

## MARY AND HER LAMB.

(A New Version).

Miss Mary had a little lamb  
With a fleece like snow that shone—  
And I wish that I could speak as well  
Of its curious goings on.

One day it went to school with her,  
Which was against the rule;  
It got her such a wallowing  
She doused it in a pool.

But still to school 'twould follow her,  
As if she were its dam;  
Which always put the teacher out  
Till she put out the lamb.

And that unruly quadruped  
Demoralized all the classes  
And made the little girls and boys  
Behave like little nases.

And Mary got so many slaps  
That she with rage was wasting,  
'Till she resolved to bate the lamb  
To stop her own lambasting.

She couldn't cook and she couldn't carve,  
But she roasted it whole and hairy;  
So she did scant justice to this lamb,  
Dead as alive, did Mary

And its fleece that had been white as snow,  
Was singed as black as sable;  
And so of Mary's little lamb  
The end was lamb on-table.

## MORAL.

Though you may like a little lamb,  
Of barbecued beasts be chary,  
For that nasty underdone juvenile sheep  
Disagreed with naughty Mary!

F. BLAKE CROFTON.

## ON THE RATIONALE OF MANURING AND PRUNING AN APPLE ORCHARD.

(Concluded.)

## THE TRANSPIRATION CURRENT.

The volume of transpired water from the leaves varies with the moisture of the atmosphere, the degree of cloudiness and the wind. Sunlight has a very powerful influence. Cutting off a small twig when the tree is in full leaf diminishes for a varying length of time the transpiration power of the leaves of the entire limb from which the twig is cut. The effect seems to be that of a shock. If numerous twigs are taken from the different branches of a large tree in full leaf, the transpiration power of the entire tree is sensibly impaired. How far the shock to the tree arrests or influences the course of the sap is not known, but inferentially the act of maiming must produce an unfavorable effect on the circulation. It is certain, however, that the energy of the tree is temporarily impaired, and under these disadvantages its impaired energies are directed to the process of covering the wounds with fresh bark, and diverted from their proper constructive work in forming fruit.

One would infer from these observations that pruning in the summer is not to be recommended. We may rub off buds, or stop a shoot and minimize the shock and waste of energy which maiming creates.

In order that the sap current may be most effective it is desirable to induce as large a leaf surface as possible, but well exposed to the direct rays of the sun. Therefore it is an object to remove before the leafing all branches or twigs, which, if allowed to remain, would be shaded, and thereby made incapable of properly performing their functions as organs of digestion and absorption of food from the air (carbonic acid) in direct sunlight, or transpiring under the same powerful agency water from the soil.

## THE INFLUENCE OF THE STOCK ON THE SCION.

We are now in a position to consider the different habits of apple trees in respect of root growth, and approach a subject of the highest interest. We know that the root filaments or thread-like extremities are the agents by and through which both the transpiration and the sap currents are determined. Therefore, these members are all-important. Certain varieties of grafted apple trees have wide-spreading, shallow-seated roots of a fibrous character. Other varieties send down a few prongy roots many feet into the soil, and are less abundantly supplied with fibrous filaments. High cultivation determines the approach of the roots of some varieties towards the surface, but appears to have less effect on those of others.

The appearance of a tree above ground very frequently corresponds in general outline to the distribution of the roots below the surface.

The area, therefore, over which the different varieties of grafted trees find their food-supply in air and soil varies greatly. It follows as a consequence of this variation that equally diverse conditions must exist in relation to available moisture and temperature, for the temperature of the soil with the advancing summer is continually changing with the depth until that point is reached where the mean annual temperature of the latitude is represented. This point varies in different soils in our climate, but the approaches to it, which alone concern us, can be made tolerably uniform by draining.

## THE SOIL AFFECTING THE STOCK.

It has been shown more than fifty years ago, that the kind of soil in which a stock has grown, affects to a certain degree the growth of some varieties of scions. Lindley, in his "Theory of Horticulture," gives a table

of the kinds of stocks most suitable for apple, pear, plum and cherry, on loamy, calcareous and light soils. The influence of the soil on the stock in relation to certain scions is especially deserving of study in districts which are so distinguished for the production of fine fruit as those distributed throughout the country between Windsor and Annapolis. It may turn out that home grown stocks for grafting are more desirable on some of our soils than imported grafted trees, and there is always a merit in home production if they hold their own in competition with foreign, and a special merit if they excel them. Stocks raised on a red sand stone soil have a different influence over the scion to those produced from similar seed on a gravelly soil, or a retentive clay, or a limestone soil. The influence is probably due to variations in the structure of the root, arising largely from the mechanical composition of the soil. The differences observed in root growth of grafted trees are in a measure under our control, and the best means by which this control can be further secured and improved in the direction of attaining superior fruit, are to be found in patient enquiry into the reciprocal relations of the stock and the scion. Who, for instance, is prepared to declare that the stocks grown from the seed of the Pomme Gris on a retentive clay soil, are as suitable for grafting the Northern Spy as stocks raised from seeds of the Gravenstein, grown in a gravelly soil, or a warm limestone soil, or a red sandstone soil? But our stocks are frequently raised from the refuse of the cider press, and our knowledge of root growth is still very meagre.

## THE SCION.

It has been alleged in some American periodicals that the scion, practically, sends out roots of its own, converting the stock into a mere support, and disposing of it as if it were a part of its own substance, by overcoming all its natural tendencies. This appears to an extreme view. We are here reminded of an important paper read before the association, at its last annual meeting, by Mr. Morris, of the Fonthill nurseries, Ontario. I regret, for my own sake, that the writer of this suggestive paper did not enter more into details. In the discussion which ensued on Mr. Morris' paper, Mr. R. W. Starr brought before the association some important facts which I am glad to have the opportunity of supplementing. Mr. Starr stated as the result of actual observation that he had arrived at the conclusion that "the time of the ripening of the stock has an influence on the wood and fruit of the scion." This is a most important deduction. Mr. Starr instanced two Baldwin trees as bearing out his conclusions, derived from observations on the ripening of the young growth from the roots of the different stocks of which these Baldwins were grafted.

## IN MY OWN ORCHARD

I have two Bishop Pippins, seventeen years old, planted in the same soil, and in precisely similar conditions as regards drainage, shelter, etc. The stocks are widely different, the tops of the trees are equally diverse. The fruit of both is good, but that of the smaller tree has been exceptionally good for some years. The smaller tree has a large collar above the junction of stock and graft, and the circumference of the graft is 7 inches more than that of the stock. The spread of the branches of the smaller tree is also much less than that of its neighbor, and some of the branches exhibit a different growth. I have thought that the tree is slowly failing, and although the stock has enabled the scion to produce splendid fruit, yet it looks as if its powers were on the wane. Very superior fruit has apparently been produced by this stock and scion at the cost of the durability of the tree. The slow-growing stock has checked the descending sap current, and thrown it into fruit development, giving rise to the well-known effect produced by ringing grape vines. Now,

## THE PRINCIPLES INVOLVED

In these observations have been known and discussed for more than half a century in relation to the Crab, the Doucin, the Paradise and seedling stocks. But the effect of climate and soil upon the varieties of fruit produced on these different stocks when grafted, in particular relation to flavor and disease, such as spotting, scabbing, etc., can only be ascertained by close observation and experiment in a new locality. Hence all such effects deserve to be recorded. Perhaps further illustrations of the influence of the stock on the scion may be furnished by gentlemen present. It is desirable to collect home illustrations, so that these may be collated and inferences drawn, having due regard to the great differences which the mechanical constitution of different soils and climate produce on stocks. The subject is so comprehensive and important to fruit growers that no fact bearing on the question should be omitted or disregarded. The leading efforts

## OF MODERN APPLE TREE PRODUCERS

have been directed towards swiftly multiplying promising scions, but very little attention appears to have been devoted towards those conditions which affect the stock in its relation to the scion. It is a subject which, with us, can hardly be taken up in its entirety by practical nursery men. It requires the co-operative work of an association with orchard experimental grounds devoted to that and similar work. But we can collect and examine and discuss the information supplied by local experience on this attractive subject. This special reason why with us local experience is disadvantageous, arises from the fact that excellent results have been attained on the red sandstone soils of some parts of the Annapolis valley, on the red marly lays and gypsum soils and gravelly drifts about Windsor and elsewhere. So that if the soil affects the influence of the stock on the graft to a marked degree, we have the best opportunities for comparing the fruit obtained from imported stocks grown on different soils, with those of home production. By this means we shall be able to

## CONNECT CAUSE WITH EFFECT,

and doubtless arrive at conclusions which may be profitably applied.