

dose of manure, give a good crop of clover, turnips or other roots. Thus it is usually regarded as an important rule in good farming that no two white or grain crops shall follow in immediate succession. This rule is not, however, considered as absolute and literal in its application, for while the Norfolk farmer takes his crops in this succession: 1. *clover*; 2. *wheat*; 3. *turnips*; 4. *barley*; the Lancashire farmer with equal success grows, 1. *grass*; 2. *green crops*; 3. *wheat*; 4. *oats* or *barley*, his two green crops following one another, and his two white crops doing the same. There is, however, in this case a balancing as it were of two grain crops by means of two green crops. It should be a settled rule that the exhaustive crops are never to be grown in succession, unless the land has become to possess a considerable degree of fertility, so as to bear without injury, such a tax upon its productive energies. The chief principles on which a rotation of crops is based are these:

1. A fertile soil contains all the food required for the nourishment of every description of cultivated plants, but while this is the case, the supply needed by a particular plant is but limited.

2. Some plants draw their nourishment from near the surface, while others obtain their food from a greater depth.

3. Some plants derive a large proportion of nourishment from the atmosphere, while others depend almost, if not entirely, upon what they extract from the soil.

4. Certain crops furnish support to particular insects.

Hence one crop should be followed by another that requires for its nourishment substances differing as much as possible from those that have just been drawn upon. A surface-feeding crop should be followed by one that goes down deeper for nourishment. A crop that derives its food principally from the soil, should be followed by one that draws largely from the atmosphere. A crop should follow its predecessor such as is best calculated to exterminate the insects that preyed upon the previous one. It may be added that by growing a variety of products, the occasional failure of one is not so keenly felt, its place being supplied by others. As an example of the practical application of the foregoing principles, we quote a rotation instanced some years ago by Mr. William Boz, of St. Laurent, and which has been largely practiced with excellent results. Of course this is but an illustration, and in practice it may be departed from, and a different plan based upon the same principles. Other plans of rotation have been suggested in previous numbers of THE CANADA FARMER, to which reference may be had for additional illustration and example.

PLAN OF ROTATION.

"Divide the arable portion of the farm, whatever may be its size, into six parts, as equal as possible, with a direct communication from the barn-yard to each field, and from one field to the other, so that the cattle may pass from one to the other when required. This division into six fields, may require on most farms new fencing, and it will be proper, beforehand, to see how this can be done with the least possible expense. I shall now suppose the farm prepared to receive the application of this system, and that is the one which I have found the best for even the poorest settler.

1st. Root crops, such as potatoes, carrots, beets, parsnips, &c. [turnips and also flax], and in cases where the land is not sufficiently open for a crop of this kind, the field must be left in fallow

- 2d. Crop of Wheat or Barley.
- 3d. Crop of Hay.
- 4th. Pasture.
- 5th. Pasture.
- 6th. Crop of Oats or Peas.

In beginning the application of this system, that field of the series which is in the best condition for a Root crop, should be called field A. The best for Wheat or Barley B That which is actually in Hay C The Pasture fields D & E That which is best for Oats or Peas F Each field for the first year ought to be appropriated to the crops above mentioned. The culture of

field A and of crop No. 1, come up together for the first year, and ought to be the object of special attention, as this is, in fact, the key to the whole system; for the good culture of this field has for its object, and ought to have for its effect, not only a good crop for the first year, but also to improve the land for the five other years of this Rotation of Crops.

In the following year, the cultivation of the different crops will be according to the following order:

Crop No. 2 in the field A			
Do.	"	3	B
Do.	"	1	C
Do.	"	5	D
Do.	"	6	E
Do.	"	1	F

and so on, changing each year until the seventh, when crop No. 1 will come back to field A, and the whole will then be in a good state of fertility, and free from weeds. The above system has been proved to be capable of restoring old land, and extirpating all weeds.

Stones on Cultivated Lands.

Is it an error to suppose that stones should be entirely removed from land which is under cultivation. The stones, which would be in the way of the scythe while mowing, of course should be removed, but all the smaller ones should remain: and if wholly or partially embedded in the soil, they preserve the moisture during the drought, and thus serve materially to increase the crop. The following article, from the *Gentleman's Magazine*, published in 1773, is in point:—

It has been long known to experienced farmers, that taking away very small stones and flints, is detrimental to ploughed lands in general, but more particularly so to thin, light lands, and all lands of a binding nature. It was, however, never imagined that the damage could be so great, as it is now found to be, since unusual quantities of flints and other stones have been repeatedly gathered for the use of turnpike and other roads. In the parish of Sterenage, in Hertfordshire, there is a field known by the name of Chalkdell field, containing about 200 acres; the land in this field was formerly equal, if not superior, to most lands in that county, but lying convenient for the surveyors of the roads, they have picked it so often, and stripped it of the flint and small stones to such a degree, that it is now inferior to lands that were formerly reckoned not much over half its value, acre for acre. Nor is it Chalkdell field alone that has materially suffered in that county by the above mentioned practice, several thousand acres bordering on the turnpike roads from Welton to Baldock, have been so much impoverished, that the loss to the inheritance forever must be computed at a great many thousand pounds. What puts it beyond a doubt that the prodigious impoverishment of the land is owing to no other cause but picking and carrying away the stones, is, that those lands have generally been most impoverished which have been most often picked, nay, I know a field, part of which was picked, and the other part ploughed up before they had time to pick it, where the part that was picked lost seven or eight parts in ten, of two succeeding crops; and though the whole field was manured and managed in all respects alike, yet the impoverishment was visible where the stones had been picked off, and extended not an inch farther; an incontestible proof of the benefit of the stones."

Subsoiling Land.

A CORRESPONDENT of the *Rural New Yorker* enquires if it will pay to subsoil land, and when is the best time to do it. Our contemporary replies by enumerating some of the good effects of subsoiling, and we clip the following from its article on the subject:

Land may be made very productive by simply pulverizing the soil to a minute degree. This operation renders the plant-food contained therein available to the growth of the crop. It adds nothing to what was previously there, but opens the way for the roots of plants to reach and appropriate the entire nutriment in the soil. For this object we plough and harrow. But the subsoil plan goes deeper and obviously opens new and rich sources of mineral food to the searching roots of our grasses and cereals. Deep ploughing, with an ordinary implement, is not always wise, for the reason that it throws on the surface a soil deficient in vegetable mould, which forms a poor seed-bed to support the first and most feeble growth

of the young plant. But sub-soiling—the loosening of the under soil without bringing it to the surface—throws open to the vigorous roots of the plant rich sources of food. Sub-soiling should follow under draining. On strong loams or clays it is of the greatest use, in pure sands of the least. Where clay underlies sand, so close to the surface that it may be reached with the sub-soil plough, it is of great benefit to use it. The best time to sub-soil is in the autumn, the frost and the air go down. The water settles early in the spring. The labour of subsoiling in the fall is much more, however, than in the spring."

"Thistle-ish."

UNDER the above heading, the *Prairie Farmer* publishes a batch of correspondence concerning the extermination of the Canada thistle. We select the following:

"Simon" writes:

A sure and effectual cure for Canada thistles in pastures, is to salt sheep on them twice a week, during one whole season. Sow salt broadcast; one hundred sheep to the quarter acre patch. Sure cure, only take care none spring up around the edge of the patch."

G. D. C. has known cutting when stalks are hollow, and salting for sheep to eat off, &c., to be ineffectual in New York. His father finally exterminated a patch in the door yard, by cutting stalks as close to the ground as possible, and covering the roots with flat stones or boards. Rather impracticable we should say, out west.

Jonathan Reade Sen., of Marshall county, Iowa, destroyed them in Ohio, by cutting them all off with a hoe, three or four times during the season.

H. M. Thompson, of Scott county, Iowa, says: "Observing considerable interest manifested at present on the best method of eradicating the Canada thistle, I think that my experience with that pest may be of some value to the readers of THE FARMER and I give it for what it is worth.

"Several years ago I purchased a small quantity of white clover seed in Davenport and sowed it on a small lot intended for a permanent pasture. In the course of a year or two after, I discovered some thistles such as I had often seen in Scotland, but never in the western States before. By applying to a neighbour who had lived in Canada I learned that it was the Canada thistle. I took a large sack, a butcher knife and a bucket of salt and went to work. I cut off all the thistles I could find, put them in the sack and covered the root with about half a teacup full of salt, and carefully turned the thistles in the stove. I kept watch on the place and had to perform the same operation every three or four weeks for the whole season. The next spring they came up as numerous as ever, and I changed my tactics and tried the plough. I ploughed the piece of ground (some five or six square rods) every month or oftener during the season till frost, and now nine or ten years have been added to my life but no more Canada thistles have annoyed me. I suppose I got a seed or two of Canada thistles thrown in when I bought the clover, but I have been very careful not to buy any eastern raised clover seed since."

PICKED FORAGE. As regards pickling fodder, we saw it done in Germany, and on this wise. Several pits were dug in the clover field, about ten feet deep, with the same width and length; these were lined with loose boards, and the clover thrown in green, as cut, and thoroughly trampled down by two men; the surface of every layer, about a foot or eighteen inches in thickness, was whitened with salt: layer was added to layer, and trampled as above and salted, until the pit was filled with a comparatively solid mass of clover. A rude covering of boards was then put over the whole, sufficient to turn rain, a slight trench, such as a soldier digs around his tent—and the operation was then complete. We were told that after fermentation, the mass was cut out through the winter with sharp spades, fed to stock of all kinds, and devoured with great relish. We were informed, moreover, that the process applied as well to pea vines, the leaves of the Jerusalem artichoke (*solanum tuberosus*) and to the leaves of certain forest trees. When we consider the difficulty of curing for winter's use, all the more succulent varieties of herbage, and the immense annual loss of that most valuable of all forage plants, clover, in the curing, it is to be hoped that some one will have the nerve to give a fair trial to this Prussian process; they will be eagerly imitated in the use of the needle gun, and in the art of destroying, why not in that of sustaining life.—*Cor. of Turf, Field, and Farm.*