

SEEDLINGS AND CUTTINGS

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This note is intended to consider briefly the theoretical aspects of vegetative propagation of tea as compared with propagation from seed.

In any old tea field in Ceylon considerable variation is exhibited amongst bushes and from a small area of, say, forty bushes it is generally possible to pick out at least ten distinct types. Even in later plantings of high-jat bushes, presumably from selected seed, variation remains, although not to so marked a degree. This

variation is a result of the bushes having been grown from seed; although that seed may all have come from the same seed-garden, or even from the same seed-bearer, there being no such thing at present as a "pure line" of tea, the seedlings vary amongst themselves.

The question is often asked whether, if a tea seed-bearer were self-pollinated, the resulting seed would give plants which would all be identical with each other and with the parent plant. The answer

is "No." With most annual crops, for example, peas, "pure lines" have been evolved. A named variety of garden pea seed, from a reputable firm, will give pea plants which are identical. If no pollen from other peas is allowed to come near those plants seed can be obtained, generation after generation in the ordinary way, and that variety will remain the same. But in woody plants of complicated hybrid origin, of which tea is an example, these "pure lines" have not been obtained, largely because their evolution would take at least fifty and probably over a hundred years. Thus every tea bush contains many "hidden" characters inherited from ancestors but not exhibited by the bush itself. These characters are liable to turn up again in some of the progeny. We arrive then at the conclusion that until "pure lines" are evolved tea seed will inevitably give a mixed population of bushes.

With vegetative propagation the position is entirely different. Tea can be propagated vegetatively from single node cuttings, the axillary bud of the cutting growing out to form the new bush. If that bud had been left on the mother bush it would, conditions being favourable, have grown out to form a branch. Thus the rooted cutting may be looked upon, not as a new individual, but merely as a detached branch of the original bush, and it will not vary from the parent, in its genetical constitution, any more than that branch, if it had been allowed to remain attached,

would have varied. Of course, if the cutting is planted in very poor soil and the mother bush is in very good soil a difference in vigour, probably shown by leaf size and internode length, will be apparent but that is entirely a matter of the conditions of growth—"nurture" not "nature." Probably the most striking thing about the St. Coombs Clonal Plot in which each row is a separate clone, (*i.e.*, the vegetative progeny from a single mother bush) is the complete similarity of all the bushes in the row. After the usual heterogenous mixture that similarity is apparent to the most casual observer.

By vegetative propagation it is possible to exercise much greater control over planting material than by the use of seedlings. The chances of getting good bushes from the seed from a good seed garden may be high, but in the present state of our knowledge it is impossible to say to what extent these bushes will vary amongst themselves. On the other hand once a clone has been established as a good clone it can be multiplied indefinitely by vegetative means and, in the ordinary way, all these progeny will be identical. But just as vegetative propagation ensures that, constitutionally, the progeny are as good as the mother bush, it also limits them to, being no better than the mother bush. So in propagating tea vegetatively we are not attempting to improve the type but to select and multiply the best existing bushes.