

strong possibility, since there were minor indications of the appearance of disease in 1945. It is yet too early, however, to predict the trend of insect diseases and the future of this present outbreak of the hemlock looper.

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RESUME OF INFESTATIONS AND CONTROL OF THE COLORADO POTATO BEETLE IN BRITISH COLUMBIA, 1911-1946.

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The potato beetle (*Leptinotarsa decemlineata* (Say)) was first recorded in British Columbia in 1911 at Newgate on the International Boundary in the extreme south-eastern portion of the Province. It appears that this infestation originated from the adjoining State of Montana.

No systematic eradication or control measures were adopted when the pest was first observed and the area of infestation grew considerably year by year. In 1922 E. C. Hunt, District Horticulturist, Nelson, B.C., and J. W. Eastham, Provincial Plant Pathologist, made a survey of the Newgate country and recommended that help be given to the growers. The following year control measures were adopted to a limited degree.

In 1926 the Dominion Entomological Branch in co-operation with the Provincial Department of Agriculture undertook to investigate the extent of the potato beetle infestation and to work out a systematic control program. The district then infested consisted of two areas:

(1) The larger area extended from Newgate north to Fernie and north-west through Cranbrook to Premier Lake in the Kootenay-Columbia Valley.

(2) The smaller area extended from Rykert, B.C. on the International Boundary north to Creston and Wynndel.

It is believed that this infestation came to the Creston district, some sixty (airline) miles west of Newgate, from the State of Idaho to the south during 1923 or 1924.

The total area infested in the two districts amounted to approximately 665 square miles in which some 880 acres of potatoes were grown.

Supervised control measures were undertaken in 1927 and a total of 32,965 pounds of calcium arsenate 1-6 dust were used during the year. The late A. A. Dennys of the Dominion Division of Entomology was placed in charge. A reduction in the intensity of the infestation was noted. During the following year a spot infestation occurred 100 miles farther afield near Golden, B.C., in the upper Columbia Valley. This area was dusted thoroughly by Mr. Dennys and up until this year (1946) there has been no recurrence of the infestation.

In spite of improved and annual control, new infestations have occurred from time to time in isolated parts of southern British Columbia. In the early 1930's a spot in-

festation occurred in the Nelson area. Control work was undertaken by E. C. Hunt, the infestation was completely cleaned out and there has been no recurrence. During 1936 two infestations were reported at Grand Forks, B.C., on the International Boundary, and the pest spread considerably in 1937. The late M. H. Ruhmann, Provincial Entomologist, took charge of control in this area and after five years of thorough work the pest, so far as known, was completely eradicated.

In 1944 an area of infestation was found in the South Okanagan-Similkameen district just above the State of Washington. R. P. Murray of the British Columbia Horticultural staff, Penticton, carried out early control measures and a supervisor was appointed for control work in 1945 and 1946. A definite improvement in conditions has resulted.

The latest infestation in the Province occurred during 1946 in the Kootenay area between Trail and Nelson. Good control was obtained during the year and this area will be watched closely in 1947.

A check of a map will soon indicate that all infestations have originated close to the International Boundary. The neighboring states are known to be infested. It is not considered possible that the potato beetle will ever be eradicated from British Columbia, as frequent new infestations are almost certain to occur. There is every hope that the total area infested from year to

year will be held to a minimum and important potato growing areas may be free of this pest for years to come. In recent years there has been no economic loss of potatoes due to the potato beetle.

British Columbia is broken up by high mountain ranges and river valleys. These serve as ideal barriers against the spread of the beetle and break up agricultural land into isolated areas. This has made it possible definitely to eradicate the pest from some areas.

New insecticides have provided improved control throughout the years. Supervised control has been carried out at a relatively low yearly cost and undoubtedly has prevented a much larger area of the Province from becoming infested.

The overall area of infestation during 1946 was less than in 1926. During 1926 a total of 33,000 pounds of poison dust was used in the East Kootenay district alone compared with less than 10,000 pounds in 1946 for the entire Province.

It is possible to check the records of this work done by the British Columbia Department of Agriculture for the past twenty years and to realize that the farmers have been spared a large annual expense and possible crop loss. This was accomplished for less than \$5,000 yearly. If infestations had been ignored and the pest had become general the estimated annual control cost to the farmers would, by this time, have been well over \$100,000 annually.

CALIFORNIA TORTOISE-SHELL BUTTERFLY IN BRITISH COLUMBIA, in 1945. (LEPIDOPTERA).—The California Tortoise-shell, *Nymphalis californica* Bdv., ranges throughout the Rocky mountains from sea level in southern British Columbia to California where it is more of a mountain species.

The year 1945 has been a favourable one for this notably erratic species. It occurred in large numbers in various parts of the Province where in previous years it was scarcely noticed.

John Sowerby of Tata Creek, some twenty miles north of Cranbrook, reports that during the last thirty years he has never seen them in such large numbers. They were also observed by the writer swarming about damp places along the roadside in Manning Park, about the second week in August. In the vicinity of Victoria, Vancouver Island, they were more numerous than any other species of butterfly. From time to time during the season, similar reports have come in from other sections of the Province.

A wood-pile affords an excellent hibernaculum. Throughout the cold weather several specimens were found snugly tucked between blocks of wood. One was seen flying across a busy street in Victoria on January 5, while another was disporting about a wood-pile on the 17th.

The larvae usually feed on *Ceanothus*, but sometimes they resort to alfalfa, manzanita and other shrubs.—George A. Hardy, Provincial Museum, Victoria, B.C.

TROPIDISCHIA XANTHOSTOMA FROM TOFINO, B.C. (Orthoptera: Stenopelmatidae).—During December, 1945 I took a specimen of the cave cricket *Tropidischia xanthostoma* (Scudder) at Tofino on the West Coast of Vancouver Island. E. R. Buckell, who identified the insect, advises me that this is the first record from the West Coast of the Island, and that the specimen is immature. It was found in a subterranean wooden drain used to carry off rainwater from a house.—Richard Guppy, Wellington, B.C.