

natural habitat. It made one realise the contribution that this part of the world had made to the many plants now seen in general cultivation within the United Kingdom. In conclusion, I wish to acknowledge the advice and kindness given to us by the many I.P.P.S. members of South Virginia.

HERBACEOUS PROPAGATION

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Firstly I would like to refer to heat input in the propagation of herbaceous plants. Unlike many branches of the nursery trade who have found that heated mist units have revolutionized their propagation, it must be said basically herbaceous propagation techniques have changed very little in nearly 50 years, when I first remember seeing herbaceous propagation done at our family business at Christchurch, Dorset.

Cold frames were used then for any type of propagation where protection was required, and I can honestly say this is still our only requirement. In stating this I have one reservation. Here at Blooms Nurseries during the last two years we have used a 50'×10' polythene tunnel, fitted with mist without any form of artificial heat. This has proved successful with late-spring soft-type cuttings which wilt badly in frames, where although shaded — and the cuttings damped as often as possible — the higher temperatures proved too much. They soon lost their turgidity, finally giving only a 50% take.

Cuttings are taken and inserted in boxes and stood on each side of a central path in the polythene tunnel. As soon as sufficiently rooted, the boxes are moved to a net shaded tunnel for hardening.

Examples of plants to which I refer are:

Aster amellus cultivars
Heliopsis cultivars
Lythrum cultivars, etc.,

Euphorbia griffithii 'Fireglow'
Kirengeshoma palmata

The materials in the construction of frames have changed over the years, from my grandfather's beautifully built wooden frames complete with runners, to concrete blocks, and railway sleepers, all taking a 6'×4' light, and finally to asbestos which we now use. These latter are built to fit a standard Dutch light. Frames can be constructed very quickly with the aid of steel or wooden stakes which are grooved to slot in the asbestos.

As you can imagine, this has many advantages compared with a permanent structure, not forgetting costs.

Nearly half our production is carried out by division, however I am not going to cover this aspect of propagation at this time. Listed below are details of propagation methods carried out by our Herbaceous Department.

Cuttings. Our frame yard is situated on a very well drained sandy soil, with peat and coarse sand added; this makes an ideal rooting medium. After the cuttings have been cleared for planting or potting, usually by mid-summer, the frames are sterilized with Basamid. For those who can remember cutting frames of old without sterilization will appreciate what it means to be disease and weed-free.

A base fertilizer is used with a ratio of 1-1-1, with added magnesium; in fact, this is a granular fertilizer used by our farm, but is ideal in providing strong healthy cuttings.

The first batches of cuttings are started in late summer with semi-hardwoods, including lavenders, rosemary, *Santolina*, etc. Heel cuttings are taken from plants in the field and carried in polythene sacks directly to the frame and inserted without any further preparations. It is a pleasure to see two of our girls put in cuttings. In the newly-prepared frame they commence by using a 3" wide piece of batten and drawing at least six lines with the point of the dibber, then quickly filling in with cuttings; when this is done the same procedure is repeated, and so on. This does save time compared with a few years ago when one row was put in at a time along the side of the batten.

The cutting season starts in earnest early in the new year with the first batch of basal cuttings. I should say this is where the game is won or lost, as one needs to push on to keep up to schedule before the warmer days appear; these sometimes seem to bring on everything at once. We, therefore, start to take cuttings of plants which have barely shown any new growth but have enough length of underground stem to be able to handle. *Solidago* (golden rod) would be an example. If we find that we are up to date with everything that is ready, the momentum could be kept going with a batch of *Nepeta mussinii* (catmint); these make very early growth under the cover of last season's tops. These would not normally be done until sometime in May but another job done is one less to do.

I must stress the importance in knowing the growing habits of your plants; always be checking to note progress and do not expect cuttings to be fit at the same time every year. There is really no rule of thumb; much thought has to be given so that every one of the large variety of plants we grow are properly

handled and not skimped because the weather has been allowed to catch up on us. This would end up in chaos, with not only losses but perhaps only half the required number of new plants obtained.

Root Cuttings. *Phlox paniculata* cultivars are taken in November and bedded into narrow beds in the open ground. Although it is not necessary to protect these through the winter, we have recently found a covering of Zero film has enabled us to plant a month earlier (early May), therefore producing a better plant in the autumn with the extended growing period.

Most other root cuttings are dug and prepared (cut into 3" lengths) just before Christmas. All roots that are done at this time are fleshy and nothing less than the thickness of a pencil. This allows us to put roots into convenient sized bundles secured with an elastic band. The bundles are placed closely in rows in a frame making sure the tops of the roots are just below the surface. If too deep they will be doomed to rot. Examples of roots done in this way are: *Anchusa* cultivars, *Eryngium* cultivars, *Papavar orientale* cultivars, *Verbascum* cultivars, and many more.

There are some plants that are produced from roots that are better made in the early spring. These are of plants with rather thin roots that would not respond to bundling and are therefore closely lined out singly in frames. Examples of these are: *Ajuga pyramidalis*, *Brunnera macrophylla*, *Echinacea purpurea* cultivars, *Primula denticulata* cultivars, *Stokesia laevis* 'Blue Star', etc.

Seed. In my early days at Blooms Nurseries all seed was sown in boxes. Seedlings were lined out in beds until large enough to be planted. Nowadays only seed that is very small or scarce is sown in this way, the majority are sown directly into the open ground in 5' wide raised beds which have been sterilized with Basamid. Thinly sown plants can be planted directly into the open ground which is a mighty saving in time and labour. This would really not be possible without weed-free soil.

It should be noted that peat is rotavated into the beds before sowing; also a base dressing is applied using the same fertilizer as with the cutting frames.

Seed is sown as soon as ground conditions permit in early spring. To keep our seed sowing orderly we divide beds into the three following categories:

Seed sown, planted, and sold in the same year, i.e. *Aquilegia* cultivars, *Lychnis chalcedonica*, *Salvia haematodes*, etc.; Seed sown and planted the following year, i.e. *Dictamnus albus* (Syn.: *D. fraxinella*), *Iris foetidissima*, *Platycodon*, etc.; Seed sown and

planted after two years, i.e. *Agapanthus*, *Hosta*, *Paeonia mlokosewitschii*.

Helleborus cultivars differ from the above inasmuch as the seed is sown in July/August, as soon as ripe. Sown any later, the seed would take 18 months to germinate instead of the following February after sowing.

It is very essential to have stock beds so that seed can be collected regularly, as a day too late would mean little heaps of these precious black seeds on the ground surrounding the plants, not a very nice sight when one realizes, for example, that *Helleborus* is a very sought-after plant and also very profitable.

The species raised from seed that I refer to are: *Helleborus lividus* subsp. *corsicus* (Syn.: *H. corsicus*, *H. foetidus*, *H. niger* (Christmas rose), and *H. orientalis* (Lenten rose)).

Other methods of propagation. Over the years many new ways have been found in increasing plants that have proved slow with the usual method of division. *Hosta* cultivars were a typical example until it was found that the fat, dormant, conical buds responded to having their tops cut off and then slicing with a downward cut, sometimes into four sections, each with a piece of root attached. These are lined out into narrow beds in the open ground in January and are encouraged to produce new buds; they are ideal for planting in the field in late May. Given good cultivation these make nice saleable plants by autumn. The same method of propagation has been found successful with many other plants which are slow to increase. Three genera that immediately come to mind are: *Rodgersia* cultivars, *Ranunculus aconitifolius* 'Plenus', and *Thalictrum dipterocarpum* 'Hewitt's Double'.

There is every chance that many other plants could be treated in this way; there is no doubt other methods will be tried, in time, for other slow-producing plants, perhaps using heated mist.

Bergenia cultivars are very much in demand with the ground cover age. Although these are easy to grow, increase is slow by just plain division. However by having three-year-old stock beds, plants produce their evergreen round leathery leaves on long hard stems. These stems when diced 1/2" thick and thickly spread in cold frames and just covered with soil, readily produce a new shoot; when large enough they can be potted or planted in the open ground. Consequently, numbers are acquired which would never have been possible before.

There are many other unorthodox ways of producing plants, far too numerous for me to mention here. However the challenge is always there which makes it so exciting, especially with our large range of rare plants.

Comparison of various herbaceous propagation methods used over 50 years. Looking through what I have written of the present trends in herbaceous propagation and comparing it with methods I saw as a child, and what I have seen on my travels since, things have changed a great deal, not that we do things much different than our fore-fathers did; we are still using the cold frame but we have learned short cuts by being forced to take risks and, of course, the help of sterilisation, etc. has been considerable.

My earliest memories are of cold frames, which had coal ash from the local gas works spread 4" deep to stand the kipper boxes on which were filled with stem cuttings or root cuttings. Imagine the soil mixing, time preparing the boxes and inserting the cuttings, also not forgetting the daily watering, frequent weeding, and the carrying of these heavy boxes. I often wonder why nobody thought of lining cuttings direct into the frame.

Twenty years ago I would not have dreamt of inserting lavender or rosemary cuttings without paring the heels and stripping the basal leaves. Also at this time I was not accustomed to using a dibber for herbaceous cuttings — always a sharp wornout spade cutting a neat shallow trench with the aid of a piece of batten, placing the cuttings along, filling in, treading firm, and making sure the soil was kept level to accept the next row. The time all this took compared with the shorter time today, and getting the same results.

Phlox roots used to be made in November and carefully lined out into frames. Ventilation was thoughtfully given throughout the winter until at last the lights were allowed to come off in late March when the shoots were 3" tall and growing strongly. The growing in open ground beds as we now do with the same results makes our earlier frame efforts seem such an unnecessary chore.

As I have already explained earlier, other roots are given frame protection, but instead of lining out singly the bundles are very quickly trenched in. When the time comes to lift roots for planting the bundles are very easily lifted and boxed up ready for the planters who certainly appreciate feeding roots from the neat bundles into the planting machine.

Some of my earliest memories was of herbaceous seed sown outdoors. This seemed always a disaster with the weeds taking over before the seedlings appeared, especially with items that took months to germinate. The sowing in boxes was also a problem in unsterilised soil, so you can imagine why I get particularly excited when I see our clinical looking seed beds of today.

On the last note, I would like to point out that although we

have found no advantage in heated mist, there may be other, perhaps smaller growers, who would find the system an aid, but at what cost!

T. WOOD: Do you successfully propagate hostas and Agapanthus from seed in two years?

M. PRICHARD: Yes, if they were sold ex 9 cm pots. To obtain a saleable open-ground plant it would take three years; i.e. seed sown outdoors in April soon germinate, but are not planted into the open ground until July the following year, and are saleable in the autumn the year after. For pots, the April-sown seed is potted during April the following year, and are saleable the next autumn. There are certain cultivars you can maintain by seed, one that comes true is *Hosta ventricosa*. *Hosta sieboldiana* is variable but you do get some good forms.

G. YATES: Could Maurice repeat the name of the genera whose seed took two years to germinate in the seed bed?

M. PRICHARD: *Dictamnus* and *Paeonia mlkosewitschii* germinate after one year, but are left a further year before being planted in open ground to make the plants saleable the following year.

B. HUMPHREY: Do the hellebores you sow now produce a root before the spring or do they just sit there taking up the warmth?

M. PRICHARD: The seed doesn't germinate until after Christmas. I can go and look during the first week in February and know that I will find *H. lividus* subsp. *corsicus* and *H. niger* started.

B. HUMPHREY: Have you ever tried warm storage first?

M. PRICHARD: No, a lot of people have but why bother? You don't want them any earlier. Just sow at the natural time they leave the plant and if you leave them just one or two weeks too late, you may have to wait another year before they come up.