

tive that the strictest hygiene be maintained throughout and the water level be checked for evaporation.

After the prothalli have developed, fertilization takes place; this is the most critical period in the first stage of developing sporophytes. High humidity is essential for distribution of the sperms. The advantage of this system is that separate units can be easily constructed to provide individual environments which are essential because ferns have differing germination periods.

GRAFTING TECHNIQUES

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As there are innumerable methods of grafting and each person has his (her) own preference, I will limit myself to the ones that I have used with some success.

Side Graft. We use this method to graft *Cedrus atlantica* onto *C. deodora* stock, also some hibiscus cultivars onto more vigorous stocks.

Prior to grafting, the rootstock plants are moved into the glasshouse to promote growth, usually up to 10 days before grafting. At the time of grafting, lower branches and side shoots are trimmed off and an oblique cut is made in the stock at an angle of 20 to 30°, up to an inch (25 mm) long.

The scion wood is cut into a wedge at the basal end, these cuts being made as smooth as possible. The scion is inserted into the stock while pulling the upper part of the stock backward, ensuring contact between the cambium layers. Once the top of the stock is released the scion should be held firm by the pressure from the stock. Then it is relatively easy to tie with raffia or rubber ties. The cut surfaces are then sealed with grafting wax, and placed in the area where they are to remain while the union heals. Once callusing of the wound is well progressed the stock plant is cut back by half of the amount that is above the graft. Then, once the grafts are well callused and prior to moving outside, they are cut right back to above the graft.

Cleft Graft. We use this method to graft hibiscus cultivars onto vigorous rootstocks, camellia cultivars, also *Fagus* species.

In this case the rootstock is cut back to a suitable point for grafting, usually a part of the stem that is relatively free of large buds, and quite straight-grained. All shoots and buds below this point are removed with the knife. The stock is split down about 1 to 1½" (25 to 40 mm). The scion is cut in a wedge similar to the side graft and inserted into the stock with the cambium layers in contact. Again, the graft is tied and the cut surfaces waxed.

Approach Grafting. The distinguishing feature of this method of grafting is that two independent, growing, plants are grafted together. They can be growing in containers and brought into the glasshouse for grafting. It is a good method for grafting difficult subjects but, because of the trouble involved in bending down the scion wood and/or raising of the stock, and the gradual severing of the top of the stock and the base of the scion, it is probably not very economic. We have used this method successfully to graft *Tristania conferta* 'Variegata' onto *T. conferta* stock, after failing with other methods. The two stems to be joined should be approximately the same size. A slice of bark and wood up to 1" long (25 mm) is removed.

The cuts should be as smooth and flat as possible so that when pressed together the cambium layers will be in close contact. They are then bound together.

NEW PLANT MATERIAL OF THE GENUS METROSIDEROS

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The University maintains two small plant propagation units, one mainly concerned with growing plants for landscaping while the second unit is available for germinating seed and rooting cuttings of plants that are to be the subject of various research and demonstration programmes of the Botany Department. Some material comes to hand from time to time collected in the field by botanists who require a closer study of genera and species and who wish to have such plants propagated and grown on before they are classified.

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