cattle. To do this it will be necessary to have a system of rotation of crops.

It has been already stated that some crops exhaust the soil more than other, and that if these crops be continued for some time the return is but trifling. This sterility of the soil does not arise from the want of all the substances necessary to form plants, but from the want of a sufficient quantity of a particular ingredient to continue the growth of a particular crop. A soil therefore in this position is not barren, but will produce other crops, requiring larger quantities of the other ingredients. These suggest the necessity of a rotation by which all the ingredients are brought into action, and have time to accumulate again before the rotation is completed. There are different reasons which prevent the use of root crops in this country to as great an extent as in other countries—as the want of artificial manures to raise them, and their insufficiency for maintaining the animal heat should they be raised in sufficient quntities, some of our common grains being of much more use for this purpose. In planning a rotation it should be done so as to keep the land clean, without the necessity of a bare fallow; for unless the fields are stony, and have many a stump, &c. which require removing, bare fallows are both unprofitable with regard to the fertility of the soil and the loss of the land for one year. The following has been practised, and being planned in accordance with the principles of science—as far as the state of the country will admit—is suggested: (1) drill crops of all kinds including Indian corn; (2) spring wheat, barley or oats; (3) clover meadow; (4) pasture; (5) peas or beans; (6) fall wheat. The greatest tendency of this rotation will be to exhaust the potash, phosphoric acid and lime; but being "forewarned" the farmer is forearmed," and can prevent this result.—*Ib.*

CHEMICAL ADVANTAGES OF DRAINING AND SUBSOILING.

It is an admitted fact that water, if it passess over or through the surface of the soil, acts beneficially, but this is not the case if it be allowed to stagnate. Science has shown that plants require air and warmth as well as moisture. Now moisture, if allowed to saturate the soil, prevents the ingress of these, which we see illustrated by the evaporation going on from undrained lands, evaporation always producing cold. If the land be drained this moisture sinks, and is carried off by the drains. If rain falls now it sinks into the subsoil, purifying the surface soil, and giving out heat and ammonia which it has acquired in passing through the air. These effects produce beneficial results. The advantages of draining may be summed up as follows:

(1) Heavy lands may be more easily and cheaply worked if drained.

(2) Lime and manures go further and have more effect.

(3) Larger crops are reaped and of better quality.

(4) Seed time and harvest are earlier and more sure, and naked fallows are rendered less necessary.

(5) A better system of rotation of crops can be introduced; as large crops of wheat, &c., have been raised by its means on land which before produced only poor crops of oats and buckwheat.

(6) The climate in general is made much more healthy, and the attacks of insects on domestic animals are in a great measure prevented.

Subsoiling has been tried to a considerable extent, and has been found not to answer the expectations of many that have practised it. Scientific truths teach us when this should be performed, and easily explain the reason of the failure, which may be experienced by all who perform their operations as it were in the dark, or in ignorance of the circumstances on which success must depend. Subsoil and trench ploughing change injurious compound, as oxide of iron, into beneficial ones by exposing them to the air, but must be done with due regard to drainage.—*Ib.*

FRUIT TREES.

IMPORTANCE OF PROCURING VARIETIES ADAPTED TO SOIL AND CLIMATE.

So far as my experience goes, I have come to the conclusion that, the chief cause of the failures sustained by the cultivators of orchards in Canada West, is to be found in the fact that, nurserymen persist in propagating and sending out varieties constitutionally unadapted to the sections of the country to which they are sent. It is true that the planter should only order such varieties as are adapted to his own locality; but how many are experienced enough to tell this? Almost all our nurserymen have copied wholesale the popular varieties of the neighbouring States, and however excellent many of these may be in sections to which they are adapted, I have no hesitation in asserting that more than one half of them are too tender for Canada West.

The Baldwin is one of the very best of apples through an extensive section of country. "It is a native of Massachusetts and is more largely cultivated for the Boston market than any others sort." Downing, in speaking of this fruit in his section of the State of New York, says: "It bears most abundantly with us, and we have had the satisfaction of raising larger, more beautiful, and highly flavoured specimens here than we ever saw in its native region."

Of this popular variety I cannot raise a single tree; it is altogether too tender for this section. Yet it is propagated in the different nurseries in this very neighbourhood. It must be remembered that many tender varieties of trees can be successfully raised to a certain height in a sheltered and crowded nursery, that will, to a certainty, be cut down by the first or second winter after they are removed to an exposed orchard. Again, some varieties are sufficiently hardy to succeed for a few favourable seasons, but when they come through a more than ordinarily severe winter they are either altogether killed, or left in such a shattered condition that they never recover the effects of it.

But before we can hope for any great improvement, much requires to be done. We must, by the aid of Fruit Conventions, or other means, endeavour to select from the standard varieties of the day, such as are fit for general cultivation in this Province. We must also ascertain what varieties are best adapted to certain localities, for there are many that will succeed in some favourable sections, that will to a certainty fail in others. We have many excellent seedling varieties which should not be overlooked; they should be well treated, and if found worthy, propagated, named and introduced into our catalogues. It may be said to be an established fact, that a variety which has been originated in any particular section of the country, will be constitutionally better adapted to that section than any imported variety.

But we should not stop even here. We should endeavour to originate more new varieties suited to our respective localities. By sowing the seeds of those varieties nearest to what we would wish to produce, and when these seedlings produce fruit, sowing the seeds of the best varieties of them, we stand a chance of making some improvement.—*Ib.*

III.—AGRICULTURAL INTELLIGENCE.

TO THE SECRETARIES OF THE NOVA SCOTIA AGRICULTURAL SOCIETIES.

We have received only eight replies to the Circulars we issued a month ago, and have to request that those who have not yet sent in their returns may do so, with as little delay as possible. We are anxious to obtain these returns, that we may know the condition of the different Societies throughout the country, whether they are dead or alive, and, still more,