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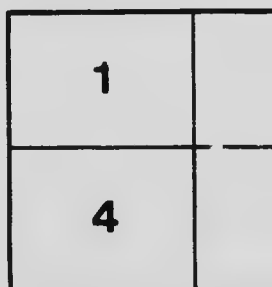
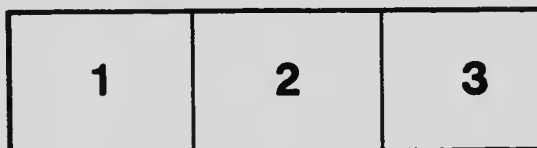
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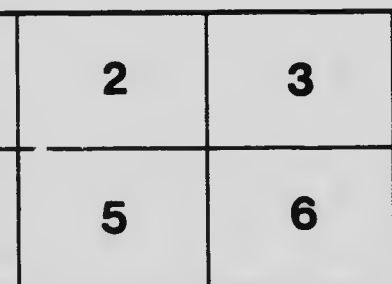
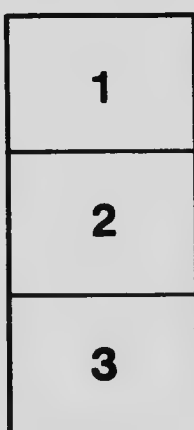
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Tree Pests and Cutworms

INSTITUTE BRANCH



ELM.

J

Most of our Elms are being Deformed by these Plant Lice

HORTICULTURAL DEPARTMENT

Manitoba Agricultural College

WINNIPEG, CANADA.

Published by authority of Hon. Valentine Winkler, Minister of Agriculture

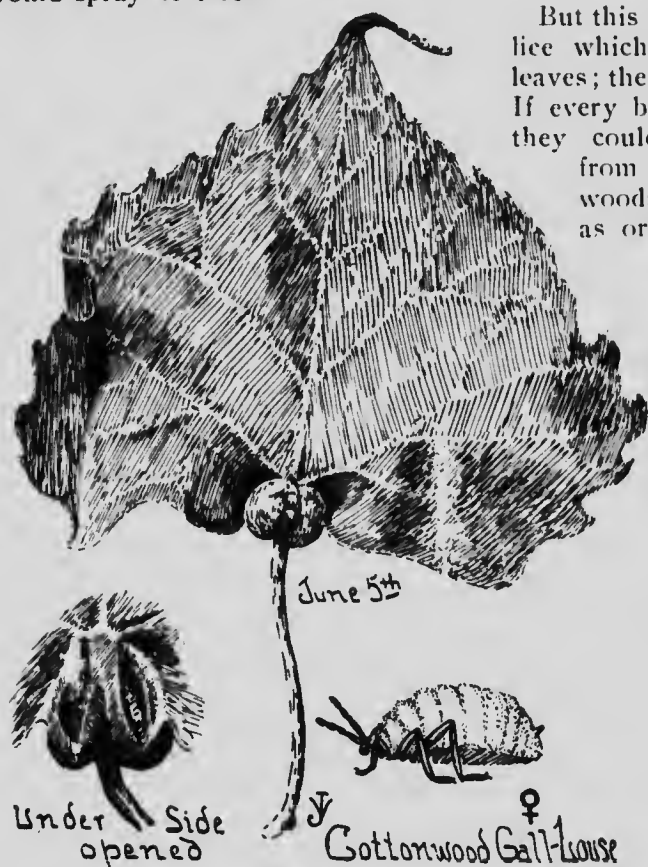
Protect Our Elms

Or they will be deformed or destroyed. Last year the elms of Deloraine, Boissevain and other pretty country towns were deformed by terminal leaf clusters rolling up like "hops." Inside was one crawling mass of mealy plant lice, protected from birds and sprays. Deloraine used the fire hose and Paris Green but it was in vain, for the plant lice are inside a ball of leaves, and as they suck the juices of the plant even Paris Green would not kill them if they were exposed. The only preventative is to spray with kerosene emulsion as the leaves are appearing, and afterwards pick off any leaves that are rolling up: usually just the leaves at the end of the branches form a ball that is easily picked off and destroyed. It is worth while: the elm is our prettiest tree.

Most of the elms of Winnipeg are badly affected with these mealy lice and leaf-eating worms this year. Every tree on Armstrong's Point and most of the avenues of elms inspected by Professors Brodrick and Jackson, were doubly affected. The abused English sparrow was everywhere feasting on the epidemic leaf eaters, and blackbirds had come in from the countryside to join in the feast, but there are worms to spare, and the city will have to guard its avenues with spraymotors, and assist its citizens to spray trees too large for hand pumps. It is the only insurance we can place on trees, and the premium is only a few cents per tree. Bordeaux and arsenate of lead mixture only costs 40 cents a barrel and would spray 40 trees.

But this would not kill the plant lice which are inside a ball of leaves; they have to be picked off. If every boy and girl knew this they could pluck this trouble from the elms and cottonwoods on a "TREE DAY," as organized in the States.

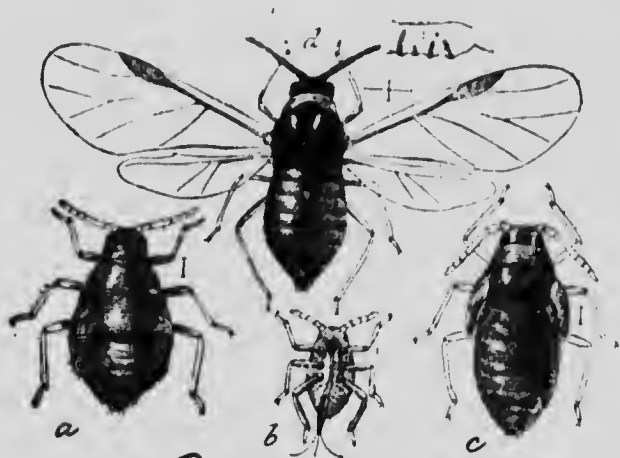
It is important knowledge and self-education, plus open-air and public service. Examine a leaf ball like the drawing on the outer page, and observe the hundreds of lice within. They are born in scores per day.



Cottonwood Leaf Gall

The leaves of the cottonwood are also affected by plant lice, but in a slightly different way. A

Some plant lice are green and smooth; some are mealy white; some black, etc., but they all work alike and can only be smothered by sticky emulsions.



Plant Lice

How to Poison Insect Pests

Spraying or poison treatment is Insurance—the only insurance for many trees and crops. It is the RED CROSS idea applied to the battle of nature.

Care and prevention is better than loss and regret.

Insects are the enemies of trees and crops.

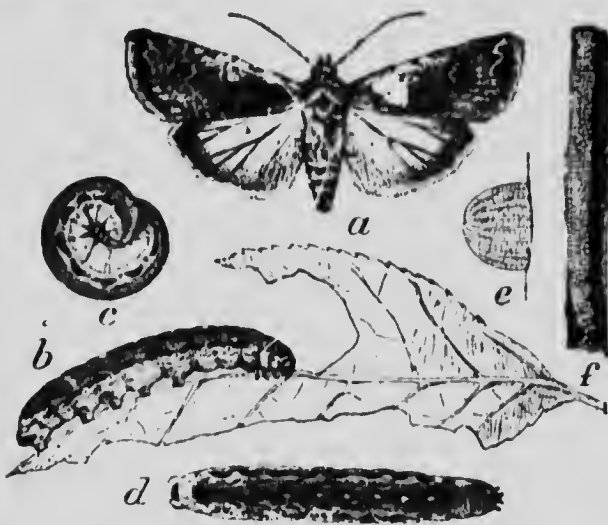
We cannot afford to watch the battle. We must assist the crop that feeds us.

The army worm must be checked, the cutworm defeated, the canker worm poisoned, and the leaf lice smothered or our trees and crops may fail.

For further information write to the Horticultural Department or the
Biology Department

MANITOBA AGRICULTURAL COLLEGE, WINNIPEG

cutworms completely destroyed the first. There are several kinds of cutworms, but they all alike. They all come from moths that lay eggs



CUTWORM

in the fall on grass, weeds and any green stuff after harvest, and therefore cutworms are worst where there is adjoining grass or waste land. Weeds and all green stuff should be kept down in the fall, and avoid grain crops after sod, unless it has been pastured close and late. Potatoes and root crops are a safeguard around the grain crops and after sod. Some plow a strip or furrow around the grain field, but the cutworms will cross it unless arrested by
POISON BAIT: 50

pounds of brai. mash, sweetened with 2 quarts of molasses, and poisoned with 1 pound of Paris Green, scattered in a furrow around the field or along the rows of corn or garden plants.

In British Columbia salt has been used successfully instead of molasses and just now would be much cheaper.

Plant Lice

Plant lice, so common on trees and plants, are little understood. They are born alive, day by day; hence all sizes, even the tiniest are not eggs but live lice, sucking the plant juices as mosquitoes suck blood. Therefore we cannot poison them with Paris Green, any more than we could poison mosquitoes by washing our hands with arsenic.

Some of the plant lice have wings, but only some of the males; the mothers of the countless thousands never have wings.

Eggs are only laid in the fall to keep the generation through the winter. From a single stem-mother in the spring, bearing scores alive, which again bear scores inside of two weeks, millions of plant lice come forth in a season. Being insects, they all mould as they grow and their empty shells may be seen on the leaves where they are working.

The leaves often become quite sticky where lice are. This is due to a sweet secretion they pinch out from two tubes on their back, and of which ants are very fond. In fact plant lice have been called THE COWS THE ANTS MILK, and ants may be seen stroking them with their feelers for the honey-dew they obtain by so milking. If one disturbs the lice, they think it is ants in a rage for milk, and they pinch out the honey-dew drop, and walk around with it, wondering why it is not taken from them. The two milk tubes on their backs afford a means of identification of plant lice, they being the only insects which have this peculiarity.



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mother louse fastens herself at the base of the midrib of the leaf, and the leaf tries to grow around the thief, and thus makes a swelling like red peas in May, which enlarges to the size of the thumb by fall. If you look at the underside of the leaf, and pry the gall open with the fingers, you will find a mother louse and her colony of young inside. They will kill the leaf and it will hang a dead lump on the tree all winter. These, like the elm leaf galls, must be picked off unless killed with kerosene emulsion before the lice cause the leaf to grow over them and thus protect them.

The Manitoba maple tree is badly infested with green plant lice this year, but they do not cause the leaves to curl up, and can therefore, be smothered with sticky emulsions.

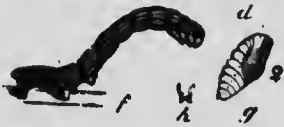
The larvae or young of the lady-bird beetles, a black bug with 3 yellow spots on its back, will be seen in plenty where the lice are, and may be observed eating them. They are beneficial, as all lady birds are, and should be protected. But plant lice are born in excess of lady-bird appetites, and that of birds, and we must assist in the control of this pest. Bird houses help; spray helps.



These eat Plant Lice

Cankerworms on Manitoba Maples, etc.

There are two kinds of canker worms destroying our native maples: the spring canker worm (green), and the fall canker worm (black striped). Both are worst in June, often working on the same tree; but the black one was most plentiful last year and denuded whole bluffs and wind-breaks of every leaf in the western part of the province. Two years ago at Fort Mound and many other places, birds fail to consume a plague of canker worms and we must assist in the control. We shall lose one of our best native trees.



Canker Worm

The worm turns to a small moth, the female having no wings, must crawl up the tree to lay her eggs, or else the worms hatched on fences, etc., must crawl up the tree. Therefore a tar or other sticky bandage put on the tree early enough (March or April) will catch them or prevent their crawling up the tree. Once on the leaves, a spray of Paris Green or other arsenic is the only remedy. Every town with maple avenues should have a town sprayer and spray private trees at a cost price of a few cents a tree.

Cutworms

Cutworms are going to be very bad this year; the winter has been good to them too. Many districts have had to make a second sowing; the

Manitoba Agricultural College

(Extension Service)

Any of the following Bulletins or Circulars may be obtained free on request from the Extension Department.

BULLETINS

- 1—Horses.
- 2—Twelve Noxious Weeds.
- 3—Care of Milk and Cream.
- 4—Protection of Farm Buildings from Lightning.
- 5—The Farm Garden.
- 6—Farm Poultry in Manitoba.
- 7—Hog Raising in Manitoba.
- 8—Cow Testing.
- 9—Repairing Farm Equipment and Roads.
- 10—Plans for Farm Buildings.
- 11—Canning and Preserving.
- 12—The Farm Flock.
- 13—Barn Ventilation.
- 14—Care of Cream for Creameries.
- 15—Boys' and Girls' Clubs.
- 16—Hay and Pasture Crops in Manitoba.

CIRCULARS

- 1—The Farmers' Beef Ring.
- 2—Some Facts About Sheep.
- 3—Manitoba's Hog Market.
- 4—Beef Cattle Situation.
- 5—A Few Dairy Facts.
- 6—A Plea for Bird Houses.
- 7—Our Friends, the Birds.
- 8—Hints on Home Nursing.
- 9—Practical Hints on Poultry.
- 10—Meat and its Substitutes.
- 11—What Every Girl Should Know.
- 12—Poison Ivy and Other Poisonous Plants.
- 13—Cream for Creameries.
- 14—Method in Dressmaking.
- 15—Fattening Chickens for Market.
- 16—Pork Making on the Farm.
- 17—Servants in the House.
- 18—Alfalfa in Manitoba.
- 19—Fodder Corn in Manitoba.
- 20—Alfalfa Inoculation.
- 21—Barley Growing.
- 22—Notes on Growing of Trees, Shrubs, etc.
- 23—Improving the Farm Egg.
- 24—Growing Plums in Manitoba.
- 25—Growing Cherries in Manitoba.
- 26—Control of Insect Pests.
- 27—Pruning Trees for a Cold Climate.
- 28—Spray Mixtures.
- 29—Tree Pests and Cutworms.



