THE ORIGIN OF THE POPULAR TRI CLONES

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The most popular TRI clones of the 2020 series have all originated from seed collected at Tocklai in November 1937 from a single parent tree. Subsequent seed introductions from the same tree have given rise to progenies which provide scope for selection of several promising clones. Two other clones selected at the TRI for high quality and tips have also originated from seed introduced from Indo-China.

It is of particular interest to note that the most popular TRI clones, which cover over 60% of the new clearings under the Tea Replanting Subsidy Scheme since it came into operation in 1959, are all selections made at the TRI from the seedling progeny of a known seed bearer at the Tocklai Experimental Station of the Indian Tea Association, near Jorhat, Assam. Seed from this single tree bearing identification number 4/10 was personally collected by Dr F. R. Tubbs with the kind permission of the Director of Tocklai, in November 1937. In all 15 seedlings were raised at St Coombs from this batch of seed and planted in Field No 8 in May 1938. On their record of performances in the field, eight bushes were selected in November 1946 for multiplication in clonal rows and the rest discarded. It is from these bushes, which have now grown into seed bearers (Figure 1), that the following TRI clones have originated : 2021, 2022, 2023, 2024, 2025, 2026 and 2027. Nothing is known of the eighth bush marked A which has also grown into a seed bearer. It has since been pollarded with a view to taking cuttings for testing rooting ability, yield potential, quality, disease resistance, *etc.*

In the notes left by Dr Tubbs, particulars of the seed bearer from which the first batch of seed was collected are given in detail and are reproduced below. With this information it was possible through the courtesy of the Director of the Tocklai Experimental Station to locate the same tree after the war years and obtain a second batch of seed as well as callused cuttings from it in November 1956.

Extract from Dr Tubbs' notes

"19-11-37. Bush from seed from Hatorgorh, on borders of China, military post NE of Mitkenor. Said to give red flush. Dark leaf type. At end of Manipuri row. Seed probably crossed with other jats in the seed area."

Callused cuttings from the adjoining tree No 5/9 which was likely to be a suitable pollinator were also sent to St Coombs in November 1956 by the Director, Tocklai Experimental Station. The plants raised from them are now being used in our breeding programme.

In his letter of 14th September 1956 to the Director, TRI, Talawakele the following comment is made by Dr W. Wright, former Botanist at Tocklai : "Mr Kehl's discovery of Dr Tubbs' 1937 notes has made the location of the plants at Tocklai from which Dr Tubbs collected seed, perfectly clear. In addition, the notes have drawn

out attention to the fact, forgotten during the war, that one tree at the end of our line of Manipuri trees is not Manipuri but is part of a Htagaw progeny located in a separate plot. We have raised many seedlings from this same tree. I agree that they are vigorous and easy to propagate, but they have all received adverse reports from our taster."

Dr E. M. Chenery, during a recent visit to Carolina Estate, Watawala, was shown by the present Superintendent, Mr V. E. de Silva, 120 large bushes which are believed to have had the same origin as the TRI 2020 series. Dr Tubbs apparently had given Mr Gibbon, the then Superintendent, part of his original seed which was planted out into a seed garden, forgotten for many years after Mr Gibbon had left the Island, and finally discovered as large trees by Mr de Silva, almost submerged in thick jungle. Amongst these 120 bushes were some which look like pure Betjan, the highest of all tea jats and also many other Assam types with both dark and pale leaves. It is highly probable that because the TRI 2020 series gave 6 winners from only 15 bushes, many more potential 'golden bushes' might be found within this old Carolina seed garden. Mr de Silva has very kindly offered the TRI material for trial and each bush is being thoroughly tested.

So far no promising clones have originated from the seedling progeny of the second batch of seed planted out at St Coombs in May 1957 but from the third batch of seed obtained in October 1958 from the same tree, no less than six very promising selections have been made of which one particular clone, 62/9, has very large leaves of the Betjan type. The fourth batch of seed was obtained in November 1960 and the seedling progeny was included with TRI and Estate clones in the clonal testing trials set down in June 1961 at St Coombs, and in October/November 1961 at Passara and Kottawa. Some seedlings were also planted in observation rows outside the trial plots and quite a few of them show promise.

The original parent tree No 4/10 which was noted to produce red flush is believed to be a Southern form of tea recognised by Roberts *et al* (1958). Unlike the Assam variety which is completely devoid of red pigmentation and is green in colour, the Southern form has appreciable amounts of red (ox-blood) anthocyanin pigments (Roberts *et al* 1958). In fact clone 2026 and some of the seedling progeny of the biclonal cross (2023 x 2026) show varying degrees of red pigmentation round the nodes and petioles. These biclonal seedlings are relatively more uniform in other respects and are particularly vigorous.

The most popular clones in the low-country are TRI 2023 and TRI 2026 particularly the former which has given over 6000 lb of made tea per acre at high levels of nitrogen at 500 lb per acre, while in the higher elevations TRI 2024 and TRI 2025 are the most popular. The former continues to occupy the largest acreage although of late TRI 2025 is becoming more popular because of its higher yield potential and tolerance to the meadow eelworm (*Pratylenchus loosi*) compared with TRI 2024 which is relatively difficult to prune and is somewhat susceptible to *Phomopsis*. More interest is also now being shown in TRI clones 2021 and 2027 which have larger leaves than TRI 2022.

Another TRI clone which is popular in the low-country is TRI 2043. It produces tea with golden to silvery tips for which there is a great demand in the middle east tea market. The buds are covered by glossy white hair, while the leaves and the

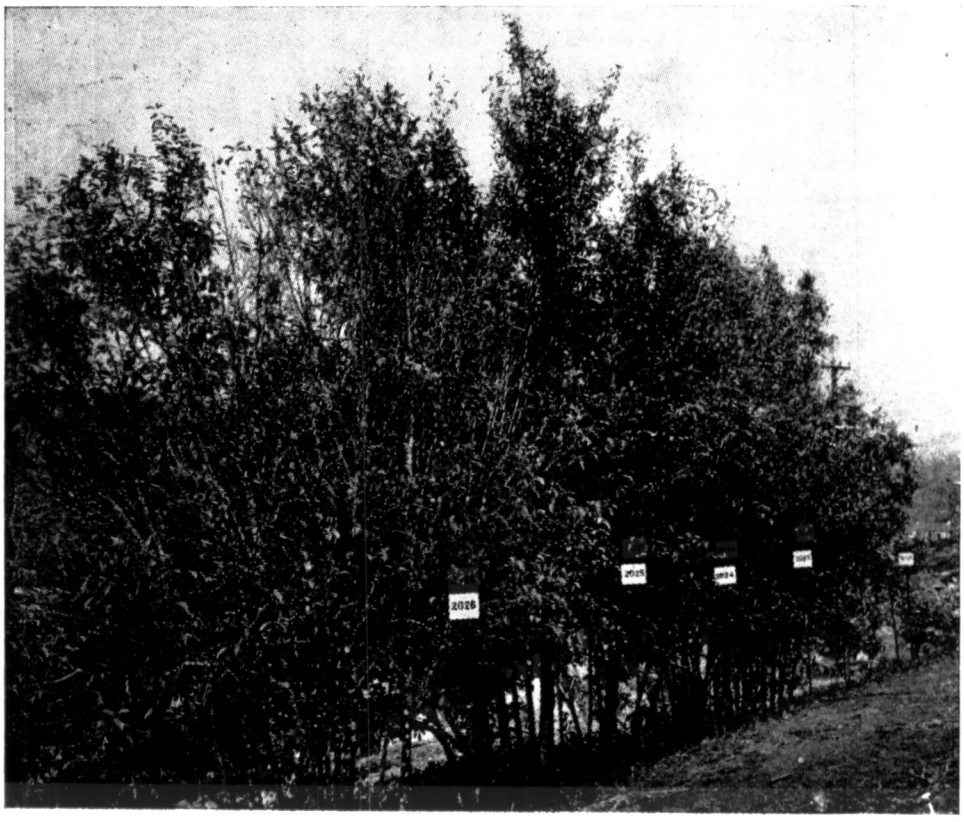

FIGURE 1 — *Original mother bushes of the popular TRI 2020 series which have grown into seed bearers at St Coombs—Planted May 1938*

internodes, which are relatively long, contain red anthocyanin pigment. This clone is a selection made at the TRI by Dr Tubbs from the progeny of seed of Shan Bansang No 777 received from the Chief of Pho-Ho Station, Indo-China. Four other Shan types—Shan Makomen No 476, Shan Y-Pang No 477, Shan Thanh-Tuy No 89 and Shan Cho-Long No 777 were also received at the same time from Pho-Ho Station. The high quality A1 clone TRI 777 is also a selection made at the TRI from the seedling progeny of Shan Cho-Long No 777. Leaf samples of this clone were sent along with those of TRI 2043 and TRI 2021 to Tocklai in 1957 in connection with the investigations on the taxonomy of tea plants using paper chromatographic methods. Although the vegetative and floral features were characteristic of the Assam variety, a certain dullness of the leaf was, according to Roberts *et al* (1958), suggestive of the presence of genes derived from the China variety. This may also be the reason for its inherent high quality. It is, however, not a very high yielder and has a tendency to precocious flowering.

It seems, therefore, that the best TRI clones have originated from selections made from the seedling progeny of known seed bearers in Assam and Indo-China. Export restrictions on tea seed from certain countries made it difficult to obtain fresh seed material from reputed seed gardens for selection work. If seed could be secured on an exchange basis, there is scope for further selection of clones which may prove outstanding in regard to yield, quality, disease resistance *etc.* Meanwhile, the present tea breeding programme at the TRI, which has as one of its objectives the production of biclonal seed, makes it possible to study the performance of a large population of seedlings with a view to selecting the 'golden bush' with all the desirable characteristics of yield, quality, disease tolerance, *etc.* which one could wish for.

Reference

ROBERTS, E. A. H., WIGHT, W. & WOOD, D. J. (1958). Paper chromatography as an aid to the taxonomy of *Thea* Camellias. *New Phytol.* **57** : 211-225.