AN EMPLOYEE'S VIEW OF CURRENT HORTICULTURAL PRACTICES IN EUROPE

RUTH E. HILLS

Martins Nurseries
Hamilton, Waikato, New Zealand

I spent from August, 1973, to January, 1975, in Europe. My arrival was timed to coincide with the sixth annual meeting of the Region of Great Britain and Ireland, I. P. P. S., and the associated two week's tour of British and Dutch horticultural establishments (nurseries, parks, research stations and universities) by a visiting party of fellow American members. With the I. P. P. S. I toured West England and Boskoop in Holland and attended the G. B. & I. Conference. But, my horticultural experience overseas was not limited to a whirlwind camera-clicking tour. I worked in a commercial nursery in Wiltshire and then at Kew Gardens. Hence,the view, as an employee, not only seeing new ideas and methods — but using them first hand.

I would like to share with you the ideas seen on the I. P. P. S. tour and later used when employed, which I feel we can use to practical advantage in New Zealand. Some of you may already be familiar with some or all of these practices.

Sun Frames. At Hilliers & Sons, Winchester and at Waterer, Sons & Crisp Ltd., Bagshot, I was impressed by their outdoor propagation structures — miniature polythene tunnel houses and portable mist units. The Sun Frames medium is sterilized soil topped with a two-inch layer of sand. After the cuttings are rooted, holes are cut in the polythene and gradually increased in size, to harden off the cuttings. From insertion to lifting takes 18 months. One frame held 10,000 cuttings. I think that we, in New Zealand, could use these structures for the propagation of hardier material that does not fit into the hardwood bracket, but can do without glasshouse care and is needed in quantity. For example, *Photinia* for hedging, with the cheaper cost and need of less care and attention.

Cold Frames. At Everton Nursery, Lymington and at Barter's Farm Nursery, Wiltshire, I noted an old fashioned method of propagation using cold frames (made of railway sleepers). Everton's put *Erica* cuttings straight into a sand and peat medium within the frame, and kept them covered with wooden laths until rooted. After one year they were lined out without potting, and sold as two-year-olds.

Barter's used their frames for conifer cuttings taken in midsummer. The cuttings were inserted in the sand and peat medium, watered in well and covered with .015 gauge polythene, glass

lights, another layer of polythene (to keep rainwater out) then topped with shade cloth. After one year these were lined out, without a potting stage.

We in New Zealand tend to disregard old methods and have come to rely very much on mist and bottom heat. When we, at Martins, ran out of room in our glasshouse propagation pit we adapted Barter's method making our conifer cuttings in early winter, 1975, for autumn lining out in polythene beds in 1976. Although as yet unrooted, the cuttings remain healthy, receiving a fortnightly check and a Captan or Benlate spray.

Transportable frames. At Grootendorst Nursery, Boskoop I saw easily constructed and dismantled frames — simply 12-inch by one-inch timber cleated into place with pegs. These are used for temporary cold frames, for cuttings; seedling beds; or temporary frost protection. Cheap and easily moved as and where needed.

Chip budding. I first saw this type of budding at Hilliers on *Tilea* (lime tree) and later used it at Barter's Farm Nursery. Barter's maintain that it is a quicker method then the conventional "T" bud, makes a cleaner union, gives a higher percentage take, and is able to be used when other methods can not. For example, when the bark does not lift easily. This summer, for the latter reason and on a trial basis we have chip budded *Acer negundo, 'Elegans' ('Elegantissimum')*, *Fraxinus excelsior* 'Aurea,' and *Ulmus Procera* 'Van Houttei.' The percentage take was higher and I am sure that it is much faster for us than T-budding.

Grafting. Barter's Farm Nursery carry out an extensive grafting programme. Not seeing any serious attempts at grafting on a large scale in New Zealand, I was particularly interested in their set up. The benches are raised two feet off the glasshouse floor allowing an oil furnace air duct to travel beneath. The benches are made of heavy duty Netlon, a polythene liner, with six inch wooden sides. Peat fills the benches. Before the grafts are plunged, covering the union, the peat is dampened, turned and dampened. All stocks were established in pots and dried before grafting, or bareroot. Grafts were sprayed with Benlate then covered with polythene sheeting. The glasshouse was partitioned off with polythene "drapes" and the temperature kept at 58°F. A wide range of plants were treated in this way; for example *Cupressus, Picea, Cedrus, Rosa, Wisteria, Gleditsia, Acer negundo, Acer palmatum, Betula, Hamamelis, Fagus sylvatica,* and *Hibiscus.*

This year we are trying out adaptions of Mr. Weguelin's grafting set-up. It is still very much in the experimental stage, but well worth pursuing, as I am sure you will agree; successful grafting is certainly a paying proposition.

Polythene film versus mist. In Boskoop I saw 0.015 mm thick polythene used instead of mist. The film is laid directly on the cuttings, tucked in and made airtight. Shade is important and here 250 gauge dense white film was used. After 10 days the cuttings were aired for an hour and if necessary sprayed with Captan. The cutting bed was then opened weekly until the cuttings rooted and then they were hardened off by gradually removing the polythene. Nowadays we tend to think only in terms of our sophisticated mist units to maintain a high humidity for cutting propagation. But this is an alternative method and could be used here when the mist areas are filled, if the mist unit fails and the repairman is slow, or in cold frames or on heated glasshouse benches.

Synthetic propagation media. At the Boskoop Research Station I was intrigued by the experiments with cubes of fibreglass-looking material for propagation. With problems of obtaining peat — and the price — all experiments for an alternative medium must be worthwhile. This one would have the added advantage of individual rootballs and thus no transplanting problems.

The Box Blox System. I first saw this system of boxing cuttings and seedlings at Barter's Farm Nursery, Wiltshire. The Bloxer is an apparatus made of an aluminium alloy that inserts a continuous strip of polythene film into a seed tray, so as to divide the tray into individual compartments. Cuttings are then inserted into the cells or compartments. When rooted plants are established the polythene strip very easily pulls out, leaving each plant with its individual root ball. Superior I feel to the New Zealand equivalent, the Plix tray, and ideal for subjects with transplanting difficulties such as *Cupressus sempervirens* 'Gracilis.' The Bloxer could also be used for pricking out ornamental seedlings, for houseplants, and for bedding plant production. The Bloxer is easy to operate (30 to 40 trays can be prepared in one hour). Different sizes giving from 24 to 60 cells per tray can be obtained.

Nisula Roll. The experiment that impressed most at Merrist Wood College, Worplesdon was an adaption of a Finnish idea for the cheap production of forestry seedlings. Instead of seedlings they used easily-rooted cuttings of plants suitable for ground cover — produced in a roll of polythene, peat and fertilizer. Twelve-inch wide polythene 100 gauge is laid on a bench, fertilized peat is spread, cuttings are placed on the medium on each side of the film; that is, basal end to the centre. The polythene is then rolled up, secured with tape and cut in half making two rolls six inches in depth. The rolls are then stood up and left until ready for planting. This idea I feel has great potential for producing ground cover plants in quantity and cheaply — for the landscaper, with convenient handling both in the nursery and on the landscape job.

Erica production en-masse. Windlesham Court Nurseries, Windlesham, produce 360,000 ericas per year. This figure alone is staggering; 1000 cuttings off each stock plant per year is normal and each propagator makes 400 per hour. The stems are snapped by hand, rather than cut with a knife, into one-inch lengths. As each cutting is made it is inserted into a box of pure sand using a 6-inch nail as a dibble. No hormone or fungicidal dip is used. Usually boxes of cuttings are put into a glasshouse and under mist but when that is full they go into a polythene tunnel house with scrim shading and a central mist unit. Rooting takes 10 days. The plants are sold as two-year-olds in P. B. 1½-size pots. Seeing this method made me wonder if we in New Zealand are too fastidious in our methods of making erica and, perhaps, some other types of cuttings.

Cane Supports. Everton Nurseries conquered the battle of staked plants falling over in the wind by making string squares — one per plant. A less finicky operation I saw at Scotts Nurseries. They used Netlon strips with the canes poked through and maintain that even P. B. 2-sized plants resist the wind; a good idea, especially with plants such as *Clematis* grown in P. B. 5-sized pots.

Capillary watering. Three nurseries I visited used this method of irrigation; namely, Waterer, Sons and Crisp Ltd. (Bagshot), Evertons, (Lymington), and Scotts (Somerset). Waterers have had their unit successfully operating under glass for 5 years and, in this period, found raised beds prevented the water flow being altered with ground movement. Their unit consisted of perforated pipes 5 feet apart, covered with 2-inch strips of fibreglass, then 2 inches of sand; the pipes were one-inch wide and the holes 3/16-inch. Evertons had their capillary watering operating in outdoor sand-based beds. The pipes were exposed and had drip nozzles 18 inches apart. I believe some New Zealand nurseries do use this method of watering instead of overhead sprinklers and find it helpful against Phytophthora problems with conifers and ericas. The idea of using pumice sand (or sawdust) as a bed base could be useful by holding water and conserving it, with our summer droughts and water shortages in mind.