

ment? The propagator wants to know which plants respond to a given photoperiod, and what other factors, such as how much extended daylength, do particular subjects require.

It is known that a number of propagators in the U. K. used photoperiodic lighting with varying degrees of success; the aim of this short review is to give some background on the work already out in this field in different parts of the world. It is hoped that this will stimulate further interest in the U. K. and subsequently result in a lively session devoted to this topic at a future conference.

LITERATURE CITED

1. Garner, W. W., and Allard, H. A. 1920. Effect of the relative length of day and night and other factors of the environment on growth and reproduction in plants. *J. agric. Res.* 18, 553-606.
2. Moshkov, B. S., and Kocherzenko, I.E. 1939. Rooting of woody plants as dependent upon photoperiodic conditions. *Dokl. Akad. Nauk. U.S.S.R.* 24 (4), 392.
3. Waxman, S. 1958. Light treatment in the propagation of woody plants. *J. N.Y. Bot. Gdn.* 8, 139.
4. Kelly, J. D. 1965. Rooting of cuttings as influenced by the photoperiod of the stock plant. *Proc. Int. Pl. Prop. Soc.* 15, 186-90.
5. Downs, R. J. 1966. Light and the growth of hollies. *Hort. Abstr.* 37, 1461.
6. Lanphear, F. O., and Meahl, R. P. 1961. The effect of various photoperiods on rooting and subsequent growth of selected woody and ornamental plants. *Proc. Am. Soc. Hort. Sci.*, 77, 620
7. Kamp, J. R., and Van Drunen, E. 1958. Factors affecting propagation of *Taxus cuspidata capitata*. *Flor. Exch.* 131 (14), 28, 30.
8. Waxman, S. Photoperiodic treatment and its influence on rooting and survival of cuttings. Lighting under Mist. *Proc. Int. Pl. Prop. Soc.* 15, 94-97.
9. March, S. G. 1959. Propagating Ghent and Mollis azaleas. *Am. Nurs.* 110 (12), 98-101.
10. Weiser, C. J., and Blaney, L. T. 1963. Rooting and night-lighting trials with deciduous azaleas and dwarf rhododendrons. *Am. Hort. Mag.* 42 (2), 95-100.
11. Nitsch, J. P. 1956. Light and plant propagation. *Proc. Pl. Prop. Soc.* 6, 122-129.

MY APPROACH TO TEACHING PLANT PROPAGATION

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The teaching of plant propagation by any one person is, in essence, a personal philosophy of that particular individual, developed as a result of his experience in that field. It may well differ radically from the views of other teachers but I offer no apologies for this — my own approach. Basically this philosophy is a synthesis of three components. Firstly, there is the influence of one's original teachers who must necessarily have the major effect for they are able to mould one's thinking; this component is thus the most telling as it is, perhaps, the most difficult to disregard. Secondly, the effect of the work and thinking of other teachers, researchers and practical propagators must have marked influences in developing one's

approach and, in this connection, I owe something to almost everyone to whom I have talked or with whom I have worked. Finally, it is one's own ideas and thinking in rationalising all the information and knowledge of the previous components that provides a final system.

In my view the teaching of plant propagation is bedevilled by a great deal of traditional thinking especially in the light of the rapid advances which have been made in the technologies. One still sees in modern textbooks little attention to a logical appreciation of how the plant regenerates; for instance, propagation from cuttings (root, stem and leaves) is usually dealt with as one item followed subsequently, perhaps, by propagation by layering. Even an elementary knowledge of plant physiology should indicate that the regeneration in cuttings of roots, stems and leaves will probably require very different conditions but that the initiation of roots in stems, whether as cuttings or layers, is a function of ultimately the same stimuli. Hence in the teaching of plant propagation it seems logical when studying vegetative propagation to consider the regeneration of stems, leaves and roots as separate items. Thus plant propagation can be divided initially from the plant's point of view into propagation from: (1) seed; (2) roots; (3) stems; (4) leaves; (5) grafting, and (6) tissue and cell culture.

When we analyse any system of teaching there are two components — the "theoretical" and the "practical" — and plant propagation is no exception. It is first of all essential to understand the theoretical implications involved so that an ideal technique can be evolved for a particular piece of a particular plant; this can then be translated into practical terms with the consequent handling of plant material and familiarity with environmental control.

In considering the theory of plant propagation we can divide the various factors which influence plant regeneration into two basic groups. Firstly, there are those factors which influence the inherent ability of a piece of a plant to regenerate, i.e. the *capacity* of that piece of plant to regenerate; and secondly, those factors which influence whether or not it does regenerate once the piece of plant has been chosen, i.e. its *performance*.

The capacity of a particular piece of plant to regenerate is a function of two major groups of factors, *source* and *season*. The source factors represent the cultural influences which are affecting the stock plants providing the material; these chiefly are age, condition, nutrition, position and pathological conditions. In other words these factors are influencing regeneration even before the actual moment of propagation and will determine whether or not the piece of plant is capable of regeneration. The seasonal factor is a question of timing — this may well be critical. Hence from this knowledge we can theor-

etically determine the highest capacity of any piece of a plant at any given time.

Having achieved material of high capacity it is now necessary to ensure that its potential is realised. The factors which influence its performance can be divided broadly again into two groups. The factors which we can class as treatment are fairly simple, such as fungicide and hormone applications, wounding, maintenance of polarity, removal of leaves and buds, etc. and are all treatments carried out at the moment of propagation to ensure that any artificial aid which may ensure success does not limit performance. Finally, the *environment* will eventually determine performance; in other words, where the material is put at its moment of propagation. Basically, the environmental factors are those of the atmosphere and those of the medium; most important of these are temperature, light, humidity, air, etc. A knowledge of all these factors will enable the production of a performance so that the high capacity may be exhibited.

A knowledge of these theoretical considerations when applied practically provides the student with a chance to handle plant material in many forms and provides an opportunity to prove to himself that the theoretical predictions were reasonably accurate. It also provides an opportunity to familiarise him with various environments for propagation.

Finally, despite these considerations, we are concerned with a commercial atmosphere essentially; it is important that a reasonable and balanced approach to the techniques evolved is maintained and that the student realises the economic and managerial implications involved.

VISIT TO THE BOSKOOP RESEARCH STATION

Boskoop, Holland

Proefstation Voor De Boomwekerij

21st April, 1969

A party of 34 members (including a few guests) flew from Coventry airport to Rotterdam and thence went by coach to Boskoop where they spent 7 packed hours. The arrangements went like clockwork and not even the fact that the weather was bleak and wet throughout damped the enthusiasm of anyone; it was voted an excellent and most informative visit, a great value for the money and the officers of I.P.P.S. were encouraged to consider further possible short visits abroad.

The party visited the Research Station at Boskoop where they were greeted by the new Director, Dr. Roelofsen, himself an I.P.P.S. member. After an excellent 'koffietafel' at the Hotel Florida, four nurseries were visited —

Fa Th. Streng and Fa J. Streng (2 nurseries)

Fa G. Kooy and Zn.

Fa F. J. Grootendorst and Zn.