

Japanese Traditional Techniques of Plant Cultural Propagation

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GRAFTING TECHNIQUES FOR PROPAGATION PECULIAR TO JAPAN

These grafting techniques were developed in Japan a long time ago. A German, Philipp Franz von Siebold (1796-1866), introduced the techniques to the world in 1828. Prior to this introduction, the Japanese disliked publicising the advanced techniques and traditional propagators worked hard to find new and better ways of grafting that differed from other propagators. This led to the development of many new and useful techniques. A new technique was kept as a secret technique by the master propagator and was only taught to very few pupils. This is why, with the death of master propagators and the few pupils who had received their knowledge, over time numerous techniques were lost. It is unfortunate that the philosophy of "Seek and Share" did not exist in the past in Japan. Due to the past secrecy surrounding these techniques, it is sad that few Japanese today have expertise in practising these advanced plant propagation techniques. The techniques that remain are mainly used in Bonsai. I would like to introduce some of these Japanese plant propagation techniques to the world. Today I will demonstrate a few of these techniques.

UNDERSTANDING BONSAI

In the past, the Japanese took pleasure in making miniature plants. A plant size that would comfortably fit a table top. Then the influence of artistic expression, similar to that of monochrome ink painting, caused change resulting in the present expression of Bonsai. In Bonsai, we express the environment in which plants are growing in by the form and tone of the flowerpot. However, it is the expression of Bonsai's unique tree style that I wish to demonstrate to you today. Bonsai is the expression of Japanese nature. There are four seasons, graceful but sometimes very severe in Japan. Many Japanese rural people have the "belief in nature". An example is "the old tree growing in this season and climate, there will be god".

Spring is a welcoming and cheerful time when many flowers are in bloom and trees sprout into new life. Between spring and summer there is the rainy season. In this period there is high rainfall and it becomes humid. Pest and disease can harm new shoots. In summer, it is very hot and humid with temperatures up to 38°C. Later in the summer it becomes hot and dry, and often causes plant stress and damage. Between summer and autumn high winds can occur with wind gusts up to 50 m sec⁻¹. Trees can be damaged and on wetter soils could be blown down. Also in autumn, there is pleasure in watching the leaves turn red and many trees bear fruit. In winter, branches are bare and brace against cold temperatures down to about -10°C. Branches are sometimes broken by snow. These four seasons and the climatic conditions in each, create the unique tree style of Bonsai. Bonsai is a living art form, which is a copy of nature.

THE FOLLOWING TECHNIQUES WERE DEMONSTRATED:

The shoot pointed out, the shoot for propping up, the pulled shoot and the standing style.

The basic technique for carefully pulling branches out and creating the tree style by winding copper wire around the stem and bending to shape.

The technique for making a sapling graft; top graft; cleft graft (split graft); spliced side graft (veneer side graft), root graft; up tree graft; down tree graft (peg graft) and a root base graft. Traditional specialist Japanese grafting tools were used for all grafts.

PLANT BREEDING AND SELECTION FORUM

PANEL MEMBERS: Jack Hobbs, Jeff Elliot, Dennis Hughes, Keith Hammett, and Terry Dowdeswell

The panel members each gave a short presentation based on their own experience of plant breeding. A general discussion followed which covered the following:

GERMPLASM FOR BREEDING AND SELECTION

The "building blocks" of any breeding or selection, whether it is a chance find or a managed programme, is germplasm. Access is important to a wide range of germplasm. This germplasm may come from a range of sources including home gardens, hobby collectors, a breeder's own resources, or directly from the centre of origin. A recent threat to the availability of germplasm from overseas are the new border restrictions on the importation of genera and species. The new legislation makes importation of some genera or species costly, complicated, and in some cases impossible. "Plant people" should be aware of these problems. It is unknown what the full impact will be of stricter border control legislation on plant breeding. However, if breeder's and selector's do not have reasonable access to imported germplasm, then this may result in a decrease in new plant introduction and a decline in these activities in the long term.

BREEDING OF *HEBE*, *HELIOHEBE*, AND \times *HEOHEBE*

There is potential in the breeding of New Zealand native plants, particularly in the above genera. These genera offer the possibility of new cultivars with new flower and leaf colours and longer stems. With these genera as with all native plant breeding the surface has only been scratched as to the new cultivars that could be bred or selected. A view was expressed that Claim Wai 262 to the Waitangi Tribunal concerning Maori rights over native flora is a real or potential barrier to using native genera and species for breeding. This claim has yet to be determined and what the outcome will be is unknown.