PRUNING TODAY

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The conception that pruning has a restorative or invigorating effect upon the bush dies very hard. There are, after all, superficial appearances of such an effect in any field recovering from pruning. Rapidly growing shoots are produced in profusion irrespective of season, the leaves are large and sappy, and the general effect is one of vigorous reaction to the stimulus applied. It may be easy to suggest that the greater the stimulus the more effective the results, or that weaker bushes require more severe pruning to stimulate them adequately, but the result of converting such theory to practice is too often the subsequent despatch of unthrifty bushes to St. Coombs, with a request for diagnosis of the trouble. Such bushes have frequently a greatly reduced frame, bearing a few spindly branches; nothing but the massive central stem and root stock remain to show that it was once a sound and vigorous bush.

Since normal healthy tea grows vigorously in fertile soil of suitable acidity under our local conditions, it is obvious that an unthrifty bush is one suffering from a pest or disease, is growing in unfavourable soil, or is incapable, of vigorous growth owing to the accident of its genetical history. As none of these conditions can be cured by the knife or saw, it is apparent that heavy pruning of weak bushes is unjustifiable.

As time passes after pruning the growth of a normal bush, spread over an ever increasing number of branches, becomes more subject to seasonal variations in rate. In spite of the repetition of superficial prunings in the form of plucking, increased dispersion of growth and its liability to decrease markedly under unfavourable climatic conditions renders pruning economically desirable. As soon as this is carried out, growth is again concentrated into a relatively small and shallow zone, and a localised and deceptive impression of more rapid growth and enhanced vigour is given. The fact that a greater proportion of the total growth of the bush can then be removed for manufacture is the basis of the adoption of pruning as an economic necessity, but is no argument that pruning, from the point of view of the bush, is desirable or beneficial.

Nevertheless, more severe pruning than is really necessary to meet these economic requirements is only too frequent today and it is probable that Ceylon will suffer from the effects of one of its periodic waves of heavy pruning unless the need for such treatment is critically examined by all responsible for pruning policy. The reason adduced for heavy pruning may be "to remove snags and knots," "to remove woodrot," or some variant of "to kill or cure" phrased in gentler words. The two former are alone worthy of examination.

One way of removing snags, knots, and woodrot is to collar prune the bushes. As a result of such treatment new frames are produced which must result in better yields if there is any *economic* basis for the treatment. It is instructive to examine the results of an experiment on collar pruning at St. Coombs, which led trained observers to comment upon the vigour of the resulting growth and the excellent "wood" produced. What gain in yield, if any, resulted, or what was the price paid for this

pleasant impression of vigour and clean frames ?

Two series, each of twenty plots of one hundred and twenty bushes, were respectively collar pruned and clean pruned in 1937. The collar pruned bushes came into plucking 15½ months later, compared to 5 months in the case of the clean pruned plots. The loss of crop during this period is estimated to be 783 lb. of made tea per acre. In addition the yield per acre during the 22 months that elapsed between the collar pruned plots coming into bearing and the next pruning of the plots was also reduced. The collar pruned area yielded 480 lb. per acre compared with 898 lb. per acre from the clean pruned plots. Nor was the loss confined to the first cycle alone, for in the first fourteen months of the next cycle the yields were 375 lb. and 590 lb. of made tea per acre respectively. At this point records were terminated owing to the war. Over the fifty-two months of the experiment the yield of the collar pruned plots amounted to only 38 per cent of the clean pruned plots.

It is difficult to argue from these data that the bushes had either been invigorated or improved by collar pruning. It was, therefore, of interest to determine whether the collar pruned bushes *subsequently* exhibited greater vigour than the clean pruned bushes. Measurements of the diameter of the plucking table were therefore made in September, 1946—9½ years after the commencement of the experiment. The average diameter of the collar pruned bushes was 41.6 inches and the clean pruned bushes 43.7 inches. The difference, though small, had a significance of over 100:1, and it is therefore evident that the collar pruned bushes had *still* not recovered from their treatment. It is of interest to note that the absence of snags, knots and woodrot in the new frames had not compensated for the damage done to the spread of the bushes.

There is nothing surprising about these results. The new growth produced in the form of shoots anywhere in a bush is accompaned by new growth throughout the frame, the new tissues serving as channels of movement of food and water to and from the shoots above. This takes place irrespective of knots or woodrot, and is the explanation of the occurrence, which may be observed in any fertile field, of bushes bearing thick new wood at the end of branches knotted where earlier wounds have callused over, and/or suffering from woodrot. Too often such branches are removed at the next pruning and the "removal of snags" is accompanied by the loss of branches capable of further usefulness. Such branches should only be removed when they are rendered redundant by the presence of younger and more vigorous branches in such a position that removal entails no reduction in the frame of the bush. Most serious consideration is desirable before saw work is advocated or permitted, although it is realised that labour conditions have also a practical bearing upon the policy actually adopted.

In concluding this advocacy of lighter, though not necessarily higher, pruning than is at present common up-country, reference may be made to other aspects of pruning. As a result of the tendency to cut into the frame of the bush to remove something unsightly, the number of "points" left on the pruned bush is drastically reduced. It is always preferable to prune to thin points than to produce a cupshaped frame of old branches with four or five lonely points on the perimeter. The gap has to be filled by secondaries and tertiaries from tipping shoots before any satisfactory yield is

obtained, and yield in the first year of the cycle is consequently unnecessarily restricted.

The second point is the encouragement of spread. It is the fact that there has been no noticeable improvement in the spread of up-country tea during the last ten or more years and, even more disappointing, the pruning in vogue ensures its reduction as regularly as ever. Wherever present, fringe branches should be left and it should be a standing rule that no lateral branch is cut back below the pruning level. The theory that such treatment results in the production of yet lower and more spreading branches is based on isolated successes only and takes no account of the more numerous cases where such treatment merely results in loss of spread.

Parallel to the lack of fringes in pruned fields up-country is the absence or insufficiency of the "lung" branches left on pruned bushes at lower elevations. The practical result of this is that more dead bushes, killed by pruning, are being received by the Institute than for years past. It is to be hoped that the need of an adequate leaf surface during recovery from pruning at the lower elevations will not be forgotten. Those interested will find full details in *Bulletin No. 15*, and in past volumes of the *Tea Quarterly*.

The reader will have noted more than one reference to the fertility of the soil in this article. It will have served its purpose if it emphasizes the fact that neither the knife nor the saw can, in any way, deputize for the manure bag.