- tive in vitro chez les Gymnospermes. L'Annee Biol. 18: 381-416.
- 6. Inglis, J.E. 1984. Effects of some growth substances on the promotion and rooting of interfascicular shoots in Pinus caribaea. The Plant Propagator, 30 (3) 4-6.
- 7. Konar, R.N. and M.H. Singh. 1980. Induction of shoot buds from tissue cultures of Pinus wallichiana. Z. Pflanzenphysiol 99: 173-77.
- 8. Whitehill, S.J. and W.W. Schwabe. 1975. Vegetative propagation of P. sylvestris. Plant Phys. 35: 66-71.

## HALF-HARDY PERENNIALS

## IVAN DICKINGS

Notcutts Nurseries Ltd. Woodbridge Suffolk. IP12 4AF

Half-hardy perennials are a much neglected range of plants which I think should be more widely grown. The variation in habit, flower colour, and foliage is quite considerable. They always create a lot of interest in my garden and visitors are continually asking where they can obtain them. At the moment, there are only a few specialist nurseries who grow them in a reasonable range. It was the difficulty in obtaining these plants which originally prompted me to collect them in the hope that the company which I work for would make them available through their garden centres, and I am pleased to say that this is now happening. We now sell some kinds as spring and summer bedding plants in 9 cm pots.

There are people who, when told that these plants are only half hardy and will probably die during the winter, dismiss them outright, but the same people are quite happy to spend considerable amounts of money each spring on annuals and geraniums. All of these plants are very useful for planting between newly-planted shrubs to give a display while the shrubs are getting established. They can be planted with established plantings to give a longer period of interest, and they can also be used as bedding plants. They also look very good when planted in pots, troughs and urns, adding colour to the terrace or patio.

Most of the plants are very easy to propagate from cuttings taken during late summer and these are ready for sale the following spring. The following plants are not hardy in my part of the British Isles but, no doubt, in some more sheltered, warmer parts of the country they are perfectly hardy. Below is a list of some of the species which I have grown in my own garden during the past 4 to 5 years:

Helichrysum petiolatum: A vigorous plant with wooly, heart-shaped

grey foliage. Very useful for tubs and baskets.

Helichrysum petiolomm "Limelight": This does very well in shade and semi-shade and is most effective when planted in a tub. The foliage is a very bright lime yellow.

Helichrysum petiolatum "Variegatum": Yellow vaniegated foliage, but not very showy.

Helichrysum angustifolium [H. microphyllum]: Although this has very small grey foliage, the plant is quite vigorous. This has survived a winter when planted under the eaves of the house and has flowered the following spring, but the flowers are not very attractive and the plant gets a bit scruffy.

Helichrysum populifolium: A very wigorous plant with large grey leaves and conspicuous yellow flowers. Good if a large area is awailable.

Motus berthelotii: A most interesting plant, with filigree grey leaves which cascade over a pot or tub. It is also very useful for ground cover. If the plant is kept in a pot and over-wintered in a frost-free greenhouse, you will be rewarded with a plant the following spring, covered in bright red long peashaped flowers.

Argyranthemum foeniculaceum [Chrysanthemum anethifolium]: A very useful plant for bedding or planting in tubs. It also makes a very good pot plant for a cool greenhouse where it will flower continuously during the winter. It has fine glaucous foliage and single white flowers, and grows to 3 ft in height.

Angyranthemum frutescens [Chrysanthemum frutescens] Jamaican Primrose. This is the best of the frutescens cultivars. It makes a large bush 2 to 3 ft high, covered in large single butter yellow flowers, which show well against the dark green foliage, all through the summer until frost in the autumn. Another attribute of this plant is that the cut flowers last many weeks in winter.

Verbena 'Lawrence Johnston': Bright red flowers and trailing habit.

Verbena 'Silver Anne': Flowers pink, fading to near white. Large flower clusters with a slight scent.

Verbena 'Sissinghurst': Smaller flowers than the two previous cultivars, but they are carried on long stems. The flowers are magenta in color.

All the verbenas mentioned above, are mat-forming and are suitable for either pot culture or growing in the open ground.

Heliotropium arborescens: The cultivar is unknown but it is a very old one with mauve flowers having an overpowering scent. The original "Cherry Pie".

Cosmos atrosanguineus: A very choice plant from Mexico with dark maroon flowers having a delicious scent of hot chocolate. This plant forms tubers like a dahlia, which can be lifted and stored for the winter, and for taking cuttings in the early spring. Alternatively, cuttings can be taken in late summer and kept just ticking during the winter, and potted in the spring. This is not the easiest plant to propagate by conventional means, but I believe it is now being done by micropropagation, so it should now be more widely available.

Felicia amelloides 'Variegata': The bright variegated foliage makes a good contrast for the single blue flowers.

Felicia amelloides 'Santa Avita': This is a much more vigorous plant than the variegated form, but still with wery bright blue flowers.

Osteospermum 'Buttermilk': All osteospermums have large single flow-

ers with coloured reverse. O. 'Buttermilk' has cream-yellow flowers with white base, and biscuit reverse. It is erect growing.

Osterospermum 'Cannington Roy': Purple, fading to white centres with purple reverse. Prostrate growing.

Östeospermum ecklonis 'Prostratum': White, with pale mauve reverse. Prostrate.

Osteospermum 'Whirleygig': The base of the petals have been crimped, making the end of the flowers spoon-shaped. The flower is white with a blue disc and mauve reverse. Erect growing.

Osteospermum jucundum: This osteospermum is perfectly hardy and should not be included in this list, but I cannot let this opportunity pass without mentioning it. It is mat forming and is covered with mauve flowers in early summer and has a smattering of flowers all through the summer. I have had it in my garden for five years and it is looking very fit and healthy.

## HORTICULTURAL TRAVELS IN POLAND

MICHAEL L. DUNNETT

Blakedown Nurseries Ltd. Belbroughton Road, Blakedown, Kidderminster, Worcs. DY10 3JG

In September, 1984, I was invited to Poland to give a paper at a symposium on hardy nursery stock organised by the Warsaw Branch of the Society of the Horticultural Engineers and Technicians. Whilst in the country I was lucky enough to be able to visit several research stations, botanic gardens, and commercial nurseries both privately and state owned. This short but comprehensive visit gave me an opportunity to have a look at several aspects of ornamental horticulture in Poland.

The conference turned out to be a truly international gathering of both nurserymen and research workers involved in nursery stock production. Delegates attended not only from England but also Holland, Czechoslovakia, Hungary, and of course many from Poland. Unfortunately due to lack of simultaneous translation it was impossible to assimilate accurately the contents of the many conference papers.

My first experience of practical horticulture was when we visited what our Polish host called his garden. In England we would call these areas allotments. A short car journey from the centre of Warsaw brought us to some 200 to 300 acres of land which was neatly divided in 300 square metre plots. The owners of these plots grow vegetables and fruit for their own consumption. Many had a challet on their allotment which is used for weekend accommodation. In addition to food crops many allotments were attractively planted with a wide range of perennial and annual ornamental plants. The garden