

vessel for two or three days, the specific gravity of milk "falls in a very remarkable manner." According to the *Journal*, milk, when kept for two or three days, often becomes actually lighter than water. This curious fact is somewhat difficult of credence, even with a loss of about 10 per cent. of solid matters. If correct, the great diminution in specific gravity can only be accounted for by some molecular changes in the milk, and perhaps by the evolution of gases. Some similar changes in density also occur when milk is shaken by transport. It is an important sanitary question, whether milk which has undergone such changes is safe food for men or animals? For young or delicate animals, as for babies, or for young calves, stale milk, or even milk which has been transported a distance of several miles, is often found to be injurious, producing readily acidity, and proving otherwise difficult of digestion. The shaking of any considerable journey appears so to change the relation of the constituents of the milk to each other that the curd does not afterwards properly separate from the whey, nor does the cream rise, as in fresh milk, to the surface. These changes are delayed when the milk, as is common in America, is rapidly cooled down so soon as it is drawn from the cow.

On "country versus town milk," Professor John Gamgee recently read an instructive paper before the association of the medical officers of health. He pointed out, on the authority of Dr. W. Taylor of Penrith, Dr. Bell of St. Andrews, and Dr. Ballard, that scarlet and typhoid fevers have been propagated by milk. Foreign diseases amongst dairy cows, and probably the contagious pleuro-pneumonia, have been a sad blow to town dairymen, who in their palmy days sometimes kept several hundred cows; one Mr. Biggs is mentioned who owned 999 cows. Three years was wont to be the average duration of a town dairy cow's life; of late years it has often fallen to as many months. Professor Gamgee remarks that so rife and serious has been disease in town dairy stocks, that a dairyman whose standing stock would never exceed fifty, has had during the year to buy a hundred cows. With such frequent changes, the risk of bringing into his stock fresh contagion is greatly increased. A good deal of meat from cows in various stages of disease finds its way, in spite of market inspection, into consumption. Various disorders in the human subject are thus apt to be engendered. Professor Gamgee discounts the keeping of cows in towns, where they occupy valuable space, absorb aerial food required by human beings, and even when well attended to give rise to various nuisances.—*North British Agriculturist*

The Ayrshire cattle are now attracting some attention in the Western States. Dairymen are looking to them for improving their stock for dairy purposes.

## Entomology.

### The White-Marked Tussock Caterpillar.

Mr. Wm. Simpson, of Amabel, Ont., writes as follows:—"I found a large number of the enclosed on my apple trees, always in sheltered positions on the branches late in the fall, in going around my orchard to-day, for the purpose of seeing if I had left any, I found a few, so I thought I would send you a sample. Are they injurious to the trees or fruit? If so, what is the best method of getting rid of them? I picked all I could see off my trees and burned them. By taking notice of this communication you will oblige my neighbours, as well as myself."

The specimens enclosed in the above note were two empty cocoons of the White-marked Tussock Caterpillar (*orgyia leucostigma*, Smith and Abbott). These caterpillars are destructive to the foliage of the trees, and consequently are injurious if they are allowed to become numerous. Our correspondent has already adopted the best and simplest mode of preventing them from committing any ravages in his orchard. The following account of the insect, taken from our recently published Report on Insects Affecting the Apple (*First Annual Report on the Noxious Insects of Ontario, by B. Thune, Smokers and Reel*, 1871, page 82), will probably afford Mr. Simpson and his neighbours all the information they desire.

"During the winter, when our apple trees ought to be destitute of leaves, we occasionally see a single leaf or cluster of leaves attached to a twig. If these are examined they will in almost all cases be found to contain an old grey cocoon, and the greater number to have a mass of eggs, covered with a white, glistening, froth-like substance, attached to them as well. These eggs, two or three hundred of which may be found upon a leaf at once, are the first stage of the White-marked Tussock Caterpillar, or as Dr. Fitch styles the insect, the American Vapourer Moth (*Orgyia leucostigma*, S. and A.). Each egg has a deep hollow on the top, giving it the appearance of a tiny opaque white bead. The caterpillars which come out of these eggs in the early part of summer—the end of May or beginning of June—are remarkably pretty creatures. When full grown they are over an inch long, of a bright yellow colour, with thin yellow hairs along the side of the body; the head is bright coral red, the next segment has two long pencils of black hairs projecting forwards; and the last segment but one, a single similar pencil pointing backwards; on the fourth and three following segments there are short thick brush like tufts of yellowish hairs; and on the ninth and tenth two little coral-red knobs or warts.

"These caterpillars feed singly on the leaves of apple, plum, and a large number of other trees; sometimes, when they are numerous,

doing a good deal of damage. When full fed they spin their thin silken cocoons on twigs of the trees which they frequent, or on fences; in the former case they draw down a leaf as a covering, and firmly attach it to their cocoon. The male cocoon is white, or yellowish, and so thin as to show the insect through it; but the female cocoon is twice as large and much more firmly constructed, and contains also a different shaped and much larger chrysalis. The insect remains about a fortnight in the chrysalis state, and then comes forth in the form of a moth. The male has broad ashen-grey wings, which expand about an inch and a quarter; the fore-wings have a few indistinct black lines across them, and a white crescent-shaped dot near the lower corner; the antennae are broadly and beautifully feathered, the tips of the plumes bending forward and approaching each other. The female, on the other hand, is extraordinarily different, and would never be suspected of laying claim to the title of moth; she has the merest rudiments of wings, which are not observable except on close inspection, and thin simple antennae; in fact she is more like an animated bag of eggs than anything else. Being unable to fly, she remains on her cocoon, where she is found by her mate, whose boastful ostentatious flight is the origin of the English name "Vapourer." After pairing, the female lays her eggs upon the cocoon, covers them with the curious frothy matter, which becomes hard and brittle and protects them from the weather, and then—her work accomplished—drops down and dies.

The best remedy for these insects, when sufficiently numerous to be troublesome, as they often are, is to go round the orchard during the winter, and take off all the cocoons that have eggs attached to them. They can be at once discovered by their attendant withered leaf. Those that have no egg masses on them should be left, Mr. Riley recommends, as they either contain the empty male chrysalis, which is harmless, or some friendly parasite. This work can be accomplished at the same time as the search for the egg bristles of the Tent-Caterpillars is carried on."

### Earth-Worms

T. H. P., Woodstock, Ont., wishes to know whether salt will destroy earth-worms in a lawn, and if so, what proportion per acre should be employed; or whether there is any remedy for these creatures.

These are enquiries that we feel rather unwilling to reply to, as we have always regarded the earth-worm as a good friend to the farmer and gardener, rather than a foe. It is certainly a most important and serviceable agent in loosening the soil and opening it for the air and water to penetrate; while, by throwing out its castings at the mouth of its burrow, it adds to the depth of the soil, and gradually covers tracts that are comparatively barren with a superficial layer of fine fertile mould. Mr. Darwin—no mean authority—gives an instance of its work in