

material and healthy situation for not only apples but all other agricultural productions of which this climate is capable. The hindrances or drawbacks in this locality are, as I have stated, first, the comparatively inaccessible character of the land, and secondly, the present condition of the soil, in that it contains so many loose stones.

Let us consider, now, in the planting of an orchard, some things that require to be done before the trees are ever brought upon the ground to be planted. In the district of which we are speaking, the different parts are characterized by great and extreme variety in the consistency as well as elementary substances of the soil. Along the brow of the hill, the soil, where there is indeed any, consists mainly of ground up rocks, of a quality very much like the rocks immediately under feet, while within but a few hundred yards, it may be, away down from the hill, the soil, though still light, contains, however, an abundance of clay. Now the great object of the farmer, hereabouts, becomes not only to make extremes meet, but to thoroughly mix them up, and with all between.

In deciding whereabouts to plant an orchard, it were well, first, to dig a hole, here and there, three or four feet in depth, to ascertain the character of the ground, because it is not well to have a hard pan anywhere near the surface for apple trees—that is, within about two feet; we should have, if possible, a well mixed loam to at least that depth, because apple trees differ in this from a great many forest trees, that their roots must have a good depth of soil. Again, this soil must be dry, or must be dried, so that water would not remain even in a hole dug anywhere in an orchard. This deep-searching of the roots of fruit trees seems to have been one of the grand secrets in their cultivation, from the want of which our forefathers paid, not only in raising fruit, but in growing trees. Now, in the effort to be rid of standing water we must beware of over-doing it on the side of sand and stones. Apple trees cannot, any more than human beings, do well or thrive, either in a puddle hole or a desert. The soil must be retentive of water up to a certain degree, and, if naturally arid and stony, there must be enough of clay or clay soil brought to form a plant-bed, capable not only of retaining a certain amount of moisture through drouthy spells, but of receiving, and in some sense assimilating the annual additions of manure, without which we cannot ordinarily expect to receive any crop of fruit from our trees. Now, this soil-composition, apart from the manure proper, is something we must not by any means lose sight of, it forms not only a retentive but in some degree a neutralizing

medium between the application of the manure and its reception by the tree roots, so that these may not suffer by any crude, harsh, or chemically unformed material that may be offered as manure at any time to the soil. It is necessary also that the soil everywhere lie well to the roots, this must be seen to in the planting, and the finer the earth the better the opportunity for the roots to gather nourishment. There are reasons wherefor the soil itself should be in some quantity changed occasionally, which may be done by paring off a few inches from the top once in a few years and replacing it by fresh new soil; not only is this likely to be more clean and healthy, but it is observable that the soil function itself suffers by high cultivation over extended periods; and in the case of soils originally made up, we should remember and regard the liability there is of it being washed away by the weather. It is said that in eastern countries much of the land has suffered from this very cause, and more particularly in the case of these hillside situations.

Just below the brow of the Cobequid Mountain, maybe quite continuous with its slope, and maybe within a short gunshot, and maybe a mile or more away, we come across rock formations that bear no relation with those of the mountain proper, except proximity. Chief among those, and in heavily bedded masses, is the soft shale of the carboniferous system. It is almost everywhere to be found in some quantity, often in low rolling ridges, in a course parallel rather with the course of the mountain, and as far as I have observed, continuous with the whole range of the mountain, though at very varying distances from it. In appearance it looks on the surface like a grey or dirty looking slate, if we cut into it with a sharp pick it shows a streak of a bluish white color. It is often taken to be a kind of bastard slate—which in fact it might be truly called, only for confusion of geological terms. It is from this substance that the clay in the soils along the base of the mountain is most derived. It is generally a rather thin soil, however, being often mixed with loose material, such as the debris from the broken sides of the mountain, and yet more with the gravel of the conglomerate, which in fact underlies it near the mountain; often times again, the soil is of very little depth, lying upon this shale, which forms a pan beneath. In this case the surface will be in many places very wet, when drains must be made about and throughout your proposed orchard, and, to have these permanent, will necessitate a depth of more than three feet, partly filled with loose stone, and packed over tight with more clay, which should be rammed down close and rounded over, to keep

out the surface water. If your orchard is thus placed near a declivity, all the better, for then the drainage water can escape. As a proof that this is wisdom and sound philosophy, the reader may have observed that most of the healthy and productive orchards in Nova Scotia are situated about the cellar drain leading from the house, while the most of those placed anywhere else take sick and die. The exception is in the valley of King's and Annapolis Counties, where the soil doesn't appear to require much draining. There is neither much clay slate nor clay shale about there.

The site of the proposed orchard having been thoroughly drained, the soil should be worked, pulverized, dug and turned over to a depth of at least two feet. We are considering now the case of ground consisting of too much clay, in contradistinction to the case of too little. And here we take into view some process of rendering the soil permanently loose, in a sufficient degree for a healthy and vigorous growth, and to do this the best way I ever heard of is, if the right kind of stone can be got, to collect a quantity and burn them; of these an abundance will generally be found anywhere about the Cobequid Mountain. It may be necessary, however, to use some discrimination. The light-colored breccia, which is the ankerite of the iron lode, if burnt, will be found altogether too caustic and killing to be placed very near your trees. The conglomerate is very good, but the best rock of all, and in fact the prevalent rock of the Cobequid, is a brick-red felsite, containing certain minute specks of black mica. Then there are porphyries, and other quartzose boulders lying about; these all require very little fire—not half as much as lime-stone or gypsum. A great heap may be made of these, with layers of old fencing, stumps, brush, or the like, in sufficient proportion to the stones to make an actual burn, when they will all knock to pieces with an old axe pole or hammer. These should be broken very small and collected with all the dust and sand and piled to the depth of half a foot or so, and ten or twelve feet across and under where each tree is to go; this will not harm the roots of the tree, though placed in immediate contact with it, though containing a great deal of alkaline material, principally potash, this is in no concentrated state, but combined with silica; and it does well mixed up with the clay or composted earth, or whatever other manurial substance is added above to form the plant bed.

All the manurial substances going to the roots of orchard trees should be as thoroughly mixed, composted and chemically combined as possible before hand, otherwise you may cause a war of the