

AN OUTBREAK OF *AUTOGRAPHA CALIFORNICA* SPEYER AROUND KAMLOOPS, SUMMER 1934.

By G. J. Spencer

During the last week in May 1934, most of the alfalfa fields in the vicinity of Kamloops showed a large number of looping caterpillars feeding on sweet clover which grew in great profusion along all the irrigation ditches. Heads of this plant were stripped bare and eaten down to the firm stem. Wherever the sweet clover had been totally consumed, the tender heads of alfalfa were being attacked. By the 29th of May, it was easy to note numbers of heads of both clover and alfalfa, with the few remaining parts of leaves and stems tied together in lumps in which the caterpillars were starting to pupate.

At this time, alfalfa cutting became general and the entire neighborhood presented a totally different appearance, because from every direction caterpillars began moving out of the fields. This movement became more obvious during the afternoons, by which time considerable parts of the fields had been cut and the migration continued steadily into the sun. How long it kept on into the night I did not determine, but it was not apparent in the very early morning, starting up again only as soon as the sun became hot.

The caterpillars in question were those of the cutworm looper, *Autographa californica* Speyer, and showed considerable variation in colouring, young ones having black heads and sometimes black bodies while mature ones had dark green bodies and pale heads. At all stages of their development they were striped, a broad cream-coloured stripe down each side of the body and two thinner white ones down the mid-dorsal line.

Many of the farms in the immediate vicinity of Kamloops are truly mixed and as they are adjacent and in most cases so close that only a barbed wire fence separates them, it was not many hours before the swarms of caterpillars moving out of the recently-mown alfalfa fields, passed over fields and gardens of other crops and proceeded to eat or at least to chew everything in their stride. Vegetable gardens suffered severely in some places where lettuce, radishes, beans and beets in order of mention were in many cases chewed off down to the ground. While these four were virtually removed from the gardens, there was little that was not attacked at least to some extent. Even rhubarb was sometimes cut to shreds: this was especially noticeable in the extensive rhubarb beds of Tranquille Sanitarium.

Appeals for help came in from all directions but in view of the fact that the advancing hordes ate up gardens so quickly and that their

presence was not suspected until virtually thousands of caterpillars were already present, it was impossible to put up barriers of any kind and utterly useless to try spraying, even if hand sprayers had been available, which they were not. The only measure which presented itself and which I immediately urged all growers to adopt, was to divert irrigation water, which fortunately was available at the time, into emergency ditches dug around the gardens and fields which were being invaded and to save others in the path of the invasion. In a few cases it was possible to turn small flocks of chickens into truck gardens in order to minimise the loss. Where the loopers were not in tremendous abundance, these measures helped greatly. In other cases however, the sheer number of caterpillars blocked the streams of water and newer arrivals crossed the stream over the backs of their drowned fellows.

In most cases examined, the outbreak in any one location was all over in two days and nothing could be done about the damage because, of all plants attacked, beets alone were able to throw out new leaves. In all other cases the damage could not be remedied.

Apparently everywhere the loopers were heavily attacked by parasites of several families. Doubtless many predacious insects also feasted on them but this was not particularly observed beyond the attacks of a few ground beetles. Moreover, wherever the army of larvae passed from a newly-mown field to the heavy wild growth alongside the irrigation ditches or into other fields where water was still flowing—that is, wherever considerable humidity was added to the usual heat of the region,—disease attacked the caterpillars and destroyed enormous numbers of them. In effect, this disease resembled a polyhedral one more than a fungus disease, because infected larvae became swollen, black, flaccid and eventually liquefied so that their bodies virtually dripped in greasy black drops away from the shrivelled skins which remained attached to whatever twig or other support they happened to hang from.

Both Hymenopterous and Dipterous parasites attacked the loopers and a fair representation of both orders was reared from a few dozen caterpillars which were caged for observation. These have been identified for me through the courtesy of the Entomological Branch, Ottawa, and apparently present some interesting records of distribution. I am much indebted to Mr. Stuart Walley for naming and getting named my specimens. The majority have been sent to the National Museum; duplicates are in the Ent. Branch Lab. at Kamloops and at the University.

From one cocoon I reared no less than 41 individuals of **Macrocentrus amicroploides** Vier.; another yielded 42 specimens of **Apanteles** sp. near **xylinus** Say. From the emergence cage came a nice series of 3 males and 3 females of **Ephialtes (Itoplectis) atrocoxalis** Cresson of which Mr. Walley tells me that the male I sent for identification is the

second he has seen and the first recorded from this Province; it has been previously recorded as a parasite from this moth in Colorado. Two Tachinid species also were reared; *Voria ruralis* Meigen and *Lydella (Erycia) delecta* Curran. Of this second species, Dr. Curran, who named them, had no males so he retained the specimen sent to Ottawa, and our National collection has only the type.

While I have no recent records of the outbreaks of this looper cutworm in this Province, in looking over old records, I find one by J. W. Cockle, published in the Proceedings of our Society, No. 14, March 1919, which he mentions a swarm of the moths of this looper as emerging at the end of September around Kootenay Lake. He quotes from a previous article by Arthur Gibson entitled "The Alfalfa Looper" in which Gibson stated that the moth is apparently doubled-brooded, whereas he (Cockle) was of the opinion that it is only single-brooded, and that ones occurring earlier in the season have either hibernated or have been confused with another species. Certainly, records of capture at the coast and a long list of rearings I did in 1926, show that the moth may occur down here during several months of the summer and I am quite certain that those I reared in Kamloops this summer, which emerged after a pupal period of 15 days, had no intention of hibernating. Moreover, the swarm of adults from the outbreak of loopers passed within one week after they first became evident in numbers flying in the fields and though I beat thoroughly through alfalfa where they had been very numerous shortly before, all I got were a few battered specimens that were in no condition to hibernate. Therefore, I was of the opinion that the stage was set to see a recurrence or at least a modified one again in the autumn or late summer, but up to the time I left the area the first week in September, no such swarms had appeared and though I feel that the insect is indeed double-brooded, at least in the Kamloops area, I think that parasites and disease took such toll of the loopers in May and June, that the second brood was inconsequential.