

diverging caudad in 5% of the winter moth larvae and parallel in 3% of the Bruce spanworm larvae examined. In this study the remains of 44 *Operophtera* larvae associated with *Phobocampe* cocoons were recovered. The arrangement of the ocellar pairs was parallel in 36 of the head capsules, slightly divergent caudad in 7 specimens and was

strongly divergent caudad in a single specimen. The proportion of *O. bruceata* represented in the recovered remains cannot be determined exactly because the character overlaps as described between the two *Operophtera* species. However, these data indicate that most of the *Phobocampe* sp. present used *O. brumata* as a host.

REFERENCES

- Eidt, D. C. and D. G. Embree. 1968. Distinguishing larvae and pupae of the winter moth, *Operophtera brumata*, and the Bruce spanworm, *O. bruceata* (Lepidoptera:Geometridae). *Can. Ent.* 100:536-539.
- Gillespie, D. R. and T. Finlayson. 1979. the function of the caudal appendage in cocoon jumping in *Phobocampe* sp. (Hymenoptera:Ichneumonidae:Campopleginae). *J. Entomol. Soc. Br. Columbia.* 76:39-42.
- Gillespie, D. R. and T. Finlayson. 1981. Final-instar larvae of native hymenopterous and dipterous parasites of *Operophtera* spp. (Lepidoptera:Geometridae) in British Columbia. *Can. Ent.* 113:45-55.

BOOK REVIEW

THE MOSQUITOES OF BRITISH COLUMBIA BY PETER BELTON

Handbook 41, British Columbia Provincial Museum. Victoria, B.C. 1983, p. 189

It is a pleasure to report a second volume on insects in this handbook series — a series which so far has had 18 volumes on plants (including fungi and algae), 15 on vertebrates, five on marine invertebrates and one on marine life. I hope more of the insect fauna will be treated before long.

The work should succeed admirably in its primary aims — to allow identification of mature larvae and females of the species of British Columbia, to outline their distribution within the province, and to provide a brief account of the biology of the group as a whole and of the individual species. The introductory sections are fully adequate; they cover the usual subjects of biology, history of mosquito study in the province, life zones, management (i.e., control), collection and preservation of the various stages, and anatomical terms. An unusual but interesting addition, by E. M. Belton, is "Mosquitoes in the Culture of the Northwest Coast Indians". A useful innovation consists of several blank pages; in this way the larval figures for each species except those of *Anopheles* face the description of the species. The drawings appear to be sufficient in number and detail to allow for ready identification of females and larvae.

Two omissions are unfortunate. One is lack of treatment of the males. The author is correct in saying they are less often encountered than females,

but half the specimens reared from larvae or pupae are males, and badly rubbed males can be much more reliably identified than can similar females. The author perhaps felt that the preparation of drawings of male terminalia was not worth the effort, but the drawings in Wood *et al.*, *The Mosquitoes of Canada*, to which users of this handbook are referred for identification of males, could almost certainly have been used.

The other regrettable omission is of distribution maps. The general distribution within the province is outlined for each species, but maps would have allowed the distributions to be much more quickly perceived, would have indicated which parts of the province are poorly surveyed, and would almost certainly have provided a greater incentive for further collecting. I think four maps to a page would have been possible; with non-overlapping species on one map, 10 pages of maps would probably have been adequate for the 46 species treated.

One surprising statement should not go unremarked: "This order (Diptera) has about 67 families". Williston's *Manual of Nearctic Diptera* (1908) recognized 60 families, Curran's *Manual* (1934) 83, the recent *Agricultural Canada Manual* (1981) 108, and some European authors recognize 120 or more. Not even the most enthusiastic lumper can make a reasonable case for only 67.

J. R. Vockeroth
March 8, 1984