

I'm thinkin' that no mon but the son o' a great country could write like that. An' maybe ye will understand my feelin's noo, when oor friend frae doon East accused me o' no' bein' Scotch. As I said, time has cooled me off a bit, but I hope I'll never be tempted like yon again.

When the Campbells an' the Camerons an' the McDonalds an' the McDougalls an' a' the rest o' the Macs were battlin' for their country's liberty aboot sax hundred years ago, I'm willin' tae bet that the Frasers werna' vera far away. If they weren't in the front rank they were fightin' for a place in it.

### Nature's Diary.

A. B. KLUGH, M. A.

A weed which I notice to be spreading a good deal of recent years is the Prickly Lettuce. It has become established in waste places in the majority of localities in Canada which I have visited, and from these waste places is invading fields, gardens and door-yards. It is now frequently to be found in clover fields and around the margins of grain fields, and while it cannot be ranked as one of our most pernicious weeds it possesses such good facilities for extending its range by means of the plume-like pappus with which the fruits are furnished, and which enable the fruits to be carried far and wide by the wind, that it should be checked before it becomes too prevalent.

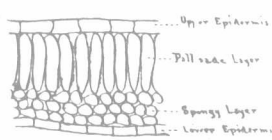


Fig. 1—Section of leaf of violet showing the usual arrangement of cells in a herbaceous leaf.

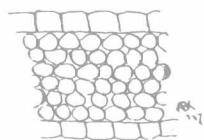


Fig. 3—Section of leaf of Prickly Lettuce from plant grown in shade.

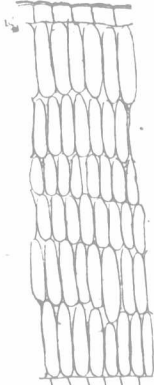


Fig. 2—Section of leaf of Prickly Lettuce from plant grown in direct sunlight.

The Prickly Lettuce is an easy plant to recognize, since it bears some resemblance to a plant of garden lettuce which has "run to seed", and because the leaves instead of lying with their flat surface in a horizontal plane, as in the case of most plants, stand in a vertical plane, thus being "on edge". The mid-rib of the leaf is armed with prickles beneath and the teeth at the edge of the leaves are also spiny-tipped, these spines giving it its usual common name. It is also sometimes termed Compass Plant from the manner in which the vertical leaves tend to twist round the stem and become grouped so as point in two directions instead of radiating in all directions. Such a position of the leaves as we find in the Prickly Lettuce, while it is rare among our eastern plants, is not uncommon among the plants of the western plains, and is considered as an adaptation to the intense sunlight which occurs in such regions, since when held thus vertically the surface of the leaf does not receive the full strength of the sunlight. Such leaves are termed "isophotic" or "equally illuminated" and when we examine sections of them under the microscope we find that their internal structure corresponds to their habit of growth. In the case of leaves which are borne in the usual horizontal position we find a layer of elongated chlorophyll cells (known as the palisade layer) just beneath the upper epidermis, and a looser layer of chlorophyll cells (known as the mesophyll or spongy tissue,) occupying the rest of the leaf from below the palisade layer to the lower epidermis, (See Fig. 1). In the case of the leaf of the Prickly Lettuce we find that all the cells are of one kind, there being no differentiation into two distinct layers. If the plant from which our section was taken grew in an open place, exposed to the full light of the sun we find that all the cells of the leaf are palisade cells, (See Fig. 2), while if the plant from which we have taken our sections grew in the shade we find that all the cells are ordinary, rounded cells, such as make up the spongy tissue of most leaves, (See Fig. 3). From our little study of the sections of leaves of the Prickly Lettuce we see that there is a definite relationship between the amount of light incident upon a leaf and the development of palisade tissue, and when we consider that the chloroplasts, (the little bodies in the cells of leaves which contain the chlorophyll), and which are thus the vital factors in the work the leaf does in the manufacturing of food from the raw materials of the soil and air) are arranged close to the walls of the leaf-cells we can see that in an elongated cell, such as a palisade cell, the chloroplasts are much better protected from the too intense light than they are in rounded cells of the spongy type.

The Prickly Lettuce in the East attains a height of from three to five feet, while in British Columbia it reaches a height of eight feet. The flower-heads are pale yellow, about half an inch across and only a few open at a time. They are borne on a wide-spreading panicle. The seed of the Prickly Lettuce is about one-eighth of an inch long, of a dark greenish-gray, and in shape resembles the seed of the garden lettuce. In fields ordinary methods of cultivation will eliminate the Prickly Lettuce, and in waste places it should be kept closely cut, so as to prevent it from seeding, when it will disappear in two years.

## THE HORSE.

### Favors the Farm Chunk.

EDITOR "THE FARMER'S ADVOCATE":

From time to time I have noticed articles in "The Farmer's Advocate" dealing with the best type of horses for the farmer. I note that you favor the heavier type of drafter, and while admitting that there are arguments in favor of such, for my own work I prefer a lighter animal, say of 1,300 or 1,400 pounds weight, or sometimes lighter, which requires less feed, is not as hard to handle, and can be used to better advantage where any road work or teaming is to be done. I find that these lighter horses will do almost, if not quite, as much actual work at most of the jobs on the farm, and it does not cost as much to feed them. They are a handier type of animal than the 1,600 or 1,800-pound drafter, and I find that, provided I can get the quality, colts from such mares are in fairly good demand. Of course, the transportation companies in the larger cities pay a premium for a heavier horse, but there is always a demand from farmers for farm chunks which can take their place on the plow, harrow, cultivator, drill or on the light or heavy wagon with light or heavy loads for road purposes. It is because of economy in feeding and for their excellence as a sort of heavy general-purpose horse that I like this lighter animal for the farm.

Middlesex Co., Ont.

MIDDLESEX FARMER.

### Breeding and Docking.

1. I saw a few months ago in "The Farmer's Advocate" where a very fine Hackney stallion was mentioned, you said although he was recorded in the Hackney Stud Book he did not have any Hackney blood in him. Now how could he be recorded?

2. How old should a colt be when docked?
3. What is the best method of docking?
4. Is there any danger if cut with a knife or axe?

H. M.

Ans.—1. No doubt our correspondent refers to the report of the London Hackney show published in our issue of April 12. At that show a special class was put on for stallions suitable for breeding army and artillery horses. The winner was a big grey called Findon Grey Shales, really a Norfolk Trotter but registered in the Hackney Stud Book of England. Our correspondent did not say that he had no Hackney blood, but that he "has not a drop of modern Hackney blood in his veins."

2, 3 and 4. Docking may be done any time after the colt becomes strong and healthy, usually it is well to leave the youngster until at least two months old. As a general thing spring colts are docked in the fall about

knife or severed with a chisel or other tool. The stub is then seared with a red hot iron to prevent bleeding. Here again a special iron is used but it may be done with a firing iron or soldering iron. This completes the operation, the twitch can be removed and the cord untied from the tail. As a rule no further treatment is required. An axe would be a rather crude instrument. If you choose to do the work yourself use a large knife or sharp chisel.

### Boost the Colt's Growth.

It is advisable to keep the colt growing fast the first year. Many farm mares will be called upon to do third-horse work on the binder or to provide power for breaking up land for fall wheat, and to do other fall cultivation. The hot weather of late July and of August and September parches pasture. Feed is not as plentiful as earlier in the season. The mare's supply of milk will be falling off. Under such circumstances it is wise to begin feeding the colt. A few rolled oats from a box to which the mare cannot get will help immensely, and where the mare is worked the colt can be very easily taught to eat these. Try him with a few from the hand to begin with. Once he has a taste very little difficulty will be found in getting him to take a regular allowance from his feed box. Also remember that he should not be turned with his mother when she first comes from the field in a very warm or overheated condition. If extra rapid growth is desired and condition for showing, add a little oil-cake meal to the rolled oats in the colt's feed box. At any rate do not allow him to go back during the late summer and fall for want of a little extra feed.

## LIVE STOCK.

### Why Well-Stocked Farms are Most Productive.

"When our soils still retained more of their virgin fertility than they do to-day farmers were not so particular about the disposition of stable manure. It was left under the eaves of the barn, where rainwater from the roof would fall upon it and carry away the most valuable parts, or it would be left on a hillside down which the soluble ingredients would escape to the creek and river. In addition to the soil fertility carted from the farm in the form of grain, it was allowed to leach away from the manure pile while the prodigal farmer exhibited or experienced no feelings of guilt. While this folly is still in evidence in some instances, the importance of conserving soil fertility has been impressed upon the agriculturists of this country and they are now

making progress in the retention and conservation of all plant food. The war and the consequent difficulty of procuring commercial fertilizers, particularly potash, has demonstrated the fact that wonderful possibilities have been allowed to lie dormant and unexploited which a proper management of the farm would have rendered productive of much sustenance to the hungry acres. Ashes have been wasted, the growth of clover in short rotations has not received the attention it should, but most of all farm manure has been carelessly handled and farms have not been sufficiently stocked. More live stock means bigger crops, and bigger crops will feed more live stock. The last three seasons which have been unfavorable over the greater part of Old Ontario and exceedingly abnormal in some districts have taught a lesson and taught it well. From one end of the country to the other one thing has been outstanding, namely, that farms well-stocked and well-manured have stood the test far better than the lean, hungry holdings. Several farms where steers are annually fattened in winter came under the writer's observation last year. It was remarkable how well the



Taking the Implements to the Shed after the Day's Work.

weaning time, but the operation may be performed at any age. We have seen many yearlings, two-year-olds and even older animals docked.

While an amateur is allowed to operate and often does very well it is generally advisable to employ a veterinarian, as he understands the operation thoroughly and has the proper instruments. The animal is likely to suffer much less at the hands of a competent veterinarian than if the operation is performed by one unfamiliar with the practice and who uses improvised instruments. The usual method of operation is as follows: The hair is parted at the seat of section, and a cord tied tightly above it to prevent bleeding. A twitch is applied to the horse's upper lip and the tail is severed with a dock knife, but the tail may be disjointed with an ordinary

crops looked and how well the grain turned out. This we know, that some of those farmers put off more product, or value at least, this last spring in the form of cattle and hogs than ever before. They reaped, in good money, the reward of a sane policy while others were suffering disappointment as a result of no policy. The extraordinary value of manure in farming lies in the fact that heavy soils are made more open and workable by having manure incorporated with them, while light soils become more retentive of moisture and drought-resistant when manure is added. Then, too, the addition of available plant food in a very important factor in the production of farm crops. In addition to all this manure carries to the soil germ life, the activities of which render plant