

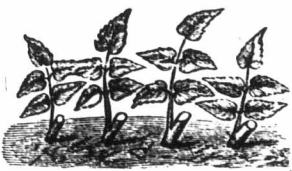
layers. These you should not kill, but use as breeders, as pullets from such hens will likely prove excellent layers, and so your flock will be improved. All your pullets that grow well and are sound and healthy should be kept for next season's layers. Cull closely as you would in any other live stock department of the farm, and keep nothing that does not yield a profit or that does not promise to yield one under proper management. This is one of the secrets of success.

The old geese should be kept over from year to year, as they do not grow less useful, while their table qualities deteriorate very much. It is said that they rarely die a natural death. Send your goslings, then, to market instead of the old geese. Experience has taught us that the Pekin duck at least lays more eggs the second year than the first. We consider ducks profitable for at least three years. Always keep the largest and best-shaped birds for your breeders, as size is of first importance in ducks. In turkeys, too, you should always keep the largest and strongest for your breeders.

GARDEN AND ORCHARD.

Roses from Cuttings.

The best time to start roses from cuttings is during the months of July and August, says a writer in *Park's Floral Magazine*. Make the cuttings with a sharp knife, allowing three eyes to each. Strip off the two lower leaves and insert the cutting in moist sand, leaving only the upper eye out, and



cutting off the tip of the leaf remaining. Keep the air and bright sun from the cuttings till roots form, then pot the plants and encourage growth. When the small pots are full of roots, bed the plants out and place a board frame around them, watering and shading till the plants become established. On the approach of winter, fill in the frame with evergreen boughs and cover with boards slanting north in such a manner as to turn off all rain and snow water, and see that the water drains off the bed. In late setting it is very important to have the soil well firmed to keep the frost from acting too severely upon the roots. Do not uncover till the Easter flowers are in bloom in the spring, as the alternate freezing and thawing of early spring often destroys the plants. After the first winter they will be entirely hardy without protection.

Hardy roses are often propagated by taking cuttings in October, making them six inches long and inserting in soil in a protected frame. In the spring they will be calloused, will soon form roots and begin to grow. They should be left where they are till the following spring, then set where they are to bloom.

Judging Fruit by Score Cards.

As reported in the *FARMER'S ADVOCATE*, at the last meeting of the Ontario Fruit Growers' Association a committee was appointed to revise and report upon the score cards for judging fruit which had been introduced by the Secretary, Mr. Woolverton. This committee consisted of Messrs. A. H. Pellet, Alex. McNeill, and T. H. Race. The two first named met with the Secretary at his office on Friday, July 24th, and decided to recommend the following score card for use in judging apples and pears:—

Points.	Value.
Color.....	
Size.....	
Quality.....	
Commercial value.....	
Total.....	

N. B.—Maximum of points for each plate, 10.

For judging grapes the following card was recommended:—

Points.	Value.
Color.....	
Size of bunch and berry.....	
Form of bunch.....	
Flavor.....	
Total.....	

N. B.—Maximum of points for each plate, 10.

In judging single plates, a half-dozen of the best plates could be selected by the eye and then the score cards filled for those securing the prize, to show the ground upon which the prize had been awarded.

In collections, the best collections could be first detected and then the score cards placed on each plate of these collections. The sum of points gained by all the plates in a collection would determine the relative merit of these collections, and, consequently, the ones deserving of the prize.

For commercial value and for quality the judge might consult the report of the Fruit Growers' Association, at least in case of any fruit concerning the value of which he was in doubt. As the *Canadian Horticulturist* urges, fruit growers should see that fair managers give these cards a good trial during the coming season.

ENTOMOLOGY.

The Tussock Moth

(*Orgyia leucostigma*).

BY J. HOYES PANTON, M. A.

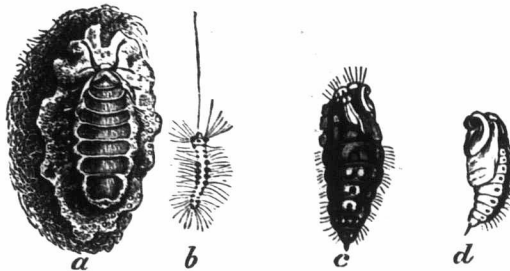
In a former communication to the *FARMER'S ADVOCATE*, the writer gave a description of the army worm, an insect that has commanded much attention during the past month. At the time of writing the article many had entered the pupa condition in our breeding cages, but no moths had appeared until the description had gone to press. Since then our first army worm moth has appeared (July 29th), fifteen days after the first pupa was seen.

Another insect which has come strikingly into notice during July is the tussock moth, and though not so widespread in its attack, has occupied considerable space in the daily papers.

Its ravages have been largely confined to the defoliation of shade trees in the City of Toronto, and hence, located at a place where our most important daily papers are published, it has received much notice.

The names army worm and tussock moth have been household words in the Province of Ontario during the month of July, 1896, and it is well that a description of these insects be widely known and made use of, should we have another invasion of these foes to plant life.

Although the tussock moth largely confined itself, in Toronto, to an attack upon the horse-chestnut trees, yet it is a destroyer of the foliage upon other trees. It has been found to do much injury to the apple and elm, and also to feed upon the plum, pear, maple, oak, walnut, butternut, locust, and spruce. Few, if any, trees are exempt from its attacks.



a.—Female (wingless) attached to cocoon.
b.—Young caterpillar suspended by silkenlike thread.
c.—The female chrysalis.
d.—The male chrysalis.

This insect is readily known in all its stages—egg, larva, pupa, and imago.

The eggs appear in masses (400-700) covered with a froth-like substance that dries and hardens upon them, and serves to protect them from injury by the weather (rain), predaceous insects, and even birds. This covering is very white, and renders the masses of eggs quite conspicuous at considerable distance from where they are deposited. These egg masses may be found on the trunks of the trees, in crevices of the bark, on the larger limbs, or in sheltered spots, such as fence boards, and on bunches of dead leaves hanging upon the tree.

In Toronto the trunks of the horse-chestnut trees attacked in some cases presented quite a spotted appearance from the innumerable white masses of eggs and cocoons attached to the bark. As soon as the eggs hatch, tiny caterpillars make their appearance (about June), and as development proceeds they pass through a series of moults (three—one a week). After the third moult the larva presents all the striking characters which make it so readily identified.

The head and two spots on the 9th and 10th segments are a bright red color; the back is black with yellow lines along the sides; the body is sparsely covered with long, pale yellow hairs, giving the caterpillar a yellowish appearance.

Four cream-colored dense tufts of hair form a row upon the back of the 4th, 5th, 6th and 7th segments; while from each side of the head a long black tuft extends forward, and another projects backward from the posterior end of the body.

The young caterpillars soon after hatching scatter over the tree, feeding upon the leaves; when disturbed they drop by a silken thread to the ground, wander about, many ascending the tree again.

Having reached full development, which occupies about six weeks, during which the caterpillars have attained about 1½ inches in length, they enter the pupa stage, which lasts less than two weeks. The cocoon of the male is whitish or yellowish, and very thin; while that of the female is much larger, of a gray color, and much firmer texture. The male chrysalis is brownish, and shows rudimentary wings; the female is much larger, and shows no wing sheaths.

The cocoons may be found in crevices of the bark on the trunk and larger limbs, or in any sheltered spots near where the caterpillars have been at work.

In about a week the moths appear. The male is winged, and measures about 1½ inches across the expanded wings; has feathery antennae, and very hairy front legs. The general color is ash gray;

the front wings are crossed by heavy bands of darker shade, with two black markings on the outer edge near the tip, and a white spot on the inner edge, also near the tip.

The female is wingless, of a pale gray color; short antennae, not feathered. She is scarcely able to walk. Soon after she emerges from the cocoon, she begins to lay her eggs upon the old cocoon, and covers them with a frothy substance; as soon as this is done her life work is at a close, and she drops exhausted and dies.

The winter is usually spent in the egg stage, when clusters of them are readily observed upon the trees.

In southern parts, where the first brood appears in June, a second is seen in September. Much depends on the season whether there will be one or two broods (a brood occupies about two months in completing its development).

Enemies and Remedies.—Few birds care to swallow this hairy caterpillar; the only ones that seem to take part in this good work are the robin, Baltimore oriole, and the yellow-billed cuckoo. Some bugs (*Prionidus*) occasionally attack them and suck their juices. A large number of parasites, both two-winged and four-winged flies, follow in their trail and do good work in checking their increase.

Several Ichneumonids (*Pimpla*) have appeared in our cages since the pupae (obtained while in Toronto) were put in for further development.

1. Spraying with Paris green (1 lb. to 150 to 200 gals. of water) will destroy the caterpillars feeding upon the leaves. If there is any fear of injuring the foliage, 1 lb. to 100 gals. of water, to which add 1 lb. quicklime, may be used.

2. Gather the eggs in winter, as they are very conspicuous at that time, and may be readily destroyed.

3. Bands of adhesive material may be painted around the trunk. These will prevent the caterpillars ascending into the tree.

This caterpillar, though capable of doing much injury, is not considered to be a difficult one to control. Had spraying been followed when they were first observed upon the trees in Toronto, they would never have gained such headway as they did.

The energetic measures taken to destroy the cocoons latterly I have no doubt will be followed by good results.

Fighting the Squash Beetle.

M. M. M., Middlesex Co., Ont., writes us as follows:—"Mrs. S. J. C. asks for a cure for the striped beetle. We were likely to lose all our squashes early in the season with the striped beetle. We dusted them well with wood ashes, and also the ground for quite a space around them. We repeated the dose every day or two for a short time, and they all disappeared. We had some squashes a distance from the house; went to see them one day, and found them nearly eaten up; gave them a good sprinkling of ashes, and they soon began to grow. There are some fine large squashes on now. For the large bug I know no remedy so sure as to go out and kill them every time you can spare a few minutes to do so. We had very few of the large ones this season."

[NOTE.—The small yellow, black-striped beetle (*Diabrotica vittata*) so commonly attacking cucumbers, squashes, etc., first referred to, is successfully treated also by applying liberal quantities of tobacco powder to the hills. In small kitchen gardens the plants may be protected by gauze netting supported by barrel hoops cut in two.

The squash bug (*Anasa tristis*), a rusty black, flattened, bad-ordered insect, is very familiar to gardeners. As "M. M. M." says, hand picking appears to be the most effective remedy, though kerosene emulsion will destroy the young. Placing pieces of boards among the plants is suggested, under which at night the bugs gather, when they may be easily destroyed.]

QUESTIONS AND ANSWERS.

[In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

Veterinary.

LUMPY JAW TREATMENT.

J. G.:—"I have a valuable young heifer just brought in from pasturing, with a large, hard, irregular-shaped lump under her jaws. The hair (about the size of two pennies) is worn off the lower point, and bloody matter discharges slightly. What is the trouble, and treatment?"

[No doubt you have a case of actinomycosis on hand. A cure will require patience, and the medicine must be regularly given and persisted in. Get a quantity of the medicine (below) made up in liquid form and pour on a little dry food regularly, commencing with two drams per day and gradually increasing till the appetite is affected. First give purgative of Epsom salts and then begin with a wineglassful of the following mixture, as directed, each day: Iodide of potassium, eight ounces; liquor calcis (limewater), two quarts (imp.). This will last about three weeks or a month, and you may look for a gradual disappearance of the lump. If the animal goes off feed, give purgative again and start afresh. I have just had great success