very small quantity of seed from species such as this but both John and we feel that every effort should be made to give the experienced, specialised alpine-house grower the opportunity to learn how to grow and maintain such narrow intermountain endemics as this and the preceding in cultivation. Knowledge of their requirements is still sparse but sometimes they are surprisingly adaptable.) (10 seeds) F

TOWNSENDIA INCANA J. Andrews coll., 1992 : Colorado, Mesa Co., Gateway, 1430 m. (As widespread as the above is local : the characteristic species of the Colorado River drainage. Forming clumps to 20 cm. across and 5 cm. high with greyish leaves and white flower-heads, pinkish on the reverse of the ray-florets.) B

TRILLIUM. The moist-stored seed we listed last winter was both successful and popular. Stored at room-temperature (c. a mean of 15°C/60°F) this actually germinated with us in storage during April without any cold period! The accepted theory is that 2-3 months at 2-5°C/35-40°F are needed to initiate root-germinat--ion, followed by a rise to just over 10°C/50°F to initiate leaf production. We have fully satisfied our--selves that T. rivale is unaffected by dry storage over a 2-year period and have stored 50% of the 1992 seed for listing next season. Both the following will be sent out moist and leaf-production should be expected either in spring 1993 or 1994 ; they should obviously not be dried-out in the intervening period.

12827 TRILLIUM OVATUM Cal., Mendocino Co., W of Booneville. 200 m. Moist areas in mixed coniferous forest. 2.6.92 (Large, white, pink-flushing flowers. The western version of T. grandiflorum. 30 cm.) (15+ seeds) C

12864 TRILLIUM OVATUM Cal., Siskiyou Co., NW of Cecilville, above Grant Creek. 600 m. Woodland. (15+ seeds) C

12899 TRILLIUM RIVALE Cal., Del Norte Co., Gasquet Mt. 390 m. At margin of undergrowth on steep, wooded slopes. 6.6.92 (Surely the loveliest of the smaller Trilliums, about 10 cm. high with white flowers, sometimes marked with carmine, sometimes flushing to pinker tones. Slow-growing but most successful in cultivation in the U.K., especially as a pan-plant. Restricted in nature to a small area in the Coast Ranges (15+ seeds) D

PRICE CODE A :	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D :	$5.50	£3.50	DM10, -	FF35. -
B :	$3.50	£2.00	DM6, -	FF20. -	E :	$7.00	£4.50	DM13, -	FF45. -
C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

13061 TRITELEIA HYACINTHINA Cal., Tuolumne Co., W of Chinese Camp. 360 m. Among sparse scrub on open, grassy slopes. 19.6.92 (Striking umbels of white flowers. 50 cm. Excellent grower & increaser. Easy!) (20+ seeds) A

13017 TRITELEIA LAXA Cal., Lake Co., Walker Ridge. 600 m. Open grassy slopes in heavy clay. 17.6.92 (Beautiful, widespread and very variable bulb with umbels of violet-blue flowers. Around 30 cm. high.) (20+ seeds) A

12788 TRITELEIA ? LAXA Cal., Tulare Co., E Fork of Kaweah River NE of Three Rivers. 750 m. Steep slopes. 27.5.92 (Not seen in flower and may be another species. All these are attractive, easily grown plants.) (20+ seeds) A

13047 TRITELEIA LAXA var. NIMEA Cal., Marin Co., above Tomales Bay. 15 m. Ledges on W-facing coastal cliffs. 18.6.92 (Narrowly endemic to the Marin Co. coast, this is a very beautiful and distinct race, flowering very much later later and with richly coloured flowers of a marvellously deep blue. A dwarfer plant and well worth growing in the alpine-house or bulb-frame - we recommend it highly!) (20+ seeds) C

12791 TRITELEIA PEDUNCULARIS Cal., Napa Co., Snell Valley ESE of Middletown. 330 m. Open grassland in valley bottom, wet in spring. 29.5.92 (A tall species, up to 80 cm. high, widespread in the Coast Ranges but always very local. Wide umbels of white flowers, occasionally lilac-flushed, on long pedicels.) (20+ seeds) A

12890 VANCOUVERIA HEXANDRA Cal., Humboldt Co., N of Orick. c. 100 m. Deep shade in coniferous forest, in humus layer. 6.6.92 (The NW American version of Epimedium. A creeping, rhizomatous woodlander with showers of tiny white shooting-stars in spring. About 10 cm. high. Easy in a shaded peat-bed in the U.K.) (20+ seeds) A

12727 VIOLA BECKWITHII Cal., Sierra Co., N of Sattley. 1520 m. Sandy soil among Artemisia. 22.5.92 (A lovely dwarf, summer-dormant, steppe-plant with greyish, palmately cut leaves and two-toned flowers - the upper 2 petals deep red-purple ; the lower ones pale lilac, yellow at the base. We have grown it successfully over many years in a deep pot in the alpine-house but it is always unpredictable, sometimes missing a season. Seed also germinates very irregularly ; if it does it only produces cotyledons before disappearing.) (10) D

12878 VIOLA HALLII Cal., Humboldt Co., Friday Ridge, SSW of Willow Creek. 1420 m. Opening in coniferous forest in stony turf. 5.6.92 (Close to V. beckwithii but much more restricted in its distribution in the Coast Ranges around the Oregon/California line. More rounded flowers with even darker upper petals and cream lower ones. John Andrews thinks this a better plant than V. beckwithii ; we could not choose! Unusually for a violet - especially in a very poor seed-season in the N - we have a fine collection. Do try it!) (10+) C

12918 VIOLA CUNEATA Oregon, Josephine Co., E of Takilma. 850 m. Open, stony, turfy slopes with sparse conifers. 7.6.92 (Summer-dormant but quite different to the other two here. Branching, 10 cm. stems with small leaves and little, rounded, white-faced flowers with purple eye-spots, violet on the backs. A sweet plant, endemic to the serpentine ranges along the California/Oregon borders. A definite challenge to grow.) (10+ seeds) D

13041 WYETHIA ANGUSTIFOLIA Cal., Marin Co., near Nicasio. 15 m. Low, grassy coastal hills. 18.6.92 (A robust, perennial composite with showy yellow heads on 50 cm. stems. Worth trying in a hot, dry site.) (15+ seeds) A

13170 YUCCA BACCATA Nevada, Clark Co., Kyle Canyon E of Charleston Peak. 1800 m. Open 'flats' and slopes among scrub. 27.6.92 (A beautiful, comparatively low-growing species with panicles, reaching about 70 cm., of pendant bells, red-brown outside and cream-white within. Rather broad, often glaucous, foliage.) (10 seeds) B

13156 YUCCA WHIPPLEI Cal., San Diego Co., ENE of Banner. 850 m. Open sites among desert scrub. 26.6.92 (The type -race from the far S, which dies after producing its amazing, 2.5 m. high flower stem.) (10+ seeds) B

13069 YUCCA WHIPPLEI subsp. CAESPITOSA Cal., Tulare Co., NE of Springville to Camp Wishon. 1150 m. Among scrub on steep, rocky slopes. 20.6.92 (The most northern race, from the southern foothills of the Sierra Nevada, which is not only likely to be one of the most successful in colder areas but also produces clumps of ros--ettes, so that it is thoroughly perennial. Beautiful in the symmetry of the narrow, grey-green, stiff, spine-tipped leaves and breathtaking in the scale of its towering, spire-like panicle with hundreds of cream bells, approaching 3 m. in height. We have grown it from seed to flowering in Dorset and friends in an exposed Devon garden have been similarly successful - the event of a lifetime!) (10+ seeds) B

ADDITIONAL SEED COLLECTED IN SPRING MTS., CLARK CO., S NEVADA, BY JOHN ANDREWS, SEPTEMBER, 1992

ERIOGONUM HEERMANNII subsp. SULCATUM Nevada, Clark Co., above Deer Creek NE of Charleston Peak. 2100 m. (A densely intricately branched, rounded shrub, about 20 cm. high with floccose, zig-zag stems. Heads of yellow flowers, darkening to orange. A plant of the high desert ranges to the E of the Mojave. Alpine-house only.) (15+ seeds) C

PENSTEMON THOMPSONIAE subsp. JAEGERI Nevada, Clark Co., above Deer Creek NE of Charleston Peak. 2500 m. Among sparse Juniperus & artemisia. (Sect. Caespitosi. Unlike other races of P. thompsoniae, this has a more erect habit and thyrsoid panicles of violet-blue flowers with yellow palates. In habit it appears close to the Utah endemic, P. tusharensis, and John tells us this is an extremely attractive dwarf species. The tiny rounded leaves covered with ash-white, scale-like hairs are typical of the species but it is narrowly endemic to this area.) (10+ seeds) D

SPHAEROMERIA COMPACTA Nevada, Clark Co., Charleston Peak. 3320 m. (One of the most reduced members of this genus, the N American version of Tanacetum, a compacted high-alpine forming pads of finely cut, silver-filigree foliage, only one or two cm. high and 10 cm. across. We hope that it can be grown in character in the alpine-house.) C

SEED GERMINATION, THEORY AND PRACTICE : We have been intending to find an odd corner to mention Norman Deno's publication of the results of his investigations into seed germination, somewhere in our last two lists. Now that we have a little space, we learn that the first, 1991, edition of 1000 copies is exhausted. This is by no means tragic for those of you have not heard of this work as Norm is intending to publish a new, greatly expanded edition of his results in May, 1993. While we are certainly not going to suggest this will provide the answers to all your seed germination questions or problems, we can state confidently that there is simply no other remotely comparable source of data, based on personal experience and a wholly original approach, resulting from Norms career in physical organic chemistry. The second edition will cover over 3000 species and also include new data. The price will be about $20 - around the cost of publication. Those interested should write direct to Norman C. Deno, 139 Lenor Drive, State College, PA 16801, U.S.A. Advance orders may help him with the print-run.

YOU MAY HAVE NOTICED A SLIGHT ADJUSTMENT in our price-codes. We have decided to lose our old code A, which was little used - packets of poppy and foxglove seed. Almost everything has moved down one code and we have a new price for very special items - what price the first few seeds of an Iris grown for 23 years?

PRICE CODE A	:	$2.50	;	£1.50	;	DM4,50	;	FF15. -	PRICE CODE D	:	$5.50	;	£3.50	;	DM10, -	;	FF35. -
B	:	$3.50	;	£2.00	;	DM6, -	;	FF20. -	E	:	$7.00	;	£4.50	;	DM13, -	;	FF45. -
C	:	$4.00	;	£2.50	;	DM7,50	;	FF25. -	F	:	$10.	;	£6.00	;	DM18, -	;	FF60. -

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

While the emphasis in this section is on summer-dormant species, we have included a selection of wild collections made by us in S Europe in September, 1991. The latter have been stored under dry, refrigerated conditions and should give excellent germination. Most of these are alpine species and greatly broaden the range of material listed.

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 irrel-evant. Such cultivated seed will be found in Section III. In cases where the collection has not been made by our-selves or grown by ourselves, we specify the collector or the cultivator (ex hort. : from the garden of ...)

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.

134.100 ALLIUM NARCISSIFLORUM France, Hautes-Alpes, Pic de Gleize NNW of Gap. 2000 m. Loose limestone scree along S-facing side of summit-ridge. 20.9.91 ("The glory of its race" according to Farrer and little-known in gardens, where the name is often applied to the Italian A. insubricum. Sugar-pink umbels. 15cm)(15+ seeds) C

* 161.900 ANEMONE PAVONINA var. OCELLATA Greece, Lakonia, between Areopoli & Githio. 100 m. Edge of scrub in grassy areas. 1992 seed ex hort. D. Batterham from our 1985 coll. Brilliant scarlet, white centred flowers - the splendid epitome of a Greek spring. Usually growable in the U.K. in a well-drained sunny site.)(20+ seeds) A

166.103 ANTHERICUM LILIAGO France, Hautes-Alpes, above Col de Gleize NNW of Gap. 1700 m. Open, grassy, limestone slopes. 20.9.91 (A lovely herbaceous plant for a dryish site in full sun. Grassy leaves and erect stems of about 30 cm. set with shallow, pure-white, lily-trumpets in early summer.) (20+ seeds) A

* 185.550 ARISTOLOCHIA LONGA subsp. PAUCINERVIS Morocco, Middle Atlas Mts., SW of Ain el Leuh. 2000 m. Stony places on open slopes. 1992 seed ex hort. M. Tucker from our 1982 coll. (A dwarf, tuberous-rooted, summer-dormant species for the bulb-frame or in a deep pot. Strange, elongated, yellowish-brown flowers.) (5 seeds) B

* 194.751 ARUM ALPINUM Greece, Evia, ros Dirfis. 1200 m. N & W facing limestone slopes. 1992 seed ex hort M. Tucker from our 1984 coll. - the little Arum of the higher Greek mountains. Hardy in U.K.) (8 seeds) B

* 195.352 ARUM DIOSCORIDIS var. SPECTABILE Turkey, Antalya, S of Akseki. 800 m. Humus-filled limestone pockets. 1992 seed ex hort. M. Tucker from our 1984 coll. Described by Mike as a "superb and striking" form with "very large spathes appearing almost black". Peter Boyce is apparently placing var. spectabile under var. dioscoridis but it remains the most spectacular race. Best in a bulb-frame in the U.K.) (8 seeds) C

* 196.500 ARUM NIGRUM (Jugoslavia) Bosnia & Hercegovina, above Dubrovnik to Trebinje. 500 m. Holes & crevices in limestone. Ex hort. M. Tucker, 1992, from a Brian Mathew coll. (One of the best of the hardier species. Broad, upright, maroon-black spathes in spring on short stems. Dark, unmarked leaves.) (8 seeds) B

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." Best grown outside in a sunny scree-bed or trough in U.K.) (20+ seeds) B

251.300 CAMPANULA ARVATICA Spain, Leon, Picos de Europa, NE of Fuente De. 1900 m. Fissures & pockets on limestone cliffs. 7.9.91 (A delicate but soundly perennial endemic of this mountain-range, towering above the Atlantic. Dainty, prostrate stems carry profuse, wide-open, violet bells. Not difficult.) (50+ seeds) C

254.300 CAMPANULA ELATINOIDES Italy, Lombardia, S of Sabbio Chiese. 280 m. Fissures on dry limestone cliffs. 24.9.91 (A very local, perennial, saxatile endemic of the area between Lakes Como & Garda. Greyish, felted rosettes with radiating, 15 cm. stems, packed with small, pale to dark blue flowers.) (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. ("The fairest Campanula in all Greece" wrote Tournefort, its discoverer ; "surely one of the finest monocarpic species known" wrote Peter Davis on seeing this in the wild in 1938. Native to a few cliffs on a few Aegean islands, this is not an easy plant to re-collect and every effort should be made to maintain it in gardens. Unlike any other, with a rosette of a few large, deeply cut leaves on a stout, trunk-like stem, producing in time an erect flower-stem, of 50 cm. or more, up which huge, shallow bowls cluster - "cold crystalline lavender" with a large, white centre, 5 cm. across.) (50+) D

259.000 CAMPANULA MOLLIS Spain, Jaen, Sierra de Pozo, NW of La Nava de San Pedro. 1300 m. Fissures on shaded, limestone cliffs. 12.9.91 (A delicate, thready, little plant with downy, grey leaves and little, pale-lilac bells, which would be a suitable candidate for the alpine-house.) (50+ seeds) C

294.050 CHAENORHINUM GLAREOSUM Spain, Granada, Sierra Nevada, below Pico de Veleta. 3300 m. Mica-schist crevices & detritus. 10.9.91 (Endemic to the Sierra Nevada & one of the highest alpines there, or indeed in Europe - decumbent stems with tiny, rounded, smooth leaves and racemes of comparatively large, rather flat, spurred flowers, in shades of bright pink to lilac, with yellow palates. Farrer enthused at length about it in 1913 ; it received a Certificate of Merit in 1935. This should be seen around again!) (50+ seeds) C

* 340.350 CROCUS ASUMANIAE Turkey, Antalya, S of Akseki. 900 m. Open areas on limestone slopes with sparse Quercus. 1992 seed from our 1985 coll. (Pale-lilac to white flowers with striking scarlet styles. Autumn.) (15+) B

* 354.002 CROCUS VELUCHENSIS (Jugoslavia) Serbia, Kosovo, above Vratnica between Tetovo & Urosevac. 800 m. Leaf-soil over clay in dense Fagus woodland. 1992 seed ex hort. M. Tucker from our 1986 coll. (Large, luminous lilac-blue flowers with deep-purple tips in spring. A fine woodland form best grown outside.) (15+ seeds) C

PRICE CODE A :	$2.50	; £1.50	; DM4,50	; FF15. -	PRICE CODE D :	$5.50	; £3.50	; DM10, -	; FF35. -
B :	$3.50	; £2.00	; DM6, -	; FF20. -	E :	$7.00	; £4.50	; DM13, -	; FF45. -
C :	$4.00	; £2.50	; DM7,50	; FF25. -	F :	$10.	; £6.00	; DM18, -	; FF60. -

* 358.000 CYCLAMEN AFRICANUM Algeria, Kabylie, E of Azazga. 850 m. In humus under deciduous Quercus. 1992 seed from our 1966 coll. (Striking, large leaves, preceded by the big, pink flowers, rising in a sheaf from the tuber. Best grown frost-free in U.K. though it will tolerate some frost under glass.) (15+ seeds) C

* 358.500 CYCLAMEN BALEARICUM Spain, Islas Baleares, Mallorca, N of Andratx. 350 m. Among Quercus in humus. Coll. & ex hort. D. & P. Hoskins, 1992 (The charming, reduced version of C. repandum with delicately pencilled white flowers in spring. Distinct, mottled, grey-green leaves. Best grown frost-free & shaded.)(20+ seeds) B

* 359.000 CYCLAMEN CILICIUM Turkey, Antalya, N of Akseki, Irmasan Gecidi. 1500 m. Stony humus under Abies on lime--stone. 1992 seed from our 1985 coll. (Little, pink red-nosed flowers in autumn. Rounded, well-marked leaves. This is from the same cold, high pass as the Peter Davis coll., P.D. 25789.) (15+ seeds) A

* 359.003 CYCLAMEN CILICIUM Turkey, Konya, NW of Bozkir. 1100 m. Base of N-facing, limestone cliffs. 1992 seed from our 1985 coll. (From an extremely cold, inland area - this is an extremely hardy species, best grown in a sunny, well-drained site outside in the U.K. or in a bulb-frame, where it enjoys summer dryness.) (15+) A

* 363.003 CYCLAMEN GRAECUM Greece, Lakonia, Agios Nikalaos NW of Githio. 500 m. Steep slopes under olives. 1992 seed from our 1984 coll. (Pink autumn-flowerer of borderline hardiness, best kept dryish under glass in U.K. These were selected from a population with very fine and variable foliage.) (15+ seeds) C

* 364.003 CYCLAMEN HEDERIFOLIUM Greece, Evia, above Metohi W of Karistos. 200 m. N & W-facing sides of gulley. 1992 seed ex hort. D. Hoskins. (A distinct form with leaves like C. africanum. Large flowers.) (20+ seeds) A

* 364.006 CYCLAMEN HEDERIFOLIUM Greece, Thesprotia, S of Igoumenitsa. Coll. & ex hort. D. & P. Hoskins. (1992 seed from a 1987 coll., which we are told was selected for its very fine foliage.) (20+ seeds) A

* 368.003 CYCLAMEN REPANDUM subsp. PELOPONNESIACUM Greece, Lakonia, Oros Taigetos above Paleopanagia. 1400 m. In humus under Abies, Platanus, etc. 1992 seed ex hort. D. Hoskins from our 1984 coll. (Lovely, pale-pink race of this spring-flowering species - most but by no means all with the white speckling on the extremely variable foliage, which is considered to be diagnostic. Although all records state this grows only to 800 m., we have found it at 1500 m. flowering in June - hardy here but best under glass in shade.) (15+) D

* 369.000 CYCLAMEN ROHLFSIANUM Libya, Cyrenaica, Benghazi to Jabal Akhdar, above Tukrah. 200 m. Limestone pockets in macchie and under Pistacia scrub. 1992 seed from our 1966 coll. - see last page for details.(15+ seeds) D

401.502 DIANTHUS PAVONIUS France, Alpes-Maritimes, Vallon de la Gordolasque. 1700 m. Among grasses on open acid slopes. 22.9.91 (Lovely, 10 cm. high pink. Rose, buff-backed flowers with steel-blue eyes.) (20+ 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 & rust-red within. About 60 cm. Colour varies and is best in dry, sunny areas.) (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. This is a good perennial in the wild.) (50+ seeds) B

461.000 ERYNGIUM GLACIALE Spain, Granada, Sierra Nevada. 2700 m. Exposed stony slopes and schistose scree. 10.9.91 (The dwarfest European species. 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) B

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. (One of the most beautiful of the genus - spiny basal leaves, bracts and stems all of the same matt, bluish-grey, only a little paler than the blue flower-heads. By no means easy but a raised bed or scree in full sun should suit it. Less than 30 cm. high and slow-growing.) (15+ seeds) B

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. Silvered, spiny leaves and large, feathered bracts surrounding the big, dome-like heads of bluish-green.) (20+ seeds) B

* 492.101 FRITILLARIA BITHYNICA Greece, Samos, Ambelos (Mt. Lazarus). 700-800 m. Steep, wooded slopes on mica--schist. 1992 seed coll. & ex hort. D. & P. Hoskins (Glaucous, yellow-green bells, yellow inside. Best-known from mainland W Turkey, the island plants from Samos and Khios are little collected.) (20+ seeds) C

* 493.000 FRITILLARIA CONICA Greece, Messinia, S of Pilos. 200 m. Margin of Quercus scrub on limestone slope. 1992 seed ex hort. M. Tucker from our 1985 coll. (Among the E Mediterranean species with yellow bells, this is fairly robust, up to 25 cm., with quite large flowers. Usually does well under glass in U.K.) (15+ seeds) C

* 494.800 FRITILLARIA EHRHARTII Greece, Evia, above Metohi, W of Karistos. 200 m. N & W-facing sides of gulley on mica-schist in light shade of Quercus, etc. 1992 seed ex hort. D. Hoskins et al. from our own and Hoskins' colls. (An attractive, local species with bloomy, grape-black bells, ruby against the light.) (20+ seeds) C

* 499.400 FRITILLARIA MESSANENSIS Greece, Pieria, Oros Olimbos. 1500 m. Steep, gravelly slopes among Buxus. 1992 seed ex hort. D. Hoskins et al. from our 1984 coll. (The beautifully elegant Mt. Olympus form of the type--race with brown-chequered bells. Not so vigorous as the next but not difficult in a frame.) (15+ seeds) C

* 499.700 FRITILLARIA MESSANENSIS subsp. GRACILIS (Jugoslavia) Bosnia & Hercegovina, W of Trebinje. 500 m. Among Quercus scrub on limestone. 1992 seed ex hort. D. Hoskins et al. from our 1984 coll. (Untesselated chest--nut-brown, gold-edged bells. A good grower in cultivation and worth trying outside in the UK.)(20+ seeds) B

* 500.300 FRITILLARIA MONTANA (Jugoslavia) Macedonia, Galicica Planina above Trpjeca. 1600 m. Exposed, dry, lime--stone slopes. 1992 seed ex hort. M. Tucker et al. from our 1984 coll. (A dwarf form of this widespread species of the S European limestones. Brown-purple tesselated bells. Sometimes stoloniferous here.) (15+) C

* 500.303 FRITILLARIA MONTANA France, Alpes-Maritimes, NW of Gourdon to Caussols. c. 1000 m. Among grasses on N-limestone slope. 1991 seed ex hort. P. Christian from his 1979 coll. PJC 282 (A French population (this has been described as F. caussolensis) with heavily chequered red-brown or wine bells. Vigorous.) (20+) B

* 503.600 FRITILLARIA THESSALA (subsp. thessala) Greece, Ioanina, Peristeri above Metsovon. 1980 m. Steep, N-facing grassy slope. 1992 seed ex hort. M. Tucker from our 1964 coll. (Purple-brown & green flowers tesselated all over. We follow Kamari's revision of the complex F. graeca group, as published in the 'Mountain Flora of Greece' (1991) - for seed of F. graeca and F. g. var. guiccardii see Section III) (15+ seeds) B

* 503.601 FRITILLARIA THESSALA (subsp. thessala) Greece, Trikala, below Katara Pass. 1500 m. Open, stony clay slope among Juniperus. 1992 seed from our own & N. Stevens coll. ex hort. N. Stevens et al. (Very variable in chequering and colour - the species as a whole is robust with two or more flowers.) (20+ seeds) B

* 503.700 FRITILLARIA THESSALA subsp. IONICA Greece, Kerkira, Pantokrator. 1992 seed ex hort. D. Hoskins from a coll. by E. Sewell. (Green bells obscurely tesselated at the edges and broad foliage.) (15+ seeds) C

PRICE CODE A	:	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D	:	$5.50	£3.50	DM10, -	FF35. -
B	:	$3.50	£2.00	DM6, -	FF20. -	E	:	$7.00	£4.50	DM13, -	FF45. -
C	:	$4.00	£2.50	DM7,50	FF25. -	F	:	$10.	£6.00	DM18, -	FF60. -

503.800 FRITILLARIA TUBIFORMIS France, Hautes-Alpes, Pic de Gleize, NNW of Gap. 1800 m. Steep, SE-facing slopes among grasses. 20.9.91 (Outstanding and seldom available. Large, fat, chequered, brown-purple bells on relatively short stems. From this locality, warm & dry in summer, it should suit the bulb-frame.) (20+) C

515.400 GENTIANA ANGUSTIFOLIA France, Haute-Alpes, Pic de Gleize, NNW of Gap. 1900 m. Steep, stony, limestone slopes. 20.9.91 (An especially fine form here of this species limited to the limestones of the SW Alps & of special importance to those wanting to grow "G. acaulis" in warm, drier, limy gardens. Narrow-leaved clumps and huge, azure-blue trumpets on short stems. Can become quite dried up by late summer.)(30+ seeds) B

517.201 GENTIANA CLUSII Italy, Lombardia, Monte Tremalzo WSW of Riva. 1900 m. In turf on N & W-facing limestone slopes. 25.9.91 ("Glossy tufts" with "celestial goblets" in "indigo masses" - another splendid calciphile member of the G. acaulis group, which may be the origin of much cultivated "G. acaulis".) (30+ seeds) B

* 518.400 GENTIANA GELIDA Turkey, Gumushane, Kop Da. above Kop. 2300 m. Meadows in moist to dryish turf on N-slope. 1992 seed ex hort. D. Batterham from our 1986 coll. (Superficially like G. septemfida but with creamy yellow trumpets, striped deeper yellow & green outside. Not so easy but worth some effort.) (20+ seeds) C

521.403 GENTIANA VERNA France, Pyrenees-Orientales, SE of Las Planes to Puigmal. 2200 m. Among Rhododendron in stony turf on open slope. 17.9.91 (Exquisite, little, purest-blue spring gentian, in a distinct form with narrow, pointed leaves, which we thought at first might be G. pumila ssp. delphinensis.) (50+ seeds) B

* 528.201 GERANIUM SANGUINEUM Ireland, Co. Clare, W of Ballyvaghan. 20 m. Open, stony, limestone slopes. 1992 seed from our 1990 coll. (A little, prostrate form from the Burren, rather like G.s. var. striatum but with bright magenta-pink flowers. Will probably vary as we grow other cultivars, like 'Elspeth'.) (10+ seeds) A

* 531.802 GLADIOLUS ANATOLICUS Turkey, Adana/Gaziantep, above Hasanbeyli. 1100 m. Among deciduous Quercus scrub on W-facing slope. 1992 seed from our 1988 coll., ex hort. M. Tucker, who tells us this 'has produced some superb, large, widely-flared flowers.' - we have not seen this showy, purple-pink Turkish endemic in flower here ourselves. This has grown well and flowered quickly from the original coll.) (20+ seeds) B

* 532.600 GLADIOLUS KOTSCHYANUS Turkey, Kayseri, E of Pinarbasi to Gurun. 1200 m. Hay meadows. 1992 seed from our 1985 coll., ex hort. M. Tucker. (Crimson-purple, 60 cm. meadow form - absolutely hardy!) (20+ seeds) B

* 561.400 HELLEBORUS LIVIDUS Spain, Islas Baleares, Mallorca, NE of Andratx. 100 m. In limestone talus among Rosa scrub at base of cliffs. 1992 seed ex hort. D. Hoskins from material coll. 1973 (Beautiful, rather tender species from a plant grown outside in a Hampshire garden. Untoothed, silver-veined, purple-backed leaves and cream-green, pink-flushed flowers in mid-winter. Easiest in shade under glass. About 30 cm.)(20+ seeds) C

576.000 HYPERICUM ERICOIDES Spain, Jaen, Sierra de Pozo, above Nava de San Pedro. 1400 m. W-facing fissures on limestone cliffs. 12.9.91 (Most reduced of Sect. Coridium, a group of relic like H. coris & H. empetri-folium, with a habit like a delicate Cassiope lycopodioides and clusters of yellow flowers.) (20+ seeds) E

580.100 IBERIS CANDOLLEANA France, Vaucluse, Le Mont Ventoux. 1800 m. Loose, limestone scree on summit ridge. 18.9.91 ("Tucked in among the rocks, its leaves completely hidden by corymbs of lilac flowers" (Dwight Ripley in 1938), compact & perennial in nature, this can be grown with reasonable success in a trough or the alpine-house but remains a challenge to maintain entirely in character in the U.K.) (20+ seeds) D

590.400 IRIS LATIFOLIA France, Hautes-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 & NW Spain seldom seen in its wild form in cultivation.) (15+ seeds) A

601.400 IRIS XIPHIUM Spain, Jaen, Sierra de Cazorla, E of Puerto de las Palomas. 850 m. Open, wet slope, among grasses & rushes. 13.9.91 (Another, summer-growing member of Subgenus Xiphium, Clear lilac-blue flowers appearing here about the end of June. These are both very hardy & suited to U.K. gardens.) (20+ seeds) A

627.801 LEUCANTHEMOPSIS RADICANS Spain, Sierra Nevada, SE of Pico del Veleta. 3000 m. Open, stony areas on schist 10.9.91 (Choice, aristocratic Sierra Nevadan endemic. Tight mats of tiny, greyish, much-cut leaves with sulphur-yellow daisies, flushing crimson as they age. To be tried in an acid scree in full-sun in the 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 and windy mountains after snow-melt is over in June.) D

* 632.600 LILIUM CANDIDUM Greece, Lakonia, Oros Taigetos, foothills W of Sparti. 500 m. Steep limestone slopes. 1992 seed ex hort. D. Hoskins et al. from our 1983 coll. (Seed provides the only possibility of raising fertile, virus-free stock of this superlative, 1 m. high, pure-white lily for a sunny site.) (15+ seeds) C

* 633.201 LILIUM CHALCEDONICUM Greece, Magnissia, Oros Pilio above Portaria. 1500 m. Steep, SW-facing, schist slope among Pteridium, etc. 1991 hand-pollinated seed ex hort. D. Hoskins from our 1985 coll. (Luminous scarlet, pendant, waxen flowers - dwarfer & more slender than old commercial stock.) (20+ seeds) C

663.000 LYSIMACHIA EPHEMERUM Spain, Jaen, Sierra de Cazorla, E of Puerto de las Palomas. 850 m. Open, wet slopes among grasses. 13.9.91 (Thick, smooth, greyish leaves on erect stems to about 1.5 m. with slender spires of white, lilac-tinged flowers. Esteemed by discriminating gardening writers from A.T. Johnson to G.S. Thomas but seldom seen - easy but restrained in any decent border-soil in the U.K.) (30+ seeds) B

* 696.200 NARCISSUS BULBOCODIUM subsp. NIVALIS (sensu Maire in 'Flore de l'Afrique du Nord') Morocco, High Atlas above Tizi-n-Tichka. 2000 m. In turf. 1992 seed from our 1982 coll. (Broad, prostrate, glossy leaves with bright yellow hoop-petticoat flowers, very variable in size & shape. A very hardy plant.) (15+ seeds) B

* 699.200 NARCISSUS BULBOCODIUM var. PALLIDUS Morocco, High Atlas, Tizi Gourane above Amizmiz. 1800 m. Schist fiss--ures and detritus. 1992 seed from the 1982 Archibald, Blanchard & Salmon 4661 coll.(Primrose) (15+ seeds) C

* 696.700 NARCISSUS BULBOCODIUM subsp. PRAECOX Morocco, High Atlas, Moulay Brahim Gorge. 1000 m. Humus pockets on large, limestone boulders. 1992 seed from the 1982, Archibald, Blanchard & Salmon 4656 coll. (Distinct, early flowering race - November to January in U.K. - with pale to deep primrose flowers.) (10+ seeds) C

* 705.600 NARCISSUS RUPICOLA subsp. MARVIERI Morocco, Middle Atlas, Tizi-n-Ait Ouirra S of Ksar-el-Ksiba. 1700 m. N-facing slope among Cedrus & Quercus. 1992 seed ex hort. D. Hoskins et al. from our 1982 coll. (A soft-yellow jonquil of Sect. Apodanthae, local in nature and apparently always on limestone.) (10 seeds) C

* 705.701 NARCISSUS RUPICOLA subsp. WATIERI Morocco, High Atlas, above Tizi-n-Tichka. 2300 m. Moist or shaded sites on rocky slopes. 1992 seed ex hort. D. Hoskins et al. from our 1982 coll. (The incomparable, pure crystalline white race from the high, acid mountains. Keep cooler & moister than the preceding.)(10 seeds) C

PRICE CODE A :	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D :	$5.50	£3.50	DM10, -	FF35. -
B :	$3.50	£2.00	DM6, -	FF20. -	E :	$7.00	£4.50	DM13, -	FF45. -
C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

746.000 PAEONIA BROTEROI Spain, Granada, Sierra Nevada, SE of Granada. 1100 m. Among scrub & sparse Pinus on limestone slopes. 10.9.91 (A superb form of this Iberian endemic with large, bowl-shaped flowers, shading from pale-pink to deeper rose at the edges, massed with golden stamens. Needs good drainage.) (10 seeds) C

772.001 PHYSOPLEXIS COMOSA (= Phyteuma comosum) Italy, Lombardia, Monte Tremalzo. 1900 m. Fissures on N & W-facing limestone cliffs. 25.9.91 (Classic saxatile endemic of the SE Alps with "amethystine heads of wild pale bottles" (Farrer). Superlative in the alpine-house but growable in tufa, a trough or crevice.) (50+ seeds) C

786.800 PRIMULA GLAUCESCENS Italy, Lombardia, Passo di Croce Domini. 1900 m. Alpine turf on steep slopes over limestone. 25.9.91 (Fine purple-pink heads from tight tufts of narrow, shiny, leathery leaves.)(30+ seeds) C

787.902 PRIMULA LATIFOLIA (f. cynoglossifolia) France, Alpes-Maritimes, Vallon de la Gordolasque. 2000 m. Fissures on W-facing granite cliffs. 23.9.91 (SW race of this rich red-purple calcifuge species.) (30+ seeds) C

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 (Magnificent, giant race, local in nature & little-known in gardens. Broad, toothed, sticky foliage. Huge umbels, almost 30 cm. high, of reddish violet.) (50+ seeds) C

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. Populat--ions on granite may have some ancient influence from P. latifolia and vary much in colour.) (30+ seeds) C

789.400 PRIMULA SPECTABILIS Italy, Lombardia, Monte Tremalzo, WSW of Riva. 1900 m. Stony N & W-facing limestone slopes. 25.9.91 (Broad, shiny, leathery leaves. "Enormous and comfortable" rose-pink flowers.) (30+ seeds) C

820.200 RHAPONTICUM HELENIIFOLIUM France, Hautes-Alpes, Pic de Gleize NNW of Gap. 2000 m. Limestone talus on S--facing side of summit-ridge. 20.9.91 (Stalwart, 1.5 m. high herbaceous plant with big, undivided leaves, white-tomentose beneath and pale rosy-purple heads surrounded by papery, silvery bracts.) (15+ seeds) B

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 chasmophyte for the alpine-house in N Europe. Thick, blue -grey foliage and racemes of white, yellow-centred, spurless flowers, a few cm. high.) (15+ seeds) D

852.400 SARCOCAPNOS CRASSIFOLIA subsp. SPECIOSA Spain, Granada, Sierra Nevada, Puerto de la Ragua. 1800 m. Shady E-facing, schist cliffs. 24.6.90 (White flowers with yellow centres, turning orange with age, and long, fat spurs. A fine, little plant from this coll. is well illustrated by Robert Rolfe in the March, 1992, A.G.S. Bulletin, p. 14. Avoid too much shade, food & water to keep these tight. A few seeds left.) (10+) E

861.600 SAXIFRAGA LONGIFOLIA France, Hautes-Pyrenees, Vallee d'Ossoue. 1500-1700 m. W & SW-facing limestone cliffs. 15.9.91 (Exquisitely formed, symmetrical, silvery rosettes erupt into arching spires of countless white flowers. Seldom seen pure in gardens unless grown from wild seed.) (50+ seeds) C

867.600 SCABIOSA GRAMINIFOLIA France, Hautes-Alpes, Pic de Gleize. 2000 m. Stony, exposed, limestone slopes. 20.9.91 (A succession of lilac-lavender heads on great, silvery cushions all summer. Surely the best, most reliable rock-garden plant in the genus, hardy and accommodating in a dry, sunny place.) (20+ seeds) A

* 874.800 SCILLA LITARDIERI (Jugoslavia) Bosnia & Hercegovina, above Dubrovnik to Trebinje. 500 m. Fragmented limestone. 1992 seed ex hort. M. Tucker from our 1984 coll. (Heads of starry, pale-blue flowers on 20 cm. stems. Though very restricted in the wild, this is a good, hardy garden-plant for full sun.) (20+ seeds) A

* 882.800 SCORZONERA RELIGIOSA Morocco, High Atlas, Moulay Brahim Gorge near Asni. 1000 m. Limestone slopes. 1992 seed ex hort. J. Blanchard from his 1982 coll., Archibald, Blanchard & Salmon 4616 (A tuberous-rooted, summer-dormant species suitable for the bulb frame with large mauve-pink heads. About 15 cm.) (5 seeds) B

906.000 SENECIO LEUCOPHYLLUS France, Pyrenees-Orientales, Puigmal above Las Planes. 2300 m. Slate & gneiss scree on steep, open slopes. 17.9.91 (Famous endemic of the E Pyrenees, which challenges the alpine-specialist. Exquisitely lobed and frilled foliage and stems clothed in pure-white velvet.) (About 20+ seeds) D

917.100 SILENE ELISABETHA Italy, Lombardia, Monte Tremalzo. 1900 m. Stony, N & W-facing limestone slopes. 25.9.91 ("Enormous ragged flowers of flaming magenta-rose" on "stems of downy, claret-coloured velvet" (Farrer). Like the preceding, a beautiful aristocrat in a large and largely weedy genus. Not easy to grow well.)(20) C

941.400 TANACETUM PRAETERITUM Turkey, Antalya, Bey Da. c. 2000 m. Limestone slopes. Coll. 1991 by P. & P. Watt. (SW Turkish, high altitude endemic, superficially like a harder, more silvery leaved version of the eastern T. densum - intricately cut silver filigree for the alpine-house or scree-bed.) (About 20+ seeds) C

982.551 VERBASCUM SPODIOTRICHUM Turkey, Antalya, W of Kemer. c. 200 m. On limestone & conglomerate cliffs. Coll. P. & P. Watt, 1991 (Only known from the low limestones round the eastern base of Tahtali Dag, this deserves a place in the alpine-house or unheated greenhouse. Woody based hummocks of leaves covered with dense, grey-white down. Long racemes of many small, bright-yellow flowers, each with a violet eye and central tuft of purple, woolly filaments. A distinct, isolated species about 25 cm. in flower.)(50+ seeds) C

* 982.950 VERBASCUM WIEDEMANNIANUM See last page for cultivated seed of this tall, purple species. (100+ seeds) B

While our main aim is to offer you seed collected by ourselves in Sections I & II, our lists would be much the poor--er were it not for the arbitrary miscellany of seed included in our Section III. Help from some friends in Britain and abroad is particularly evident here, where space does not allow us to name the sources. For such seed, as well as additional material in Sections I & II, we are grateful to : John Andrews, Steve Bach, Stan Farwig & Vic Girard, Wayne Roderick and Nancy Wilson (all California, USA) ; Jim Almond (Shropshire, UK), Helen Barton (Devon, UK), Dinah Batterham (Dorset, UK), Helen Beaufort-Murphy (Peru), John Blanchard (Dorset, UK), Paul Christian (Clwyd, UK), Phil Cornish (Glos., UK), Don Elick (Japan), Bert Hopwood (Devon, UK), Terry Hatch (New Zealand), Dave Hoskins (Hampshire, UK), Hans-Erik Jensen (Denmark), Melvyn Jope (Surrey, UK), Panayoti Kelaidis (Colorado, USA), Will McLewin, (Cheshire, UK), Jimmy Persson & Henrik Zetterlund (Sweden), Mike Smith (Norfolk, UK), Richard Riedy (New Mexico, USA), David Shahak (Israel), Norman Stevens (Cambridge, UK), Mike Tucker (Somerset, UK), Peter & Penny Watt (Hampshire, UK).

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 or interesting plants.

In almost all cases, Section III seed is from 1992 collections but there are one or two items from 1991, where we felt the material was too valuable to scrap - these have been stored cold and dry, as for other seed-bank items. Low-temperature germinators, such as Cyclamen and Helleborus, should be sown as soon as possible by northern hemisphere growers, so that they can have an initial warmer period before weather cools, so please order these very promptly if you wish to have germination over the coming winter ; otherwise germination will not occur until the 1993-94 period. Some items here are only available in very small quantities, so please list a few substitutes if you can.

PRICE CODE A :	$2.50	£1.50	DM4,50	FF15. -	PRICE CODE D :	$5.50	£3.50	DM10, -	FF35. -
B :	$3.50	£2.00	DM6, -	FF20. -	E :	$7.00	£4.50	DM13, -	FF45. -
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ALLIUM ERUBESCENS Silvery lilac heads. 80 cm. From a Paul Furse coll. on the Caspian coast of Iran. (15+ seeds) A

SUWOROWII Hemisphaerical umbels of rose-violet stars. Tall Central Asian near A. rosenbachianum. (15+ seeds) A

ANEMONE RIVULARIS White, blue-backed cups on branching, 60 cm. stems. Lovely Himalayan meadow-plant. (20+ seeds) A

AQUILEGIA FORMOSA Excellent, 60 cm. form from Vancouver via Denver B.G. Scarlet and yellow. (50+ seeds) A

GRATA Violet-black, 60 cm. Slovenian from our coll. 172.700 but open-pollinated - may not come 100% true. (30+) A

VULGARIS 'DOUBLE WHITE' Cottage-garden columbine. Open-pollinated but a percentage should come true. (30+ seeds) A

ARUM ALPINUM From the Christian & Hoog 806 coll. Small, hardy, high altitude Greek endemic. (10 seeds) B

BYZANTINUM From N. Stevens - "the true plant" - distinct in its purple-brown spadix. NW Turkey. (8 seeds) B

CONCINNATUM (= A. nickellii) From a Furse & Synge coll. Huge, yellowish spathes and spadix. (10 seeds) B

CONOPHALLOIDES var. VIRESCENS E.K. Balls coll. Narrow spathes with slender, bright-yellow spadix. (10 seeds) B

CONOPHALLOIDES var. VIRESCENS N. Stevens coll. Green spathes, whitish inside with grey spadix. Tall. (10 seeds) B

CYRENAICUM Striking large spathes, purple inside. Tender Libyan relative of A. palaestinum. (10 seeds) B

ELONGATUM The fine, elegant type-race from N Iran into Central Asia. Short-stemmed, brown-purple. (10 seeds) B

EUXINUM Hardy, dwarf from NW Turkey. Spathes purple outside ; white with a purple border inside. (8 seeds) D

HYGROPHILUM Narrow, green, twisted spathes with purple spadices. Original material from Israel. (10 seeds) B

ORIENTALE One of the finest. Huge, boat-shaped, brown-purple spathes. Reasonably hardy in the U.K. (10 seeds) B

PURPUREOSPATHUM Magnificent, shiny, purple spathes, coloured on both surfaces. Cretan endemic. (8 seeds) D

ASTRANTIA MAXIMA Strawberry-pink heads on 50 cm. stems from running mats of 3-lobed leaves. (20+ seeds) A

BELLEVALIA LONGISTYLA From L. & P. 7044, Van, SE Turkey. Purple, green & white. "Super" says M. Tucker. (10+ seeds) B

PYCNANTHA Blue-black, muscari-like heads like clusters of squashed, black grapes. 20 cm. Hardy. (20+ seeds) A

BERGENIA - RED HYBRIDS Mainly from our own clones, like 'Bartok' and 'Bizet', derived from 'Ballawley' and with excellently coloured winter-foliage, but also with some seed from newer crimson German hybrids. (50+ seeds) B

'WHITE HYBRIDS All from the best of the white clones initiated by Eric Smith's crosses with B. stracheyi 'Alba' - 'Brahms', 'Britten', 'Bach', etc. Very compact, tough, weather-resistant, dark-green leaves. (50+ seeds) B

BIARUM TENUIFOLIUM var. ZELEBORII Dwarf, tuberous aroid, from an A.C. & W. Turkish coll. Brown-purple. (5 seeds) C

CLEMATIS FORSTERI Coll. Tai Hape, NZ by T. Hatch. Climber with scented yellow-green flowers. Quite hardy. (15+) B

CORYDALIS RUPESTRIS "A jewel for the alpine house" says H. Zetterlund. Golden-orange flowers. Iran. (20+ seeds) D

TOMENTELLA Like a dwarfer C. wilsonii but not so showy. Pale yellow. Dissected, grey foliage. (15+ seeds) B

WILSONII Brilliant-yellow, 15 cm. spikes. Grey-blue leaves. These three are no problem from dry seed. (20+) A

CROCUS BIFLORUS subsp. PULCHRICOLOR Rich violet-blue in spring. Excellent outside in cold, wet areas. (20+ seeds) B

CANDIDUS From a N. Stevens coll., Lapseki, NW Turkey. A local species with white flowers in spring. (10 seeds) C

GARGARICUS Brilliant orange-yellow in spring. A high altitude plant - do not dry out in summer. (8 seeds) C

HADRIATICUS Autumn-flowering from W Greece. White with yellow throat & scarlet stigma. Bulb-frame. (10 seeds) C

VERNUS subsp. VERNUS The northern race known as C. scepusiensis - keep cool & moist in summer. (8 seeds) B

CYCLAMEN Sow as soon as possible after receipt. Soaking seed in warm water for 24 hours before sowing appears to aid germination. For further information, C. Grey-Wilson's monograph (1988) is an unrivalled reference.

C COUM - MIXED Reds, pinks, white. Hardy. (15+) B

C. COUM - SELECTED LEAVES Including silvers. (15+) C

C. CYPRIUM White with pink nose. Tender. (15+) B

C. GRAECUM Pink. Variable leaves. Tender. (15+) B

C. HEDERIFOLIUM - MIXED Pink & white. Hardiest. (20+) A

C. INTAMINATUM - PLAIN LEAVES Tiny hardy white. (20+) B

C. LIBANOTICUM Sumptuous pink. Spring. Tender. (20+) B

C. PERSICUM White & pale pink. Tender. Spring. (20+) B

C. PERSICUM - DEEP PINK (15+) C

C. REPANDUM 'ALBUM' A proportion will be white. (10) E

C. REPANDUM subsp. PELOPONNESIACUM B.M. 5053 (8) D

C. TROCHOPTERANTHUM from P.D. 25579 (15+) D

C. CILICIUM f. ALBUM Derived from the pure white clone Frank & Koenen 82-10, coll. near Akseki, Turkey. (10 seeds) E

C. HEDERIFOLIUM 'APOLLO' A 'strain' bred from the Bowles plant at Wisley. Unrivalled silver patterns. (15+ seeds) C

C. HEDERIFOLIUM 'WHITE APOLLO' Developed by D. Hoskins. Will give plenty whites with 'Apollo' leaves. (15+ seeds) D

C. HEDERIFOLIUM 'SILVER CLOUD' 'Strain' with leaves suffused with a silver sheen. Extremely beautiful. (15+ seeds) D

C. HEDERIFOLIUM 'WHITE CLOUD' White-flowered version of the above from P. Cornish. All these 'strains' of C. hederifolium need rigid selection if used as seed-parents. There are now many inferior impostors circulating! (15+ seeds) D

C. LIBANOTICUM 'WILD FORM' From stock derived from one or two wild tubers coll. by Eliot Hodgkin in the 1960's. Deeper pink, more elongated flowers than the usual form. Well-patterned leaves often flushed pink. (10 seeds) E

C. PURPURASCENS 'SILVER LEAVES' Derived from a few wild tubers coll. by Manfred Koenen in the 1970's near Limone on Lake Garda, N Italy. Leaves suffused almost entirely with silver. Will give a good number of silvers. (15+ seeds) D

DELPHINIUM SEMIBARBATUM Pale yellow, summer-dormant Central Asian. Bulb-frame only says N. Stevens. (50+ seeds) B

DIERAMA PULCHERRIMUM Consummately graceful, arching 2 m. stems of pink bells. Very hardy in U.K. (20+ seeds) A

PULCHERRIMUM - CARMINE From a glowing carmine-pink clone we raised from Slieve Donard seed. (15+ seeds) B

DIGITALIS DAVISIANA Pale-yellow, orange-veined foxglove near D. grandiflora. Perennial. 50 cm. (100+ seeds) A

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C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -

DIGITALIS LAMARCKII Furry fawn, purple-veined flowers with white lips - 60 cm. high perennial. (100+ seeds) A

FRITILLARIA ACMOPETALA Elegant green & maroon bells. One of the best outside in UK - in full sun. (20+ seeds) A

CRASSIFOLIA (subsp. crassifolia) Large, yellow-green & maroon bells. Seldom-seen, dwarf type-race. (15+ seeds) C

CRASSIFOLIA subsp. KURDICA From an interesting, 20 cm. high, well-coloured form coll. N. Stevens - Turkey, near Timar, NE of Lake Van, growing in fields with Iris barnumae - a very unusual site for this. (15+ seeds) C

GRAECA (var. graeca) Dwarf with a single wide bell. Purple-brown with yellow-green fascia. (15+ seeds) B

GRAECA - TAIGETOS From the most southern locality for the species, maybe best placed with the next. (15+ seeds) C

GRAECA var. GUICCIARDII From the type locality, Mt. Parnis. Taller with more than one flower. (15+ seeds) C

GUSSICHIAE Distinct from F. graeca & F. thessala in its winged capsule. Yellowish green & fawn. (15+ seeds) D

LUSITANICA From a vigorous form grown by D. Hoskins - no data. Brown & yellowish green. (20+ seeds) A

MELEAGRIS The elegant Snakeshead of wet, W European meadows. From various white & purple forms. (20+ seeds) A

MESSANENSIS subsp. GRACILIS - DARK FORM Grown by Norman Stevens from stock derived from Cedric Morris. (20+) B

PONTICA Vigorous with several large pale-green, brown-tinted bells. Grow it outside in UK in shade. 50 cm. (20+) A

PYRENAICA A meadow-plant, also best outside in UK. Yellow inside, dark brown outside. 30 cm. (15+ seeds) B

RADDEANA Daintier, 40 cm. high, pale yellow version of F. imperialis. Not difficult in a bulb-frame. (15+ seeds) C

STENANTHERA Easiest of the difficult Rhinopetalums. Pale pink with purple nectaries. Bulb-frame. (15+ seeds) E

GAGEA FISTULOSA - LARGE FORM Coll. by N Stevens - Turkey, Hatay, above Belen Pass over the Amanus Mts. (20+ seeds) B

GENTIANA ASCLEPIADEA - TURQUOISE FORM A paler blue Willow Gentian. A proportion should come "true". (50+ seeds) A

PARADOXA Blue & green trumpets. Linear verticillate leaves. Extraordinary limestone relic from Abkhazia. (50+) C

VERNA The incomparable, azure-blue Spring Gentian in a good, cultivated race. Trough or rock-garden (50+ seeds) A

GERANIUM CLARKEI Rhizomatous version of G. pratense. From the glowing 'Kashmir Purple' clone. 50 cm. (10+ seeds) A

MACRORRHIZUM From intensely coloured, carmine 'Czakor', deepest clone of this ground-coverer. (15+ seeds) A

PRATENSE f. ALBIFLORUM White-flowered Meadow Cranesbill. Usually comes fairly true. 1 m. (15+ seeds) A

SANGUINEUM From Max Frei's outstanding clone 'Elspeth' - bright purple-reds for the sunny border. (10+ seeds) A

WALLICHIANUM Seemingly the genuine wild plant from a coll. by Udai Pradhan in N India. Trailing, wide-spreading stems with a succession of deep rose-pink, white-centred flowers. Vigorous here - flowers all summer. (10+ seeds) B

WALLICHIANUM 'BUXTONS VARIETY' Better-known, lavender-blue form with larger white centres. Excellent. (10+ seeds) A

GLADIOLUS ATROVIOLACEUS Hardy, SW Asian, usually of drier habitats. Dark violet-purple. 50 cm. (15+ seeds) A

CARDINALIS Stunning, crimson S African with white flash. Best grown frost-free - do not dry-out. (10+ seeds) B

ITALICUS From a coll. by M. Jope - Greece, Poros, 250 m. Hardy, bright-pink, 1 m. high species. (15+ seeds) A

MACULATUS subsp. MERIDIONALIS Lovely, salmon-flowered, winter-grower from the Cape. Frost-free. (10+ seeds) B

PALUSTRIS Dainty, hardy, red-purple species from habitats which are wet in spring. About 50 cm. (20+ seeds) A

HELLEBORUS ARGUTIFOLIUS (H. corsicus) Spiny evergreen leaves ; massed yellow-green cups. Very hardy. (20+ seeds) A

ARGUTIFOLIUS Coll. Corsica, Fango river valley in the NW of the island. 28.5.92 (10+ seeds) B

ATRORUBENS Coll. by W. McLewin in May, 1992, from several sites near Novo Mesto, E Slovenia. One of the most local Balkan species, little-known in the wild or in cultivation - an unprecedented collection. (10+ seeds) E

FOETIDUS Beautifully cut, dark green foliage and a multitude of green, purple-rimmed cups. (20+ seeds) A

ODORUS Coll. by W. McLewin near Jesenice, N Slovenia, 1992. Yellow-green bowls in late winter. (10+ seeds) C

HELLEBORUS - The garden hybrids cannot be relied on to come true to colour and we have only kept them in colour groups or under parent's names to indicate what is most likely to materialise - no assurances can be given! Sow as soon as possible ; stand or plunge outside and protect from mice ; after germination progress will be more rapid with some protection. Late sown seed will not germinate until the following winter. Seed here is from our -selves, Dinah Batterham & Will McLewin (UK gardeners wanting plants to colour can write to the last at Phedar Nursery, Bunkers Hill, Romiley, Stockport. SK6 3DS). Please order hellebore seed promptly for autumn-sowing.

From 'ANDROMEDA' (and similar) Parents are good, rounded, dark to mid-purples with few or no spots (20+ seeds) C

From 'COSMOS' Vigorous, white, evenly speckled all over with maroon - usually gives excellent seedlings. (20+) C

From 'PLEIADES' White with crimson-speckled zone - a rather dwarf H.o. guttatus type. Seedlings unknown. (15+) C

From 'TITANIA' From our favourite H. torquatus hybrid - mushroom outside and yellow inside. (15+ seeds) D

From SELECTED HEAVILY SPOTTED Pale to deep pinks with especially heavy maroon to purple-black speckles. (20+) C

From NAMED BUCKSHAW HYBRIDS A mixture of the named Eric Smith clones - 'Sirius', 'Orion', blacks, etc. (15+) B

From SELECTED McLEWIN SEEDLINGS From what Will thinks are his best 1992 seedlings, retained for seed. (20+) C

HEUCHERA CYLINDRICA From the selected clone 'Greenfinch'. Lovely lead-green, white-veined foliage. (50+ seeds) A

HYDRANGEA MACROPHYLLA subsp. SERRATA From the lovely clone 'Diadem', dwarfer, earlier and with paler green leaves than any other we grow. Exquisite lace-cap heads of pale-blue to pinkish in our acid soil. (100+ seeds) B

IRIS AFGHANICA From Grey-Wilson & Hewer 768. Superlative Regelia. Seedlings will keep stock virus-free (5 seeds) E

KERNERIANA Slender, soft-yellow Turkish Spuria, 30 cm. high, for full sun in well-drained soil. (10+ seeds) B

MILESII Himalayan 'Evansia' with lavender-pink, purple-mottled flowers. 70 cm. Easy & hardy here. (10+ seeds) B

ORIENTALIS Imposing Spuria with greyish leaves and stems to over 1 m. White with yellow signal-patch. (15+) A

SINTENISII Spuria with narrow, dark-blue, I. reticulata-like flowers. 50 cm. Easy in a sunny place. (15+ seeds) A

SUBBIFLORA Splendid Portuguese Bearded Iris. Pure violet. 50 cm. Hot site or bulb-frame in U.K. (15+ seeds) A

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B	:	$3.50	;	£2.00	;	DM6, -	;	FF20. -			
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IRIS Subgenus Scorpiris - The cultivation of the more difficult "junos" challenges the bulb-enthusiast in the same way that growing Dionysias stretches the specialist in saxatile cushion-plants. While much material introduced in the 1960's was wasted and is now lost, the splendid work done by such specialists as Tony Hall at Kew and Henrik Zetterlund at Goteborg in locating, maintaining and propagating such plants - genuine conservation - is slowly and literally bearing fruit. The following are mostly hand-pollinated ; may they go forth and multiply.

IRIS GALATICA From B. Mathew 9568 - lustrous olive-green & pale brown. A good form. 10 cm. (5 seeds) E

LINIFOLIA Miniature white and luminous yellow. Illustrated as "I. parvula" in Rix & Phillips. (5 seeds) E

MAGNIFICA Large, easy - possible outside in U.K. Up to 1 m. with many pale-blue flowers. (15+ seeds) A

MICROGLOSSA From Wendelbo, Hedge & Eckberg 8570 - Paul Furse's "Salang Blue", endemic to a small area in north Afghanistan around the Salang Pass. The first reasonable amount of seed from two bulbs grown since 1969. (5) F

NICOLAI Pale bluish-lilac, dull purple & deep violet version of I. rosenbachiana. Orange crest. 15 cm. (5 seeds) E

PERSICA A good, vigorous, large-flowered form from SE Turkey. Lime-green to sea-green. 10 cm. (5 seeds) E

STENOPHYLLA subsp. ALLISONII From J. Persson 87-12 : Turkey, Antalya near Gundogmus. 1000 m. Disjunct race of this S Anatolian in shades of pale, clear blue with mottling like I. histrio. Barely known in cultivation. (5) E

VICARIA A fine white form with a yellow crest from the Romat Gorge, Tadjikistan established by N. Stevens. (8) E

IRIS Subgen. Iris, Section Oncocyclus - The Israeli "oncos.", more robust with larger leaves & flowers than their cousins from the Irano-Turanian steppes, are possible under glass in the U.K. with good ventilation and a little warmth in the coldest, wettest weather. The hybrids are David Shahak's "gene pool hybrids" - an attempt to produce vigorous, disease-resistant artificial species. While seed is unpredictable and can take a very long time to germinate, we have had several reports already of a reasonable germination from sowing last season.

IRIS HAYNEI Appears dusky purple. Black beard. (10+) C

HERMONA Creamy white veined brown-purple. (10+) C

JORDANA Maroon-purple. Yellow beard. Robust. (10+) C

LORTETII Dense maroon speckles on white. (10+) C

I. MARIAE HYBRIDS Pinkish violet. Black beard. (10+) C

I. SAMARIAE Near I. lortetii yet distinct. (10+) C

I. SUSIANA HYBRIDS Purple-black veined grey. (10+) C

I. URMIENSIS HYBRIDS From the yellow Iranian. (10+) C

LEUCOJUM ROSEUM Exquisite, tiny Corsican. Pink bells on wiry stems in autumn. 10 cm. Alpine-house. (15+ seeds) B

MUSCARI CAUCASICUM Handsome Leopoldia from E Turkey. Yellowish fertile flowers ; sterile violet tassel. (15+ seeds) A

AUCHERI - BICOLOURED FORM Originally selected near Lake Abant, NW Turkey by N. Stevens. Striking. (20+ seeds) A

MYOSOTIDIUM HORTENSIA The incredible Chatham Island forget-me-not from Terry Hatch. Like a giant celestial-blue Bergenia with huge, ribbed, shining leaves. Loves a rich, peaty, N-facing bed here - cool & moist. (8 seeds) C

NARCISSUS Most here are from John Blanchard (JWB) (Dorset, UK) - names as in his 1990 monograph on this genus - with additional material from Dinah Batterham, Dave Hoskins & Mike Tucker. All in small quantities only.

ALPESTRIS JWB 92-08 Wild seed coll. Col de Espina in the Spanish Pyrenees. A beautiful, dwarf, trumpet daffodil about 20 cm. high with drooping, white flowers. Much sought-after but not easy & never listed commercially. (10) D

ASTURIENSIS Sect. Pseudonarcissus. A good, free-flowering form from a JWB coll. in the Picos de Europa. (10+) B

BULBOCODIUM var. GRAELLSII Distinct, dwarf, green-tinged white. JWB coll. Spain, Sierra de Guadarrama. (10+) C

BULBOCODIUM var. NIVALIS JWB 90-21 - Portugal, Serra da Estrela. Dwarf, yellow, snow-melt race. (10+ seeds) B

BULBOCODIUM var. NIVALIS From a 1983 JWB coll. - N Spain, Puerto de San Isidro (10+ seeds) B

CANTABRICUS JWB 88-20 - Morocco, Djebel Zerhoun. White hoop-petticoat for the alpine-house. (10+ seeds) C

CANTABRICUS JWB 89-06 - Morocco, Beni Arouss : C

N. CANTABRICUS JWB 89-30 - Morocco, Targuist. (10+) C

CORDUBENSIS Sect. Jonquillae. From C. Stocken coll. Spain, Grazalema - Ubrique. Yellow. Good grower. (10+ seeds) B

CUPULARIS Sect. Tazzetae. From a T. Norman coll. - Sardinia, c. 800 m. Glaucous leaves, pale yellow. (10+ seeds) B

FERNANDESII Sect. Jonquillae. From M. Salmon 449 - Portugal, Samora Correia. Type-locality coll. (10+ seeds) B

HISPANICUS var. BUJEI Sect. Pseudonarcissus. From JWB 87-13 - Spain, Cordoba, Sierra de Cabra. (10+ seeds) C

JONQUILLA From JWB 87-12 - Spain, Cordoba, Sierra de Cabra, La Nava. Bright-yellow, scented, 30 cm. (10+ seeds) B

PACHYBOLBUS Sect. Tazzetae. From a 1955 coll. by C. Mountfort - Cyprus. White in mid-winter. (10+ seeds) B

PSEUDONARCISSUS subsp. EUGENIAE From the JWB 1987 coll. : Spain, Teruel. Almost stemless trumpets. (10+ seeds) D

ROMIEUXII subsp. ALBIDUS JWB 89-20 - Morocco, Afourer. Dwarf, white - see John's monograph p. 143. (10+ seeds) C

ROMIEUXII subsp. ALBIDUS var. ZAIANICUS JWB 88-15 - Morocco, Zaiane Mts., Aguelmouss. Yellowish white. (10+) C

ROMIEUXII subsp. ROMIEUXII var. RIFANUS JWB 89-28 - Morocco, Rif Mts., Iguermalet. Pale yellow. True! (10+) C

PARAQUILEGIA GRANDIFLORA 'GOTHENBURG STRAIN' Deliberate crosses between the deep violet-blue L & S form from Bhutan and lilac-white SEP 237 from Hazara, Pakistan. We hope more vigorous. Alpine-house or trough. (30+ seeds) D

PRIMULA HAZARICA SEP 400 - Pakistan, Swat, Ushu Valley near Mahodan. 3200-3800 m. N-facing, moist rocks. Densely farinose, thin-textured leaves, Large, pale to dark bluish lilac, scented flowers. Alpine-house. (30+ seeds) E

ROMULEA BULBOCODIUM - KNIGHTSHAYES FORM Rich violet, gold-centred "crocuses". Hardy in S England. (30+ seeds) A

BULBOCODIUM var. LEICHTLINIANA A fine white form with a yellow-throat from Norman Stevens. (30+ seeds) A

MACOWANII var. ALTICOLA The most hardy S African from very high altitudes. Brown-backed yellow. (15+ seeds) A

SCILLA PERSICA From a J. Andrews & N. Stevens coll. : Beyez Da., SE Turkey. Pale-blue. Wet in spring. (15+ seeds) A

TULIPA HISSARICA Dwarf species from high in the Pamir-Alai. Yellow with purple-stained outside. (15+ seeds) B

STAPFII The classic Oculis-solis Tulip of the high ranges of W Iran. Huge, bright-red flower, with a black yellow-edged blotch, opening flat on the greyish, undulate foliage. Bulb-frame only in U.K. (20+ seeds) B

PRICE CODE A :	$2.50 ;	£1.50 ;	DM4,50 ;	FF15. -
B :	$3.50 ;	£2.00 ;	DM6, - ;	FF20. -
C :	$4.00 ;	£2.50 ;	DM7,50 ;	FF25. -
PRICE CODE D :	$5.50 ;	£3.50 ;	DM10, - ;	FF35. -
E :	$7.00 ;	£4.50 ;	DM13, - ;	FF45. -
F :	$10. ;	£6.00 ;	DM18, - ;	FF60. -

SEED COLLECTED IN THE ANDES OF CAJAMARCA, NORTHERN PERU, BY DR. H. BEAUFORT-MURPHY, 1992

Most of Andean Peru is not the safest place in the world to go plant-hunting at present. Consequently, we have seen little seed collected here in recent years. Helen Beaufort-Murphy's work as a botanist with the International Potato Center occasionally involves research at high altitudes and even more occasionally this might occur in a floristically interesting area at a time when some seed is mature. The following collections result from such a rare opportunity in a little-known, limestone area of Cajamarca province in N Peru. Remember Helen is travelling officially and has work to do - these are what Paul Furse used to label "grabs" - tea-break collections made in very limited time. We are most grateful to Helen for making these available for distribution in the hope that some may reach some grower who will succeed with them. All were made in Peru, Cajamarca Province, at over 3,000 m., earlier in 1992.

ECHEVERIA SP. 3800 m., limestone pavement. A few species extend south at high altitudes in the Andes. (20+ seeds) C

CALCEOLARIA SP. 3800 m. Shrubby, 30 cm. high with sulphur-yellow flowers & tiny, hairy, grey leaves. (50+ seeds) C

GENTIANELLA SP. 3800 m. Damp meadow. Pale-violet and white, about 15 cm. high. (30+ seeds) E

GENTIANELLA SP. 3000 m. Wet flood-plain & meadows. Andean gentian with waxy, white flowers. 20 cm. (50+ seeds) D

HALENIA UMBELLATA 3800 m. This genus of the Centianaceae produces some very dwarf, desirable developments at the highest Andean altitudes, usually with tight, rounded heads of yellow flowers. About 10 cm. (20+ seeds) E

IPOMOEA SP. 2200 m. Argentina Tafe de Valle. Dwarf with white or mauve flowers. (10+ seeds) C

LIABUM BULLATUM 3800 m. A huge, stemless, yellow daisy sits in the middle of the flat leaf-rosette. (5 seeds) E

CROCUS PELISTERICUS

Described in 1976 and only known from one or two localities above 1900 m. on a few high mountains, S to E of Bitola, near the Greek border in (Yugoslavian) Macedonia, this, together with C. scardicus, constitutes Series Scardici, the only two crocuses lacking a white stripe on the leaves. Material introduced by Henrik Zetterlund (HZ 85-67) from the Karadzica Planina has been successfully established at Goteborg, Sweden, and has now been increased to the level where it has produced enough 1992 seed for us to encourage more gardeners to experiment with this. It is a true alpine plant and is definitely not a species for a bulb-frame or for those gardening in warm, dry climates. Its future more possibly lies as a choice species for the open rock-garden or peat-bed in northern European gardens. A snow-melt plant growing in peaty turf, this remains in leaf all summer, when it should be kept moist ; it might be best to keep it drier in winter when it would be under snow. Striking flowers, described by Brian Mathew as having "an unusual intens--ity of colour, a deep rich violet with a very glossy surface" in his 1982 monograph of this genus, where this species is illustrated on Plate 6 by a beautiful painting by Victoria Goaman. (10 seeds) Price code : D

CYCLAMEN ROHLFSIANUM

For the first time since 1983 we have a splendid crop of seed, thanks to the efforts of our friend, Rita Jukes, who hand-pollinated our plants, when we were abroad in S Europe in autumn, 1991, and collected the seed, when we were in California in 1992. This is from wild tubers collected in Libya in 1966 - our population ref. 369.000. It is wide-spread in limestone pockets among the macchie of the 'green belt' between Benghazi and Derna. Easily grown if you can keep it frost-free with beautiful foliage and autumn flowers in many pink-shades. (15+ seeds) Price code : D

DAUBENYA AUREA - RED FORM

Maybe the most startling and incredible of snow-melt bulbs, belonging to a little-known, extraordinary, possibly monotypic genus of the Liliaceae. Described in the early 19th Century from the "Cape of Good Hope", this was "lost" until it was rediscovered by Harry Hall in 1955, flowering as the snow melted on the crest of the Roggeveld Berge, one of the ranges, rising to over 1500 m., in whose rain-shadow lies the desert of the Great Karroo in Cape Province. Some collected bulbs were established by Dr. Earl Murphy of Oakland, California, with whom it never set seed, and some of this stock was passed on to bulb-specialists Stan Farwig and Vic Girard of Concord, where the climate is colder and it has been possible to build a fine nucleus stock from seed - it loved the Californian 'freeze' of 1991. According to Dr. Peter Goldblatt, it is "impossible" at Kirstenbosch and we believe its future may be in the unheated alpine-house in colder climates. A winter-grower and possibly best kept completely dry when dormant in summer, we do not know how low a temperature this will stand but it certainly so far prefers cold to warm climates! Possibly, near--est to the genus Massonia, this is really unlike anything else : two, fleshy, rounded, glossy, bright-green leaves sit flat on the ground ; between them appears a dense, stemless umbel, in which the outer flowers are irregular with greatly extended outer segments so that the whole resembles a scarlet water-lily head resting on the ground. Stan & Vic tell us that about one-third germination occurs with them the first season. (8 seeds) Price code : E

FRITILLARIA BUCHARICA

The group of Fritillaria spp. which can be separated into Rhinopetalum are all beautiful, if none too easy plants. Norman Stevens of Cambridge has established a vigorous stock of an especially fine form of this species from a collection made in the Romat Gorge, near Dushanbe in Tadjikistan and this year there is an outstanding seed-harvest. Open white bells with pitted, green nectaries. About 20 cm. For the bulb-frame in U.K. (15+ seeds) Price code : C

VERBASCUM WIEDEMANNIANUM

We were a little disappointed that we had little feed-back on results from our 1988 collection of this species (our reference 982.950 : Turkey, Gumushane, WNW of Bayburt) until we heard from Richard Riedy in New Mexico - "of all the plants I've gotten from your seed, V. wiedemannianum certainly tops the bill...flowered magnificently...lovely fragr--ance."Very local, rich violet-purple, 1-2 m. Turkish endemic - seed from New Mexico! (100+ seeds) Price code : B

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C :	$4.00	£2.50	DM7,50	FF25. -	F :	$10.	£6.00	DM18, -	FF60. -