

and dragged, that new surfaces may be continually exposed to the air, and a more perfect disintegration of the mineral parts of the soil accomplished: in other words, the cooking of the dormant plant-food.

Soon, however, on the lighter class of soils, it was discovered that fallowing the bare soil was not only extravagant, but injurious to the retentive quality of the land. The introduction of turnips to field culture, and the demand for more mutton and wool, gave rise to the Norfolk or four course rotation, which is still, in the south of England, the system upon which almost all the best farms are cultivated. This course, or shift, or rotation—synonyms—had, as we shall see, one vital fault, but it was an adaptable plan, and it answered its purpose of preserving the land from too much exhaustion, for many a long year. It was, as most people know, made up of two grain-crops, one root-crop, and one clover-crop, the latter mowed or fed, as the case might be.

The root-crop, wherever it was possible, was fed off by sheep, hay and other light food being given in addition. The sheep manure, and the pressure of their pointed hoofs, produced the finest barley in the world, and the subsequent crop of clover, mowed generally twice for hay, yielded great wheat crops. Towards the year 1830, however, a terrible cry arose all over the east of England: the clover had failed! What was the reason? Nobody could say; the chemist had not considered the matter; the farmer could not reason much in those days, but he concluded that if clover could not grow, something else would and perfectly in accordance with the Verulamian teaching—by constant experiment, he discovered that it was necessary to avoid the too frequent repetition of this crop; and that, whereas grain crops might recur every second year without permanent injury to the soil, the clover would not bear repetition at a less interval than twelve years. Since that time, all the best practical men, both chemists and farmers, have been trying to get at the bottom of the cause of the failure; but up to this very day nobody has succeeded. My own idea is, that it is due to some defect in the *mechanical* condition of the land rather than to a scarcity of clover-food in a proper state of preparation; but when *Dr. Lawes* says, positively, that he knows nothing about it, I do not think my opinion is worth much. The Scotch improved system took a different shape to that of England: instead of a four-course, they adopted a five- or six-course; beginning with roots, grain, and letting the grass lie out for two or three years, it ended as usual with grain. Very little hay was made, whereas all the clover in the English rotation was mown for hay. The clover did not fail in Scotland—why I cannot say—but quite as great a mischance has happened: the turnips are so terribly injured by the disease called “finger and toe,” that in many parts of the north, the farmers are seriously thinking of converting their five- or six-years course into one of seven or eight years, particularly on the heavier soils.

To whatever causes the practical failure of these two important crops may be due, it is clear that want of nourishment is not one. For the men of the east of England and the south of Scotland are the chief sufferers, and they are, certainly, the most liberal farmers in the world; they use large amounts of purchased manures, cake, &c., and nothing but meat, milk, and grain, is allowed to leave their farms.

The frequent recurrence of the potato-disease will occur to many as another instance of the extremely hazardous tenure by which the prosperity of the agriculturist hangs. But I believe we have nearly arrived at the cause of this malady, and its cure is not far off. Every day new sorts of potatoes, grown from seed, are brought to light, and all have the mysterious power of resisting the rot for a few years: but, for very few, I regret to say, as the *Champion*, in a

couple of years more will, doubtless, go the way of all its compeers, and some other newer kind will have to take its place.

I presume that wherever fallow-crops are grown in this country no one would be foolish enough to repeat the same sort on the same soil. For instance: where Indian corn occurred in one shift potatoes should come, where turnips, there beets or mangolds, and so on.

Every sensible man who breeds his own stock will see the necessity of adopting some fixed rotation, and thus preserving a balance between the number of his cattle and the crops designed for their support. The extent of each course must depend in great measure upon the situation of the farm. In the neighbourhood of large towns, where unlimited supplies of manure can be obtained at a nominal cost, the rotation will naturally be a short one. Mr. Irving, of Logan's farm, follows the five years course; Mr. James Drummond, of Petite Côte, extends his grass to three years. But I doubt very much if less than seven or eight years would answer the purpose of the farmers of Shefford, Compton, or Huntingdon. The small amount of manure attainable must, at first, make long rotations unavoidable everywhere, but as a farm gets well in hand, the course may be shortened with advantage both to the land, to the stock, and to the occupier. Again, where hay is saleable at a high price, the grass may lie out for a year or two longer, provided that a fair amount of manure is imported in return for the extra crops sold off the farm.

After all, the course selected must depend upon the judgment of the farmer, and this judgment will most likely be guided by the practice of the district in which the farm is situated. I would not advise any one on settling in a new neighbourhood to come to the conclusion that the customs of the inhabitants are all wrong. They, very often, are founded on causes which do not show themselves to a casual observer. Still, there are certain methods of cultivation which can be set aside at first sight. For instance, as more immediately connected with our subject, the course of cropping I have met with, not many miles from St Hyacinthe: three years in grain, followed by three years in grass. I take this to be, without exception, the very worst course in the world. (1) There is in it no chance of cleaning the land; to say nothing of the successive recurrence of three white-straw crops. Consider the effects of the unimpeded seeding down of every weed that occupies the land, and that for ever, or at least as long as this rotation is persisted in!

As a general rule, it may be observed that in the Townships, there is no course of cropping practised. The land lies in grass as long as any hay can be got off it; and the soil is improved, so long as the hay is consumed on the premises. Whether the farmer reaps much benefit from this very easy system is another question; I don't think he does; but, at all events, it is better than the sequence of grain crops as followed in the French country. ARTHUR R. JENNER FUST.

Mr. Brazeau, tobaccoist, St. Lawrence Main Street, informs me that he will take any quantity of true Canadian tobacco, of the small, narrow, pointed leaf kind.—If it is ripe, unsweated before drying, and properly turned out, he will pay as high as 50 cents a pound for it. At 27 x 12 inches, this would give 19,500 plants an acre—say 18000; of which ten ought to give a pound—the leaves are thick, and 15 may be left on each plant, as it always ripens if planted fairly early—yield 1800 lbs per acre; equal to \$900!!!

A. R. J. F.

(1) And yet, it is a vast improvement on the previous course, consisting of grain one year and bare fallow the other; yet not so bare but that weeds of the worst kind grew in abundance. We willingly admit that there is room for useful change. E. A. B.