

whence, in turn, fresh hordes are borne to the east.

"They have never come much east of the Missouri River, and I think the Mississippi will be found to be their extreme limit eastward. This was the conclusion Professor Riley came to, so that we need never fear them in Ontario. The insect devours in all its stages."

We have, however, often a very disagreeable experience of the presence of the near relative of the locust, the red-legged grasshopper (*Caloptenus femur-rubrum*), its powers for mischief being limited, and only limited, by its incapacity for flying more than a few yards at a time. As a matter of fact, this insect is a locust and not a grasshopper at all. (See Fig. 12.)

"The grasshopper, properly so-called," says Mr. Bethune, "is a grayish-green insect that feeds upon grass and foliage, and is never sufficiently numerous to do much damage."

Mr. Brodie, in his evidence, refers to the great injury done by these insects to crops in the County of York some twenty or twenty-five years ago. Since that date the loss sustained by them in that district has been considerable. They were, some seven or eight years ago, so numerous in some parts of Muskoka as to inflict much suffering and inconvenience on new settlers, and the evidence taken by the Commissioners in that district shows they are still in places exceedingly troublesome. In the County of Lanark they have more recently done much mischief. Mr. James Donald, in his evidence, says on this point:—

"In our district the grasshoppers attacked the crops severely about four or five years ago. They had been numerous the year before, but did not hurt the grain crops. Four years ago they ate up everything but peas. They even ate the corn in the ear and the potato vines. The next year they were as bad. That induced people to raise rye, which got ahead of their ravages."

"The wet season at harvest time in the next year diminished them. Since then they have continued to decrease in numbers. They still do harm in the pastures. The years they were most troublesome were very dry years. The plentiful supply of grass crops is always a protection in the grain against their attacks."

"Of twenty-four acres of hay that should have given one and a half tons to the acre I did not get a load; and of eleven acres of oats I had none to thresh out. This was in the worst year—I think 1877. The spring wheat was also destroyed. Their ravages extended over the whole country, less or more, except in some of the good farm lands."

Other witnesses from that section of country fully confirm Mr. Donald's description. The grasshopper's favourite breeding grounds are old pasture lands and meadows with a light dry soil. To the parasitical enemies of this insect we have to look almost exclusively for its destruction.

The Cicada, often spoken of as a locust, "known by the peculiar shrill whizzing sound which it makes in the trees during the heat of the day," is hardly to be termed destructive in its habits. The seventeen-year and thirteen-year locusts of the United States are members of the Cicada family. The seventeen-year locust is represented in our illustrations. (See Fig. 13.)

SENSIBLE WORDS ABOUT CLOVER.

A correspondent of the *Country Gentleman* says:—

"Some people, rather than buy clover seed, will do without. This is all wrong. If I had a field to sow, I would pay \$20 per bushel for seed rather than not sow it, unless I had an abundance of grass and pasturage without it, and it could be re-seeded to grain without material injury. As good an investment as I ever made was when I paid \$18.50 for 50 pounds of clover

seed. I sowed it on eight acres of ground, and the next season cut a good crop of clover hay off it, and sold ten bushels of seed the same season for \$100. Another time I paid \$15 for 90 pounds of seed, and the next season, in addition to the crop of clover hay, had 80 bushels of seed, which I sold for nearly \$200. It is hard to put a proper estimate on the benefit that may be derived from sowing a bushel of clover seed, or the loss sustained by neglecting to sow it."

Another correspondent of the same paper says:—

"There is every prospect of a good catch of clover seed this spring, the frequent rains and absence of frost the past ten days starting the seed finely. More seed per acre will be sown this year than usual, partly because farmers are learning that it is better to sow enough to cover the ground and prevent weeds, and also because clover seed is unusually, and to me unexpectedly, cheap. The very best and cleanest—and none other should be sown—can now be bought at \$5.50 to \$6 per bushel from the seed stores. At these prices, if a farmer cannot afford a peck per acre, he should sell some land until he can."

KEEP THE TOOLS FROM RUST.

The simple preparation employed by Professor Olmstead, of Yale College, for the preservation of scientific apparatus, and which he long ago published for the general good, declining to have it patented, is made by the slow melting together of six or eight parts of lard to one of resin, stirring till cool. This remains semi-fluid, always ready for use, the resin preventing rancidity and supplying an air-tight film. Rubbed on a bright surface ever so thinly, it protects and preserves the polish effectually, and it can be wiped off nearly clean, if ever desired, as from a knife-blade; or it may be thinned with coal oil or benzine. A writer in *Forest and Streams* says that if oxidation has begun, no matter in how slight a degree, it will go on under a coating; it is therefore essential that the steel surface be both bright and dry when filmed over.—*Western Farmer*.

TREATMENT OF BONES.

Bones accumulate on every farm, and a hunt for them will bring out many more than one would expect to find. When properly treated, they furnish very valuable food for growing plants. Whole bones, as they are thrown out from the kitchen, are so slowly decomposed, that they are of little use, unless applied very largely. They need to be broken up or made fine in some way, that the large amount of phosphoric acid, etc., contained in them may be available. It is not practicable for ordinary farmers to have bone mills, and the next best thing is to break them up somewhat with an axe or heavy hammer, and mix them with unleached ashes, keeping the heap moist enough so the alkali will "eat" them, and render the bones soft. The bones thus treated will crumble to fine pieces when dried, and are then ready to be spread upon the land. Every farmer should see that all bones are made into a valuable home-made fertilizer.—*American Agriculturist for May*.

WHAT WAS RAISED ON AN ACRE.

A farmer living in Maine makes a statement of what he had raised last year on an acre of land—almost enough, we should think, to support a family. He planted one-third of his acre in corn, and he usually produced thirty bushels of good corn. This quantity was sufficient for his family use and for fattening two or three large hogs. From the same ground on which the corn stood he raised two or three hundred pumpkins, and an

ample supply of beans. From a bed of six rods square he usually obtained sixty bushels of onions; these he sold for one dollar a bushel, which amount purchased his flour for one year. Thus, from one-third of an acre and an onion bed he obtained his breadstuffs and two or three hundred pounds of pork. The remainder of the ground was appropriated to all kinds of vegetables, for both summer and winter use. He also had a flower garden, raspberries, currants, gooseberries, in great abundance, and also a few choice apple, plum, pear, peach, and quince trees.—*N. E. Homestead*.

CARE OF PASTURES.

A good permanent pasture, handy to the barnyard, is very convenient, almost a necessity, on every well-regulated farm. Such a field needs to be well fertilized and cared for, that it may give the best returns in an abundant supply of green food for farm stock. A top-dressing of fine well-rotted manure in winter is excellent, but if not done, a dressing of 50 to 100 pounds of nitrate of soda per acre may be applied. It is best to sow this just before a shower, that the rain may carry this very soluble food to the roots of the plants. After supplying the necessary fertilizers, it is important not to overstock the pasture. Let the adjustment between the number of animals and the capacity of the field be such that there may be good feeding throughout the whole season. If such a pasture has a natural spring, its value is much increased. Next to this is a well, provided with a windmill, for raising an abundant supply of water.—*American Agriculturist for May*.

CLOVER HERESY.

Pres. Elmira Farmers' Club: "If I wanted to use clover to enrich land, I should pasture up to the 20th of June, or thereabout, and then plough in. While I say pasture, I do not mean that I would allow the crop to be closely grazed. On the contrary, I would graze it to such an extent as farmers call 'half pasturing.' The effect is to strengthen the roots, and to leave, also, all the substance on the ground in the form of manure for the enrichment of the soil. In fact, it is complete utilization of the clover crop. I believe this is better than to plough in the full growth."

The facts are against you, Mr. President. There is more nitrogen in the mature crowns, roots, and dead leaves of the clover plant, at the end of the season, even after two crops—one of hay and another of seed—have been taken off, than there is at the period you propose to plough the green growth under. So far from your plan being a "complete utilization of the clover crop," it is a very in-complete one.

Our advice to farmers will bear repeating: "Don't sell your land at a decreased valuation because you want to go to some western Eldorado." You will make more money where you are if you own the land. Farm lands in this Province were not inflated in price before the fever, and there is no reason why a reaction should not set in and restore the values after this wild western craze is over.

Potatoes imported from Glasgow are now selling in Rochester, says the *Democrat*. The fact is significant. It shows conclusively the terrible effects of the drought last summer. The experience was that early potatoes succeeded best. It will be safe to plant early potatoes again in sufficient quantities. From the Scotch importation good seed potatoes may perhaps be secured. A potato of sufficient value to export is probably a good one.