

at the winter pruning. One or more of the other buds on the stub will, in the meantime, develop into short spurs, each carrying a rosette of leaves. Where there is much moisture in the soil and liberal cultivation is practised, the former plan will give good results, but in positions where moisture is failing and cultivation lax, the second fracturing will seldom be necessary. While this is being practised upon the laterals one of the shoots has been selected on each main branch as a leader which shall continue the extension and shape of the tree. This leading shoot is not pruned during the period when vegetation is in progress, but is dealt with in winter only. It is then pruned to a length which is regulated by its stability and direction of growth.

"Closer observation and knowledge of the locality are needed in connection with the successful application of the partial fracture. To obtain the best results, this must be performed at the time when the sap is receding. The buds upon the stubs will then form the short spurs with rosettes of leaves, to which we have already alluded as the growth to be desired. If, however, it is performed too early in the autumn the top bud on the stub usually grows strongly, while the others remain dormant. If, on the other hand, the partial fracture be applied too late in the autumn, all of the buds upon the stub remain quiescent, and with the return of the warmth of spring these will grow as vigorously as those upon laterals pruned only in winter, producing a great density of shade which the hanging shoots cast over the buds and spurs below. This is a very serious defect. The certainty with which buds upon the stubs of the completely fractured laterals start into growth also gives that method considerable preference, while the simplicity of the work does not call for skilled labour, close observation, or any previous knowledge of climatic conditions which prevail in the locality.

"In practice the complete fracturing is best done with a pair of blunt or loosely adjusted pruning shears, because the bruised sections made by such an instrument heal slowly and appear to restrain the energies of the sap upon the buds retained on the stub. The leaves on the stub should be carefully retained as far as possible.

"The partial fracture is quickly performed by pressing the lateral sideways over the blade of a pruning knife, which is also best suited to the work when slightly dull-edged. The half-severed portion then hangs alive and capable of using a certain amount of surplus sap if the operation happens to be done a little too soon.

"A word of warning is necessary in connection with the adoption of this practice. With the exception of those laterals which tend to crowd into the centre or between the main branches of the tree, these weakening operations should not be applied to young trees of average growth until about the third season after planting. If a few outside laterals are permitted to grow they will help the tree to thoroughly establish itself. At a later period such shoots may be shortened back gradually towards their parent branches. In the second place, with the exception of occasionally pinching out the growing tip of a strong leader or side shoot arising from the main stem, for the purpose of balancing the crown of the tree, no pruning should be applied during the season of active growth to any tree which lacks in vigour."