

heifer in a hundred but with proper care and management will be a quiet, gentle cow.

The process to guarantee gentleness is a simple one; any person that can not control his own passions lacks the first necessary qualification and is not a fit person to trust with this gentling process, and should never be permitted to handle or attempt to milk a spirited heifer. I have now made plain the first essentials. Next, when the heifer is about to come in, say a week or ten days prior, confine her in a building by tying her up, give her extra corn and attention, give bran and salt to lick; while eating pet her, and when not eating approach her and curry her; there are few animals but what like to be curried. In every way possible gain her confidence, and have her glad to see you. Now when she calves, be about if possible and assist the calf to suck; this accustoms her to having her teats handled by a person. If she is designed for a milch cow the calf should not be allowed to suck unless the person who is to milk her is present, and while the calf is sucking this person should handle the teats and otherwise gentle her. The calf at two or three days old should be weaned, and if you have followed the directions the cow is more than half gentled, and by this time she has a flow of milk that the act of milking when properly done is a relief and pleasure to her, and if she could would thank you for drawing the milk from her, providing always you do not abuse or hurt her, and that is all there is to do.—*Town Homestead.*

A correspondent of the *Fort Farmer* says he breaks up his prairie land with sheep. He turns a large flock of sheep upon the ground, and in two years they will pasture it so closely that the roots of the grass will be dead, and the soil can be plowed with the utmost ease.

GRUBS IN SHEEP.—Grubs in the nasal cavities of sheep are invariably to be attributed to the working of the gad fly. They deposit their ova within the interior of the nostrils, causing the sheep much pain and annoyance. After a short time the ova bring forth parasites in the larvæ state, which, when capable of exercising an independent existence, undergo the same evolution as the bot parasite—they burrow deep in the ground, and finally become metamorphosed into the gad-fly. With a view of preventing the attacks of the gad-fly, some farmers smear the noses of their sheep with tar. Others plow up a piece of land where the sheep are pastured, into which they thrust their noses, and thus, for the time being, baffle the attack of the gad-fly. It is not considered prudent to attempt, either by mechanical or medicinal means, to dislodge the parasites, as the remedy might prove much worse than the disease. When the ova have arrived at maturity, the sheep themselves aid in the dislodgement by acts of snorting, sneezing, and coughing.—*National Live Stock Journal, Chicago.*

Agriculture.

ROAD MAKING.

In a recent number some one asked for practical directions for road-making. I live on a free pike which was built some twenty years ago, and as I helped construct it, and have helped keep it in repair ever since, I have paid considerable attention to the subject of road-making, and can perhaps give some hints that will be of value.

The first thing necessary for a good road is drainage, and to secure this the grading must be properly done. I do

not mean by this that it is necessary to throw up the road three or four feet high, as I often see, for I find that where our road-bed is twelve to eighteen inches above the level it remains solid; but I do mean that culverts should be built at all necessary places, and the gutters kept open for a free passage of the water. There are roads in my township where the gravel was applied to the old road-bed without grading at all, and it not only takes more material to make a road-bed, but it is much more likely to cut through in soft weather. The grade of the road should be such that no water can stand on it, for whenever a wheel passes through a pool of water, it cuts and wears it a little deeper. To avoid this the grade should not only be good before the gravel is applied, but while it is being packed some one should pass along every few days and with an iron rake draw the loose gravel from the outside in, to fill the ruts. Where there is a long slope it is important that every ten rods or so, there should be places made to turn the water off at the sides into the gutter, for if allowed to accumulate and follow the wheel track it is sure to damage the road.

The grading of a road should be done long enough before the gravel is to be applied to allow of its getting packed and solid, as it will require much less material and make a better road-bed. Let the grading be attended to early in the season and the graveling later. I prefer coarse gravel for the first coating, and after it has become solid, fine clean gravel (not sand) will give the best satisfaction. In spouty clay where it is difficult to get a solid road-bed, I have succeeded well by covering with flat stone, but there must be but a single layer of them or they will invariably turn edgewise and work to the top; but if a single layer is used it will take but little gravel to hold them in place and make a solid road-bed. I have succeeded in this way in spouty clay where it seemed impossible to make a good road.

In the care of a road after it is completed, I am satisfied after years of careful observations that most supervisors make a mistake in applying too much gravel at once. All that is necessary where the road is not actually cut through, is to simply fill the ruts so that the water can not stand on the road or follow them down a slope. I have repeatedly tried, in dressing a road, spreading a perch of gravel two rods, and compared it with an application of two perches to the rod, and I find the first gives a better road, and I am not sure that it will not wear about as long. The heavy coating is very slow to pack, and even when solid on the surface there is a loose strata between it and the solid road-bed which holds water and makes the road heave after a hard freeze, while if but two inches of gravel is applied at once it packs down and becomes almost as solid as stone. I consider this last one of the most important matters connected with road making, and believe that more time and money are wasted in applying too much gravel at once, than in all other ways, and I recommend supervisors to give this matter a fair trial. I have not thoroughly tested the matter of applying the first gravel to the road in installments instead of all at once, but I believe that six inches of gravel applied at three different times, so that each coat would be thoroughly packed before the next was applied, would give a better road and one that would last as long as if ten or twelve inches of gravel were applied at one time, and where, as is often the case, gravel must be brought some miles

this would prove a great saving of expense. The matter can be easily tested by our road makers and is certainly of enough importance to warrant some experimenting.

I would recommend wherever it is possible that the road-bed be placed at one side, and a summer track graded. Fully one-half of the year (and often more) a dirt road is pleasanter to travel than a turnpike, and the side track will save the wear of the pike, and also that of the wagons and teams. The road-bed need only be made wide enough for a single track, if sufficient conveniences are made for passing, and the expense will be much less than for a double track.

We need to put our best and most public-spirited men into the supervisor's office and to encourage them in their efforts to make good roads. Too often it is the case that the officer in charge of the roads is negligent and the hands are allowed to put in short hours, and the work is done in a bungling, wasteful way. I have often seen gravel full of stones six inches through, applied to dress a road, or a load of gravel dumped here and there without spreading, and allowed to remain and be packed down in a pile so that there was danger of upsetting if one drove over it on a trot. Almost any neighborhood can have good roads if they will, and there is nothing pays better.—*WALDO, in Ohio Farmer.*

THE WEEDS.

The farmers have been troubled more with weeds this season than they usually are. The heavy rains of the early summer started them, and the more recent ones kept them growing, and it has required constant attention to get the advantage of them. The hoe and cultivator have been in constant use, and yet many farms have an abundance of them yet. There is no hope for a crop unless they are subdued. In order to conquer, overpower, overcome, surmount and vanquish them, the farmer has to work early and late. There can be no half-way measures adopted. It is a fight for bread and butter, a fight for the right, and a fight for plenty of money in the vest pocket. With clean tillage our farmers can have both the bread and butter and money, as well as the comfort of knowing they are right, and have conquered an enemy, because the weeds are the worst enemies a farmer has to contend with on his farm. They are to be more feared than a politician or a tax collector, and that is saying a good deal.

Horticulture.

THE BLACK WALNUT.

The following from the *Canadian Horticulturist* for August will be of interest to many of our readers. The Black Walnut is a very valuable tree as well as being ornamental, and such information as is here given will be of advantage:

It is very gratifying to find so many "anxious enquiries" for information respecting the Black Walnut tree, but at this time of the year it becomes too great a task to reply to all letters on this subject, and, as many persons ask nearly the same questions, the constant writing of answers becomes somewhat monotonous. Will you, therefore, permit me to reply to a few of the most pertinent questions through the columns of the *Canadian Horticulturist*? By doing which, I think you will oblige many of your readers, as nearly all of my correspondents are members of the Fruit Growers' Association.

1. Can the cultivation of the Black

Walnut tree be profitably pursued as a commercial enterprise?

2. Are the Canadian walnuts as good a desert nut as the English?

3. What is the style of growth of the Black Walnut? and have the trees long or short trunks?

4. What kind of soil is most suitable to produce a healthy and vigorous growth?

5. What extremes of temperature will it survive?

6. Is it a rapid or a slow growing tree?

7. What time do the nuts ripen?

8. Can the trees be easily transplanted?

9. I intend planting several acres of Walnut trees. Would you recommend the nuts or the young trees? When—in the spring or fall?

10. Where can young Walnut trees be obtained, and at what price?

11. Where can the nuts be obtained suitable for planting?

12. How far apart should Walnut trees be planted?

13. What preparation of the soil is needed, and what is the best manure for that purpose, if any is required?

REPLY.

1st. There can be no doubt respecting the profitability of an investment in the cultivation of the Canadian Walnut tree, provided an average amount of intelligence is brought into play in the planting and culture of the same during the first fifteen or twenty years. It can easily be shown that the planting of a given quantity of land with this species of tree will give, in from fifty to one hundred years, a larger profit on the investment than would any other legitimate investment in Ontario.

2nd. The Canadian Walnut is not the same as the nut of commerce, commonly called the English Walnut. The Canadian Walnut tree is the Black Walnut, *Juglans Nigra*. The desert nut known as the English Walnut is the product of the *Juglans Regia*, another branch of the *Juglandaceæ* family.

3rd. Much depends on the proximity of its neighbors. If the trees are grown near together, they will be tall and slender; but if allowed plenty of room, the diameter of the top will about equal its total altitude. The general form of the head will be round, loose and open.

4th. A rich clay soil, worked as deeply as possible.

5. At this place the thermometer often registers above 90 in summer, and below 35 in winter, and Walnut trees are perfectly healthy.

6th. I have several trees measuring over 24 inches circumference, 12 years old.

7th. From the middle to the end of October.

8th. The Walnut tree, like most of the nut-bearing trees, are more difficult to transplant than seed-bearing trees.

9th. You will probably be more successful by planting the nuts than with the young trees. Perhaps it would be better in your case to plant both nuts and trees. The nuts must be planted in the fall of the year, and as soon after the nuts can be obtained as possible. Let them be in the ground by the 1st of November. The trees may be transplanted either in the spring or fall.

10th. I cannot answer this question. Nurserymen having Walnut trees for sale should advertise the fact in the *Canadian Horticulturist*.

11th. Same reply as above.

12th. If you want them simply for shade trees, I should say from 40 to 50 feet apart; but if for planting for timber, I would recommend planting the nuts in rows four feet apart, and