pulsatilla which seeds in July, this is August through October. By November it is starting into growth again for Easter flowering.

W. INGWERSEN: This confirms our own experience where best results were achieved when cuttings were taken in August.

B. HUMPHREY: Do the seeds of *Ranunculaceae* and *Primulaceae*, which are sown fresh, germinate before the winter or wait until the following spring?

W. INGWERSEN: They will usually germinate within 2 to 3 weeks if sown really fresh.

B. HUMPHREY: So then you have the problem of overwintering them.

W. INGWERSEN: Exactly. If we cannot sow when we would like, then we keep the seed in a refrigerator kept just above freezing until we can sow them.

THE I.P.P.S. ABROAD — HOLLAND AND BELGIUM

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September, 1980, witnessed the second group expedition of several Great Britain and Ireland Region IPPS members to the continent of Europe. Also in the party to Holland and Belgium was a strong contingent of IPPS members and their wives from the various American Regions, who had previously spent some time visiting nurseries and allied institutions in Britain.

As the theme of this year's conference is "The Gateway to The Future", I shall try to confine myself to some of the features that might be considered reasonably "new" to the nursery industry from the continent of Europe and provide some food for thought and ideas later. From the point of view of those members who participated, this will necessarily be something old; however memories may be jogged and it is quite possible that some of the features highlighted will not now be new to several well-established British nurseries.

I will be discussing items of equipment and one or two techniques that may be of value to the nursery industry in general.

Our tour commenced at the Boskoop Research Station where the Director explained the importance of the Boskoop

region in Dutch nursery production. Several experiments and trials were seen and it is interesting to note that, as well as being a means of transport, the canals also make ideal water storage areas where clean water is stored in flexible plastic tanks floating in the canal, to be pumped out for use later.

Close to the Research Station we were able to see traditional narrow Boskoop nurseries with very intensive production systems such as the production of *Betula* by summer cuttings in frames., later to be lined out and grown on. Many of the nurseries in this region are active exporters and much of the production is in containers.

At G.C. Stolweijk & Co., to aid handling and transport of plants, trolleys capable of being pushed across the bed and then down the central pathway without having to turn are in use. All the beds are of the same width and are surrounded with level concrete paths. To ease the difficulties of labelling a wide range of stock, coloured labels approximateing to flower colour are kept in mobile, easy-to-handle storage racks.

A feature of many of the exporting nurseries was the packing/loading shed or bay, many of the nurseries having purpose-built units, such as the loading bay at F.J. Grootendorst & Sons Ltd. Another common aid to production was the use of shade or netting structures to provide protection during the winter and shade during the summer. Several different structures were in use, often with frames or low poly tunnels below for propagation.

From the propagation stage plant handling again becomes important and the use of lightweight tiered trolleys with large castor wheels on firm level roads makes the moving of plants much easier and quicker. Large trays, taking up to 300 cuttings, with purpose-built trolleys to fit the tray size may not be a very flexible system but it can save a lot of time and effort.

Increasing the output from a given area is one way of reducing the cost per unit produced and the use of mobile benches with built in supports for polyethylene tents is one method of increasing the number of cuttings that can be rooted in an expensive propagation house. By using mobile benches about 80 to 90% of the floor area can be used for production.

To ease the workload in the field production of trees many items of equipment have been developed that are tractor-mounted. At Van Dam's a range of hydraulic tree lifters has been developed to fit narrow tractors and lift individual trees in the row from the path; these machines make light work of a heavy job in a short space of time.

Some of the nurseries visited were very extensive as well

as intensive and a feature of one of the Belgian pot plant nurseries was the high speed battery operated trucks used to move plant material and people around the glasshouses. Control of all the environmental factors was highly automated and several systems of plant conveyors suspended from overhead heating pipes were used to take plants from the benches to the packing table at the central path. The heating pipes also served to support a fully automatic, travelling supplementary light unit for use on young stock.

At another Belgian azalea nursery the high cost of a new glasshouse was being recovered by maximising the production of plants by using mobile benches supported on heating pipes at waist height. The crop was irrigated by a spray boom suspended from heating pipes at eaves level, and travelling half the length of the house. When ready for marketing each bench unit was rolled off the production line onto a compatible trolley ready for packing and thence despatch.

In conclusion, may I record the appreciation of the group for the work put in by the tour organisers, Raymond Evison and Tom Wood, and all the members of the Dutch and Belgian advisory and research units, and the nurserymen who made this tour possible. Without their unstinting efforts this very memorable and instructive tour would not have taken place.

QUESTION BOX

CHAIRMAN — JOHN GAGGINI

1. What action is the Ministry taking to communicate the results of their cutting handling system to the industry?

B. MORGAN: ADAS has been closely involved with ATB on this handling system. We have had a Masters course at which 10 propagators from different nurseries attended and since then they have spread the word. The ATB have already held over 20 courses around the country attended by 130 people, and another 30 courses are planned for the future. The technique has been promoted at major conferences like BGLA and Four Oaks. A video film has also been made for refresher courses showing the hand movements involved in the technique. In addition, a booklet which is a training guide has been produced in conjunction with the ATB. This training guide will have an outline of the times taken to insert a 1000 cuttings of different plant types, i.e. heathers, rhododendron, conifers, and *Berberis*. Not just one time but a range of times embracing estimates of good, typical, and poor. What ADAS has, in fact, done here is identified a problem, done something