*REPLANTING TEA.

By

A. C. Tutein Nolthenius

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Whilst some of the opinions expressed in this article appear to be somewhat at variance with those of the Institute, the main theme, namely the importance of instituting a regular programme of replanting, coupled with attention to soil improvement, cannot be too strongly endorsed.

Many of our tea soils are very poor in organic matter and it is probably this fact which has led the author to express doubts about the effectiveness of heavy fertiliser applications. Once, however, the organic status of these soils has been improved by bringing in soil building material from outside, as is suggested in the section on "Resting-cum-Replanting", then there is little doubt that the bushes will respond satisfactorily to suitable doses of properly balanced fertilisers. As long as yields continue to increase proportionately, there is no reason to suppose that increasing fertiliser applications will ever become uneconomic.

Selected vegetatively propagated plants are, of course, capable of giving much higher average yields than plants grown from Ceylon seed and several of the St. Coombs clones show yield potentialities of over 2,000 lbs. per acre.

Camelia Thea Link

Like all living things *Camellia Thea*, a jungle tree from the wilds of Central Asia, has got an age or lifelimit. This limit has not been ascertained but it is thought to be some 100 — 150 years. It is likely that this exotic tree, which we know as the cultivated teabush, will have had the lifelimit shortened by the artificial treatment it receives in unnatural surroundings.

True types of Camellia species, like Bohea, etc., are not found in Ceylon. Our tea is the offspring of multiple hybrids. These hybrids have their value because through the years they have adapted themselves to the many peculiarities of local climates and conditions.

The lifelimit means death and before this stage is reached the recognised and logical solution — usual for all perennial crops and modern forestry — is to uproot and replant ; to start all over again. Rubber is one of the many examples and it will be remembered when this problem was much argued and debated. The same problem now faces our tea.

Ceylon Tea

Some 70 — 80 years old tea is still in production, an example of the splendid stamina Camellia has got. Without any destructive criticism nor uncalled for alarm we must realise and admit that much of the Ceylon tea is now of middle-age and over. Output must therefore decline.

Artificial stimulation is desirable for all crops but if it had not been for the constant and excessive exciting of much exhausted and impoverished soils the island's yield today would show a smaller return than it does already.

Quality before quantity always paid and paid well but, when the quantity decreases beyond repair, due to old age which we cannot control nor remedy, quality alone is no longer of value. The position becomes serious and demands early understanding and careful revision. The lifelimit cannot be ignored and it must be clear that the replanting of old tea must be accepted sooner or later as a

* *The Institute does not necessarily endorse the views expressed in papers contributed by persons other than members of the Staff.*

quite natural revenue item in future estimates and expenditure, exactly the same as we provide for the uprooting and replanting of shade and green manure trees on a rotational programme. Prominence must be given — this seems most necessary—to the fact that " replanting for upkeep " will come to stay and will be one more of the many essentials our heavily burdened tea has to face.

There is need for general, public and Government interest in replanting, otherwise disappointments will be many because of casual disbelief and halfhearted attempts. Government help and support may be required. Ceylon depends on its tea ; the country's future is at stake.

Replanting for upkeep is a natural fact. Replanting to try and get more-fold returns is a different matter. It should be possible to increase, perhaps even duplicate our crops. Could we triplicate them.....who would buy our teas ?

Yield

The accepted yield for tea is the intake in pounds of made tea per unit of area, which is as a rule one acre. In practice this means of expressing yield is often somewhat misleading but it seems impossible to design a better or more accurate method. It suits what we know as young tea. It is with middle-aged and old tea where we go wrong or get muddled. Here the crop is no longer taken from all the teabushes per unit. It comes perhaps from 60 — 65%, often less, of the total number of bushes per acre. Taking the present planting-stand, old methods, at 3000 this means that a 600 lbs. made tea yield is produced by some 1800 to 2000 bushes. The rest of the bushes are expensive passengers or unemployed on the dole. We pay that dole.

If all the bushes pulled their weight that same unit of land could produce some 1000 lbs. made tea or more per acre. Taking the cost per acre for a 600 lbs. yield today at Rs. 900/-, if that unit had given the full return the cost would have been reduced to some Rs. 600/- per acre.

In a more or less degree the above will apply to all cultivated tea over a certain age, at any rate under the conditions we know and accept in Ceylon. Too much reliance is often placed on the " acreage of tea in bearing ". That may look well on paper but it is luxurious if we remember the dole. The deciding and principle factors are the cost per acre and the return per acre. Anything we can do to increase the difference must be our aim, must receive continued study and research, and must be taken as our first essential.

Perhaps the simplest way out would be to forget the passengers or to dismiss the unemployed. In practice this is not possible. No matter what their value or their use in the scheme of things all the bushes per acre are weeded, all are pruned, mossed and manured, all are or will be sprayed, and too many will be tipped and their last energy taken.

We must also accept the fact that the producing bushes are nearing the lifelimit and may loose the power to yield or reach the yield-limit even sooner. Once reached, the yield-limit can not be increased nor can it be maintained for long. It will decrease by the laws of nature until another bush joins the unemployed or goes on to the deathroll. Because of the hybrid nature of our planting material, and no two tea bushes being alike, this natural process must be uneven. This is happening today.

Not only old age and nature but we ourselves are hastening the yield-limit by stripping for crop, atomic manuring, never resting, and other mistakes.

Appearance

" The tea looks in good heart ", whatever that slogan meant it must have pleased proprietors and Company directors. Appearance is often mentioned, perhaps quite naturally, but why is it that the appearance of tea is all too often found misleading ? Tea which looks like 700 lbs. gives 500 lbs. according to the records, while poor tea sometimes gives unbelievable yields. Of course one must presume that the acreage figures are true and correct.

Whatever the appearance, speaking in general of the tea districts in Ceylon, we reluctantly admit that the writing has been on the wall for some years. Our tea has gone back and old age deterioration shows its indisputable signs. For some years we did not like to believe this. We remembered the war years, the over-cropping as our national effort, the too little manure and the poor ingredients, the insufficient and inefficient supervision and so on. Of course all would come well as soon as conditions became normal. We forgot or ignored old age.

And strange to say all seemed well. Blister blight had come along, yields and export figures showed an increase no one could contradict. All were happy except a few who wondered if blister had not underlined the writing which we did not want to read.

Soil

One sometimes wonders if the manure-craze of recent years was not a curse in disguise. One cannot help asking what the general position of our tea might be today if part of the milliards spent on NPK had been made available, and had been allowed, for the crying needs of the horse flogged to death, the reconditioning of our soil.

Has it ever been proved if the seemingly excessive doses of nitrogen some threw out at 120 lbs. per acre, which even scientists are somewhat nervous of, ever gave a plus or a positive and tangible return ? Has it been proved, or examined if these well meant although perhaps somewhat suspicious intentions did not exhaust further the too small and meagre soil reserves and did not, or will in time to come, upset the balance of these inorganic sources, the balance of Nature? Is it impossible to over-manure ? Soil knowledge and chemistry, soil fauna and flora are little heard of in general practice. Soil analyses and other recognised standard methods are rarely applied.

During the last few years the evolution of old time ideas has come to the fore and general and better understanding is on the increase but — too few voices are crying in the dark to ears deafened by the rattling rupees pouring in from fantastic sale prices. The sense of proportion is easily lost !

Supplying

We were once taught and thought that anything which looked like a teaplant was good enough. Supplies came away nicely and were rarely heard of again. If they did not play the game it was of course not our methods, it was the weather and the worker who were to blame. Highly advertised tea seed became an amusing although ridiculous feature. The more costly the bigger the demand. Its origin, history or type did not matter. One purchased a name, it was tea seed and therefore good. But — there is no proved, no true to type, no tested and selected nor isolated garden tea seed in Ceylon. The import of foreign seed was prohibited at one time, perhaps rightly, although the latest methods of fumigation are simple and are definite. It will be difficult and will take many years to try and establish the much needed supply of pure-line seed for future needs.

Vegetative propagation came into its stride and has rightly been given prominence but, the many unknown factors of this easily obtained and inexpensive planting material must warn us to hasten slowly. Vegetative propagation is not clonal in the way the term is accepted for all grafting material, budded rubber, etc. The bud is not a cutting. Even budding has many risks and one cannot forget the thousands of acres of budded rubber, planted in a hurry, which were afterwards found to be of little value except perhaps for firewood. All had to be replanted a second time, using highly tested and proved clonal material or the progeny of isolated clonal seed.

Has budding tea been tried in Ceylon ? It might be a valuable and interesting experiment for future seed bearers.

Resting-Cum-Replanting

For middle aged and old tea in good soil, more so where funds may be a difficulty, it seems likely that proper resting may be an early and economical solution and may be better than deciding on the replanting of a large area. Such resting, not to be taken as the synonym of abandoning, will of course go hand in hand with all the essential attention and routine works required. Resting a certain percentage of a field or an estate will not reduce the total crop too much. Some of the decrease in crop should be made good by the better supervision and attention given to the tea in bearing. It is probable that good resting calls for at least one full cycle if not more and patience must not be grudged.

During the resting period the land will be planted with all and any shade and cover, the more jungly the better, suitably controlled. All and any soil building materials will be brought to the field from outside. It makes no sense to go to a great deal of trouble to take a lot out of the rested land and then to put back less.

When pruning before resting, priority and careful attention will be given to all passengers and doubtful cases and all such will be uprooted without any hesitation. This will not be too expensive and will do less harm than uprooting old tea over a large area and leaving it naked to the elements. It seems likely that the mechanical uprooting of tea on a large scale will do more general harm than is consistent with the advantages gained.

Replanting will follow modern ideas, close-planting with the best material, available, selected and reselected before it is passed as suitable. Highly selected quality stumps, perhaps only 5,000 or less per average maund of seed, for preference. If this is impossible, internodes from several selected mother bushes could be tried.

This chessboard planting, something like the keeper burning the moor, should result in invisible mending of a fairly decent old coat. For many estates this method should be within their means and in good time one can visualise the coming into being of complete new tea estates consisting of young tea of various ages. It would increase the old yield without the risk of losing quality. It will be gradual renovation and rejuvenation combined for estates which are not too close to the yield—and lifelimit.

Costs

The first thing would be to select the blocks or fields to be taken in hand. Worn out tea, bad soil patches useless for tea, and very steep slopes will be ignored. Far better to concentrate on a smaller acreage of good yielding tea than a larger " acreage of tea in bearing " which without the yield figure attached means nothing. When funds allow those areas can be put under timber, fuel, thatch and grazing. Our rainfall figures need specialized study and the enforced plantingof all waste-lands, abandoned tea and so on may well come as a Gazette Ordinance surprise before long.

It is difficult if not impossible to try and arrive at any clear ideas of the cost of replanting old tea today or in the near future but, no doubt, one's own small experiments will indicate ways and means. Figures appear to range from Rs. 1,200 to anything up to Rs. 5,000 per acre. The last figure includes the most modern methods, such as platform planting, etc.

One of the most difficult problems will be to try and arrive at what should be the economical yield per acre for a certain estate, a group of estates, or even a district.

The essential thing is to make all concerned realise that replanting of old tea must be accepted as normal routine work if we are to try to make sure that we too can face the future with confidence.

Ceylon has about reached, in some cases perhaps over-stepped, the peak of high cost of production per pound of tea that the industry can bear. This is due not only to factors like wages, cost of living allowances, export duties and freight increases ; a dangerous and important factor and one which we may be able to control is the low and decreasing future yields.

If our foreign competitors are forced to raise their costs to our level and pay their workers better wages, then the position may not be so black as it might seem as long as we agree and get the Government to agree the positive essential of REPLANTING TEA FOR UPKEEP.