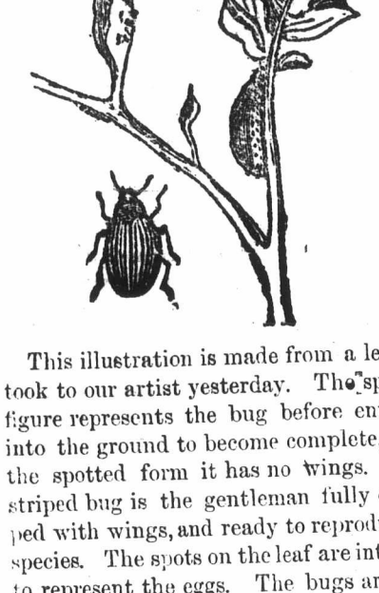
The Colorado Potato Bug.

An Ounce of Prevention is worth a Pound of Cure.

FOREWARNED FOREARMED.



This illustration is made from a leaf we took to our artist yesterday. The spotted figure represents the bug before entering into the ground to become complete, as in the spotted form it has no wings. The striped bug is the gentleman fully equipped with wings, and ready to reproduce its species. The spots on the leaf are intended to represent the eggs. The bugs are very round on the back, rounder even than they appear in the engraving. We hope fuller descriptions will appear, but at this early stage of the pests ravages among us little is as yet known about them, or at least far less than we ought to know.

Farmers, we have now in our country an invading army of destroyers, a thousand times worse than the Fenians, worse even than a war between Canada and any other country, it may be more expensive and more destructive. The destruction caused by a war is confined comparatively to a locality —though other sections of the country may be called on to find men and money. But this invading destroyer will sweep our country, and the most injurious effects will follow. One-fifth of our food will be taken from us, and that fifth is the kind that the poor farmer, the poor mechanic, and the poor settler most depend on. The loss will not affect the rich, but tend to increase their wealth, but the poor farmer, with his large family of children, who depends on the potato as a main support, will be sadly tried. The poor widow and orphan will be oppressed, many young couples will postpone matrimony, and thousands of poor inhabitants will be deprived of the necessaries and comforts of home. The devastating insect is so firmly lodged in our midst that no terrestrial power known can stay its progress. But we may, by close watching and industry, destroy the advancing enemy and keep them in check for a time, and save some of our crops that would otherwise be totally destroyed. The loss in some sections will be considerable this year; it may be greatly reduced by timely attention, and our labors be lessened for another year, by destroying the few advancing bugs as soon as found, to prevent their rapid increase.

ORIGIN.

These insects was first seen in the Rocky Mountains, and gradually spread themselves eastward, over all the states between Canada and the Rocky Mountains. They appear to increase in numbers and destructiveness as they advance eastward. They do not appear to travel to the west. Even in this city there is a remarkable instance.

West.			East.
1	2	3	4

Thus, No. 1 garden to the west has not had a bug on it; No. 2 had a few bugs; No. 3 a vacant lot; No. 4 a potato patch. They were first seen on No. 2. No. 2 has neglected his patch and allowed them to breed; No. 4 has watched his closely, and picked off every bug as soon as seen, and they continually reappear, no doubt from No. 2; No. 1 has closely watched his potatoes, and never found a bug, although only separated by the fence from No. 2.

The larva is deposited on the under side of the leaf, and is of a yellow color; they remain there about a week; as they mature they begin to draw from the plant and crawl along the leaf, emerge from their covering and become a dirty brown. They appear to change their coat again and turn to a dirty yellow; in this form they have two rows of black spots on their sides, increase in brightness until they gain nearly full growth; in this state they have no wings, but descend into the earth for another change, and come out again clothed with wings, having ten black stripes, alternated with as many of a yellowish cast.

There appears to be no end to their voracious appetite. They eat night and day, and in all stages; neither sun or frost seems to trouble them, as they can lay embedded in the ground, and emerge on suitable occasions.

We have not been able to devote as much attention to them as we would wish, but have experimented on numerous modes of destruction, and find nothing equal to the finger and thumb for destroying the larva. It is quite soft, and a slight pressure destroys it, and saves the leaves of the plant. We think it better than gathering the leaves. Some believe the bugs to be poisonous, but we are alive still, and our hand is in no way swollen, and we have killed the bugs and larva with our hand by the thousand. But we think they might be injurious if the flesh on the hand was scratched or sore.

PARIS GREEN

Is a rank poison, composed principally of arsenic. We applied it first in an unadulterated state, but found that it destroyed the vines. Care must be taken in using it. No animal or child should be allowed near it, and you should avoid inhaling the fumes or dust. The best way to apply it is to get a tin box made like a flour box used for cooking. Have a socket handle soldered on it at an angle of 45 degrees, then put in a woodeu handle so that you can keep the dust away from the operator. We applied it in the morning when the dew was on, and at night any quantity of dead bugs could be picked up.

Do you want to save your potatoes? If so you must attend to them immediately. The second crop of bugs will be nearly a thousand to one; the third crop you may estimate bythe car load—you cannot count them. The early potatoes may be saved, and the late ones may be destroyed, even as far east as this, unless a great deal of care and labor is expended.

To our readers east and north we say, look out for the enemy and attack the first one. We expect you will have the advance guard of them in Montreal this year —and most probably they will reach Europe in a year or two more. They fly, and attach themselves to anything. Their standard is—to the East! to the East! and they appear not to be satisfied with a share, they claim the whole potato crop, and will have it too unless they are vigorously attacked. Some say that ducks will destroy them, but we have not tried the remedy.

Last year we spoke of the approaching pest, and raised a warning voice. We had a suggestion to offer, to attempt to repel them, but they will be worse than we then anticipated. We have not gone into the elaborate display of latin terms, species, habits, &c., as Entomologists will do, nor are we as well informed as we should be, having so many things to attend to that we can scarce find time to pen this article, and even after it is penned the printing and postage must be paid from our own pocket. We hope that among the thousands that now take our paper some will be benefited sufficient to induce them to aid our circulation, and enable us to continue our researches, and to improve and test sends to a greater extent.

The following article relative to the potato bug is copied from the Ohio State Journal:—

The proper name of the bug is *Doryphora deceno-lineata*, or ten lined spearman. This beetle is about three-eighths of an inch long, oval-shaped, of a pale yellow color, and has five black stripes on each wing cover. It comes out of its winter quarters, in the ground, in May, or as soon as the potatoes have started, and soon commences to deposit its eggs, which are light yellow, in clusters of twenty or thirty on the under side of the leaves of the potato, to the amount of about seven hundred. These are hatched out into larvæ in six days, which immediately commence feeding upon the plant and attain their full growth in about two weeks; they then descend into the ground, where they pass into the pupa state, and come out again in the shape of perfect beetles in from ten to fifteen days. It will be thus seen that it only takes about fifty days from egg to egg, and the increase would be enormous during a season, if the eggs were not destroyed in some manner.

The Colorado potato bug started out on its devastating march from its native home in the canons of the Rocky Mountains in 1859, invaded Iowa and Northern Missouri in 1861, crossed the Mississippi in 1864, spread over Illinois and Wisconsin, and appeared about the center of Indiana in 1868. It thus appears that its progress towards the east has been about 60 miles a year. It is here now, —probably in every potato field in the county —and it is a matter of serious consideration how to guard against it.

Lime, plaster, brine, coal tar, and every known insect destroyer, has been tried, with but little it any success. Neither ducks, turkeys, geese nor chickens will touch the beetle or its larvæ. The only applications which have proved at all destructive have been Paris green and powdered hellebore, but these are dangerous remedies.

Probably the only practical way of guarding against, or lessening the danger of a total destruction of the crop, is to commence a war of extermination against the insect and its eggs on their very first appearance. When first their presence is discovered on the plants set men immediately to work to examine every plant, and pick off every bug and leaf having a cluster of eggs upon it, which should be thrown into tin buckets and afterwards destroyed. Where they have not got too much of a start, this labor is not so great as it would seem—one man being able to go over nearly an acre in a day. Whoever fails to take this or some other method of immediately destroying these pests before each insect has multiplied himself by seven hundred, will seriously regret his mistake before many weeks. Wherever a pair of the beetles is discovered, every leaf within a radius of several feet should be carefully examined for eggs.

After all, however, the only effectual check to the extraordinary increase attainable by the ten-lined spearman will be found in its natural cannibal and parasitic insect enemies.

One of the best informed agriculturists of Illinois has estimated the damages arising to the citizens of that State from the ravages of this bug, since its first appearance, at forty millions of dollars.

POISONED BY A POTATO BUG.

The Walworth County Independent, published at Elkhorn, Wis., gives an account of a farmer's daughter, living near that place, who while killing potato bugs was suddenly seized with a violent pain in her finger which soon extended to the arm, and her arm became swollen very rapidly. She went to the house and a physician was sent for. When he arrived, some two hours after, the arm was the color of mahogony, and was swollen to a fearful extent, the swelling extending to the shoulder. Prompt remedies were applied to relieve the poison, and the girl is now recovering. She had a slight sore on her finger and the poison was probably conveyed to the arm through it. It was a very dangerous type of poisoning, and people should be exceedingly careful how they come in contact with the potato bugs.

WILL IT PAY TO RAISE POTATOES.

This very important question should be discussed now, if ever, when the potato bug is against every man, and every man against the potato bug. Let us begin if you please by telling each his experience in the matter, and in the end we may hit upon the right solution of the query. This is the third year that I have abstained from planting a potato,—and, although the bugs are rapidly disappearing, they are still to be seen crawling about my garden in hated numbers.

All the anti-bug remedies in use were used, including picking, and that without effect.—The potatoes grown were the newest varieties introduced from year to year, my object in growing being to test them. The deduction I make from my own experience is—that in order to get rid of the bug by abstaining from planting the potato, not one year, but probably several years of such abstention may be necessary. That this can be done by our farmers with economy, is equally clear to me, since, if I am correctly informed, there is a large area of land in this state where the bugs are unknown, or their depredations but light, and from which the affected parts of the state could be supplied. This is just what took place last fall, and seems to indicate the future. Is it better to buy and eat potatoes from our neighbor, or to continue to plant them—to give them time, labor and money, and have none to eat?

With regard to the present remedy—Paris Green—those who use it should know that it is *loaded* with arsenic. I speak knowingly of the article sold under this name. This, says Prof. Daniells, "ought never to be put upon the soil."

The Professor's views upon the effects of arsenic upon the soil and upon the potato would be of great interest to the farming community. Will he please favor us?

Another question: Does any one know whether the potato bug has ever vacated the land he has once invaded? From all I can learn he marches not only to occupy but to hold.

JOSEPH HOBBINS.

—An article by Prof. Daniells, in this issue, gives his reasons for objecting to the use of Paris Green. We think Dr. Hobbins must be misinformed as to one point. We do not know of any considerable area in Wisconsin —where potatoes are grown—in which the Colorado beetle has not made its appearance. In some places it appears in greater numbers than in others. We are not sure that the advice given is not wise. Certainly it it better not to plant potatoes, than to plant them, give them considerable care, and then abandon them to the beetles. We would strongly impress upon any one who proposes abandoning his potatoes to the bugs, the duty of plowing them up, covering the vines—and so of tomato aud egg plants. No plant should be allowed to stand, serving no other purpose than to supply food for and increase the number of this great pest.—*Western Farmer.*

THE USE GF PARIS GREEN.

Paris Green is Scheele's Green (arsenite of copper) adulterated with barytes, gypsum, or carbonate of lime. Scheele's Green contains 29 per cent. of copper and 71 per rent. of arsenious acid—the white vitrious substance sold by druggists as arsenic. Paris Green then is a dangerous poison. It is insoluble in water, hence when put upon the land becomes as permanent an ingredient of the soil as if it were so much sand.

There is no evidence to show that plants ever take this substance into their circulation, and the laws of vegetable physiology would lead us to believe that if they do so at all it must be in the smallest quantities. Notwith-