

## SECOND SESSION

### WHAT IS BEING DONE? SOURCES OF PLANT PROPAGATION INFORMATION

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My task today is to take a look at what is now being done in Great Britain and to suggest a part our society might take in increasing the productivity of plant propagation, so leading to wider use and enjoyment of the best possible selections and cultivars.

One's first impression is of complexity. There are well over fifty officially organised authorities doing at least some propagation research, or fundamental scientific work of direct benefit to plant propagation. To simplify I will place these under seven headings.

1. Research Stations.
2. Universities.
3. Botanic Gardens.
4. Forestry Institutes.
5. Experimental Horticultural Stations.
6. Horticultural Colleges.
7. Commercial and private establishments.

The amount and character of propagation work at these places varies tremendously. Five research stations, Long Ashton, East Malling, John Innes Institute, Glasshouse Crops Research Institute and the Scottish Horticultural Research Institute have extensive programmes. For example, the G.C.R.I. is studying the use of growth regulators, mist propagation, rose rootstocks and roses on their own roots and defoliant for nursery stock. East Malling is concerned with basic problems of plant propagation of wide application. Work here with hardwood cuttings has been extended in relation to timing, temperature, wounding and hormone treatment.

The basic principles of hardwood cutting behaviour are being worked out and guide lines and recipes established for varieties and conditions. These basic principles first established for deciduous fruits, are of general application and are being demonstrated in relation to a range of woody plants. Source factors in propagation material are very important to propagators and the value of cultural treatments for stock plants has been established. Transference of newly rooted cuttings is being studied.

Long Ashton Research Station, in an extensive programme, has paid special attention to the health of plant material with particular reference to virus diseases. Besides studying fruit tree varieties much attention is given to the

important problem of virus transmission in grafted ornamental stock.

Many universities work on botanical problems of interest to propagators. Those best known to study our problems are probably London (Wye College), Nottingham and Reading, though many e.g. Bangor (germination of rose seed), Aberystwyth (bud dormancy), are doing work of interest to us. At Nottingham the meristem culture work is of tremendous interest for the future. Already established for orchids the question is, is it applicable to species in general? We do not know the answer at present but there are indications of some success and doubtless much more information is on the way.

The botanic gardens are somewhat secretive; they have a public side and a 'behind the scenes' side where many useful investigations go on. Some are better known than others e.g. Edinburgh and Kew, but Cambridge and Oxford have special resources, and I include the Royal Horticultural Society with the botanic gardens. In all these, work is often of wide interest, at Kew there is detailed work on chilling treatments and germination temperatures of 'garden-worthy' species. A useful body of information is being built up for reliable reference.

The vast quantities of plants required for forestry has demanded a high degree of nursery organisation from which we can learn much. Seed-bed techniques including use of slow-release fertilisers herbicides, tubed seedlings for transplanting, and mechanisation are examples.

The Experimental Horticulture Stations of the National Agriculture Advisory Service are working on problems connected with commercial horticulture which sometimes include features of direct interest to propagators. The selection and use of shelter-belts (Roswarne), tip-culture of rhubarb (Stockbridge House), and mechanisation 'flow systems' and lay-outs for higher productivity, and various nursery techniques, all come under the N.A.A.S. wing from time to time, as growers' problems.

The fine series of horticultural colleges are involved in numerous trials of immediate specialised interest. Eight which come to mind are Askham Bryan, Hadlow, Merrist Wood, Pershore, Writtle, Aberdeen, Glasgow, and Edinburgh. We are familiar with the excellent work here at Pershore of direct value, including the wounding of holly cuttings, the sizes of cuttings and their subsequent behaviour, and overwintering of material in containers. Other colleges are similarly active and we would do well to interest ourselves in their work, not only in plant propagation but also in the production of future propagators.

In addition we are aware of a number of research centres run by some of the larger chemical firms; operating for example, at Fernhurst and Levington. Then there are all those nurseries in which useful trials and tests are made, some

useful results of which we have discussed at this morning's session. Finally, there are those 'look see' trials and tests, a few of which may be reported in private and trade periodicals from time to time. *What is its value?*

The quality of reasearch is very variable, some is solely observational, some involves careful planning, detailed and often laborious measurements and persistent repetition. All can be useful, but only when the results are made available for use (and are used) by those who can profit from them.

Research undertakings are costly and many hundreds of thousands of pounds are invested in horticultural research in Great Britain each year. Sad to say the hard-won research of this expenditure and effort are by no means fully exploited, largely because they do not reach those who should make best use of them; we will hear more about keeping up-to-date later this afternoon. Neither, in many cases, do the needs of 'research customers' become known to the researchers. How can this situation be changed for the better? By getting together, plantsman, technician, scientist and teacher, freely sharing our know-how and spreading this among ourselves in the clearest possible way and in the simplest possible terms. By these means I am confident we will find mutual acceleration in accumulation of knowledge, skills and, indeed, in real satisfaction.