

## The Tussock Moth in Orchards

Prof. W. Lochhead, Macdonald College

At the last meeting of the Ontario Fruit Growers' Association in Toronto several fruit growers made enquiries about the habits of the tussock moth which had made its appearance in considerable numbers in some orchards during the past season. While this pest usually confines its ravages to shade trees in towns and cities, occasionally it does considerable damage to the foliage and the young fruits of apple and pears. As far back as 1871, Rev. Dr. Bethune reported the tussock moth as a serious enemy to apple trees, attacking both the leaves and the fruit.

A recent bulletin from the New York Agricultural Experiment Station, Geneva, (Bulletin 312, "The Tussock Moth in Orchards," by W. J. Schoene) gives a clear account of the life history and habits of this insect for the benefit of the orchardists of New York, where it had done much damage in 1908.

The life-history of the tussock moth is already fairly well known. (See the diagram.) The winter is passed in the egg state; the eggs hatch in the latter half of May; the caterpillars continue feeding for about a month; the pupa state lasts about two weeks; and the moths emerge in the latter part of July and early August to mate, and the females deposit their eggs in masses of 100-500 on the empty cocoons in a white foam-like substance. These egg-masses are quite conspicuous objects, and hence can be readily collected and destroyed.

The caterpillars are beautiful creatures, being adorned with two long black pencils or hairs at head end and one at the tail end. Four tufts or tussocks of whitish hairs ornament the back on the fore part of the body. The head and two small tubercles on the back are bright red, while along the back runs a broad velvety stripe.

The male pupa is smaller than the female pupa; and the male moth has brown wings with delicate gray markings, while the female moth is wingless and gray.

There is but one brood a year in Canada, but farther south there may be two or even three broods.

Among the natural enemies of the tussock moth are some of our native birds which feed upon the caterpillars in the younger stages, and parasitic insects such as *Pimpla* and *Tachina*.

The best measures for the control of this insect are: 1. To collect and destroy the conspicuous frothy egg-masses that are to be found attached to leaves and rubbish, by scraping them with a hoe from the trunks and branches.

2. When egg-mass collecting has been neglected the young caterpillars can be destroyed by arsenical sprays. When the caterpillars are nearing maturity, it is necessary to increase the amount of arsenic.

3. Tussock caterpillars have a habit of migrating from the tree upon which they have been feeding to neighboring trees to

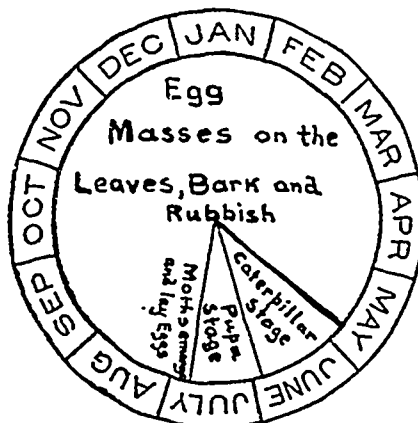


Diagram Showing Life Cycle of Tussock Moth

spin their cocoons. A band of cotton about the trunk, tied tightly about the middle so that it is loose above and below, acts as an efficient barrier.

most part clear of underbrush but scattered over with fir trees ranging from three to seven and eight inches at the butt. These trees, however, are very easily taken off the land and have been found to be more of an assistance than a disadvantage to the new settler.

As yet the fashionable prices are not obtained here as in West Kootenay but are within reach of all and the country is much more suitable for fruit growing than many districts more extensively advertised.

This difference in price is entirely due to the lack of good transportation facilities. It is 80 miles from the nearest railway station. This disadvantage has been the main reason for this district being so slow in coming to the front and becoming a popular fruit growing locality as no good markets for profitably disposing of the fruit were available to the grower. However, of late years so many have planted trees for their own use (in small numbers) and the ventures have proven so successful, that it has created an interest and desire for orchards that never before existed. The interest has become general and there are now a number of fairly large orchards bearing a firm and hardy fruit. Hundreds of trees are now being planted every year and it is only a question of a very few years before the Wilmer and Windermere district will be one of the very best apple, plum, cherry and small fruit growing districts in the province.

Realizing the future of this valley and the advantage of opening up a district so rich in mineral and agricultural as well as horticultural possibilities, the Kootenay Central Railway Company have obtained a charter for the construction of a railway from Golden, B. C., south to Cranbrook, B. C., and this road is now under course of construction. This line will open up the prairie and eastern markets to the rancher and fruit grower and thereby eliminate the greatest difficulty in the valley's endeavor to become one of the best fruit growing districts of British Columbia.

### Advice To Fruit Exporters

J.S. Lark, Canadian Trade Commissioner, Australia

A representative of an English Fruit firm has visited Australia and in speaking of the export of fruit he says:

"I would advise packers to place their fruit in cold stores for at least four days before it goes into the hold of a ship, in order that the fruit may give off the carbonic acid gas which is generated in it. Then, when the fruit is placed in the cold storage chamber on the boat, it does not generate anything like the gas of the first few days in the cold store on land. If the fruit is put straight in to the ship's hold, the carbonic acid gas eats into it, and when it arrives at its destination it is 'spent' and lifeless. Last year, Australian pears and apples did not come to hand in good order, chiefly owing to the intensely hot weather at the time the fruit was packed, and because the greater portion of it was not placed in cold storage for a few days before being shipped."

This advice is not new and is not unknown in Canada, and it is possible that the Canadian Department of Agriculture has tested it. If not, it might be well for shippers of fruit from British Columbia to Australia to follow it, as the fruit from British Columbia is shipped in fairly warm weather, warmer than when the fruit is shipped from the eastern provinces to Great Britain, and has to meet much severer weather conditions than the eastern fruit experiences. Anything that would tend to preserve the flavor of the fruit would certainly be financially advantageous to the shippers.

## The Columbia River Valley

Montford A. Kelly, Wilmer, British Columbia

THE continually increasing inclination among professional and business men of giving up their line of business in the large cities and towns and returning to some agricultural pursuit, has done much to stimulate the interesting and pleasant occupation of raising and growing of fruit. Many who would never have turned their minds and talents to these lines have been influenced by just such people to take up this class of work. Much benefit has been the result to the fruit growing industry as well as great profit to the grower himself.

At one time it was thought that certain parts of Ontario would never become good fruit growing districts but which have finally become the choicest and very best portions of that province for fruit to-day. This was also the verdict of most of the inhabitants of the Wilmer and Windermere district of the Columbia River Valley, in view of the fact that there were ranchers and neighbors, who had demonstrated the feasibility of this industry by successfully raising apples, plums, cherries and every variety of small fruits.

The Wilmer and Windermere district of British Columbia is at an elevation of 2,569 feet above sea level, with the wooded sides,

bald peaks of many varying colors of the Rocky Mountains on the one side and the magnificent Selkirk Range of mountains on the other. The valley ranges from three to seven and, in some places, as wide as eight miles in width and near the center of the valley runs the picturesque Columbia River.

The clear and invigorating mountain air makes the valley an enjoyable place for either summer or winter tourists. The temperature seldom drops to more than 15 degrees below zero and the snow rarely exceeds from five to six inches in depth.

Ranching has been carried on most successfully for more than 20 years and the occasions of real necessity of putting up hay for cattle during that time have been few and far between. Cattle as well as horses safely range the whole of the winter months and come through looking healthy and fit.

The autumn season is long enough to allow for a thorough ripening of the wood in fruit trees and the mild winters permit of grafts being left in the ground all winter so that they may be dug in the spring and transplanted in a fresh and healthy condition.

The land of this district is of a rolling nature and of park-like appearance, for the