

Larval development is similar to that of the forest tent caterpillar, *Malacosoma disstria* Hbn., and the earliest recorded cocooning date for both species in the Quesnel district is June 9.

The Cocoon

When cocoons of this variety were first collected at Aleza Lake in 1947, it was found that frequently two or more larvae had spun up together, uniting their efforts to form a single

cocoon. The pupae were in a single envelope with no silk separating them. In 1950, a high population overflowed from a bog near Hixon and spun up in the surrounding forest, thus affording an opportunity to gather additional information on the frequency of multiple cocoons. The tops of five lodgepole pine saplings were clipped off and the masses of cocoons on the branches and leaders were dissected and the number of pupae in each recorded (Table 1).

OCCURRENCE OF *LEPTOCONOPS KERTESZI* KIEFFER (DIPTERA: CERATOPONGONIDAE) IN BRITISH COLUMBIA¹

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At about noon on June 22, 1955, on a hot, dry, grassy slope along the Dog Creek — Gang Ranch cutoff in the southern Cariboo country, a horde of minute flies appeared, biting fiercely in the hair and ears of a party of entomologists. The attack was similar to that of no-see-ums (*Culicoides* spp.), but the latter usually bite at dusk and under conditions of shade and high humidity.

Specimens collected were identified by the writer as of *Leptoconops kerteszi* Kieffer. This species has an unusual distribution. The type locality is Cairo, Egypt, and specimens are recorded from elsewhere in Egypt and Tunisia, as well as from Cape Province in South Africa. On this continent they have been captured in Utah and California. Carter (1921), in his revision of the genus, stated that the Utah specimens had spherical spermathecae in contrast to the obovate form in the type, and tentatively named the variety *americanus* to accommodate them. However, the British

Columbia specimens have distinctly obovate spermathecae.

This occurrence constitutes the first biting record for the species in Canada, although Mr. J. A. Downes, Entomology Division, Ottawa, stated (in litt.) that adults of *Leptoconops* sp. have been captured in southern Manitoba and Saskatchewan, and at Churchill, Man. In view of this wide distribution, the lack of earlier biting records is remarkable. It is possible that attacks by *Leptoconops* spp. have been attributed to *Culicoides* spp.

Carter set the range limits of the genus as between Lats. 35°S. and 40°N., with records all the way from North Africa to Siam and Queensland in the Old World, and in the United States, Cuba, and Brazil in the New. Since then there have been two records from France (Roman, 1937; Huttel and Huttel, 1952), one from the far eastern U.S.S.R. (Gutsevitch, 1947), and one from Washington State (Bacon, 1955). These, together with the new Canadian records, show the genus to have a cosmopolitan rather than a holotropical distribution.

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BROCHOSOMES ON CERTAIN SPECIES OF INSECTS OF WESTERN NORTH AMERICA

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Some unusual sponge-like bodies of insect origin were noted and photographed by Cochran in 1948 while he was making electron-microscope examinations of leafhopper body fluids. Tulloch, Shapiro, and Cochran (1) published the first description of these bodies. Tulloch and Shapiro (2) named them brochosomes, extended the known geographic and species range of insects known to have brochosomes, and described what they considered to be developmental forms.

Brochosomes appear as hollow spheroids with perforated external surfaces, varying in diameter from 240 to 600 millimicrons. Apparently non-living, they may be found singly or joined together in large masses by what appear as single or double strands. The chemical composition and function of brochosomes are unknown.

In studies at the Utah State Agricultural College brochosomes were found on the external surfaces of several species of Western North American insects. The specimens were placed in drops of ten per cent alcohol, and gentle manipulation of external surfaces of the insects usually dislodged an abundance of brochosomes which were readily observed when portions of the drops were transferred with micropipettes to standard specimen screens covered with Formvar membranes.

Brochosomes were found on external surfaces of adults of the following species of leafhoppers: *Circulifer tenellus* (Baker), *Dikraneura absenta* DeL. and Cl., and *Macrosteles fascifrons* (Stal.). Specimens of *M. fascifrons* and *D. absenta* tested were collected in two widely separated areas, Logan, Utah, and Creston, British Columbia. All specimens of *C. tenellus* tested were collected in Logan, Utah.

An attempt was made to obtain samples of internal body fluids free

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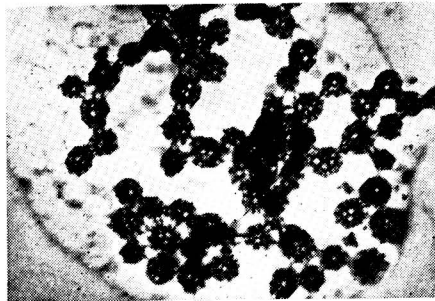


Fig. 1.—Unshadowed electron micrograph of brochosomes, approximately X8,000.