

## KEY TO PUPARIA OF THE DIPTEROUS PARASITES OF MALACOSOMA SPP., IN BRITISH COLUMBIA<sup>1</sup>

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The following is an illustrated key to the puparia of dipterous parasites reared by the Forest Insect Survey at Vernon from *Malacosoma disstria* Hbn., *M. pluviale* (Dyar), and *M. sp. nr. pluviale* (Dyar), collected in British Columbia.

Grateful acknowledgment is given to J. H. McLeod of the Biological Control Unit, Division of Entomology, Vancouver, for the loan of puparia unrepresented or poorly represented in the Vernon reference collection, and to G. E. Shewell, Division of Entomology, Ottawa, for the identification of adults and criticism of the key.

The illustrations accompanying the key were drawn by B. A. Sugden.

Terminology in this and a published key (1952) is adapted from C. T. Greene's (1921) pioneering treatise on the puparia of North American Muscoids.

1. Posterior spiracles in a deep cavity, partially hidden from view.....2
- Posterior spiracles not in a cavity .....4
2. Opening of cavity circular or oval; rim, relatively smooth with a few "warts", may be lightly sculptured .....3
- Opening elliptical, the ellipse generally acute at both ends; rim strongly sculptured.....(**Fig. 1**)  
**Sarcophaga aldrichi** Park.
3. Rim about opening of cavity, rounded, the edge incurved; a few obscure "warts" on outer edge of rim (**Fig. 3**) **Pseudosarcophaga affinis** (Fall.)

- Rim somewhat flattened, edge not incurved, usually a portion extruded; "warts" on rim prominent (**Fig. 2**) **Sarcophaga houghi** Ald.
- 4. All stigmal slits strongly serpentine .....5
- Stigmal slits straight or only slightly curved (usually some of stigmal slits somewhat serpentine in **Patelloa pachypyga**) .....6
- 5. Stigmal plates strongly protruded; stigmal slits in three discrete groups; stigmal ridges broadly rounded; button shallow, may be obscure; no swelling ventrad to plates; pupal horns not extruded (**Fig. 4**)† **Carcelia malacosomae** Sell.
- Stigmal plates slightly raised; stigmal slits neither on ridges, nor in three discrete groups; button large, circular; small swelling ventrad to plates; pupal horns extruded ..... (**Fig. 5**) **Achaetoneura frenchii** (Will.)\*
- 6. A swelling (protuberance) ventrad to stigmal plates .....7
- No swelling ventrad to plates.....10
- 7. Posterior end of puparium slightly depressed above horizontal axis; stigmal plates at acute angle to longitudinal axis of puparium .....8
- Posterior end of puparium not depressed above horizontal axis; stigmal plates at right angle to longitudinal axis .....9
- 8. Sides of puparium smooth, may be sparse transverse wrinkles; pattern of spinules readily discernable .....10
- Puparium rugose over whole surface; pattern of spinules somewhat obscured by rugosity—(**Fig. 7**) **Tachinomyia similis** (Will.)\*

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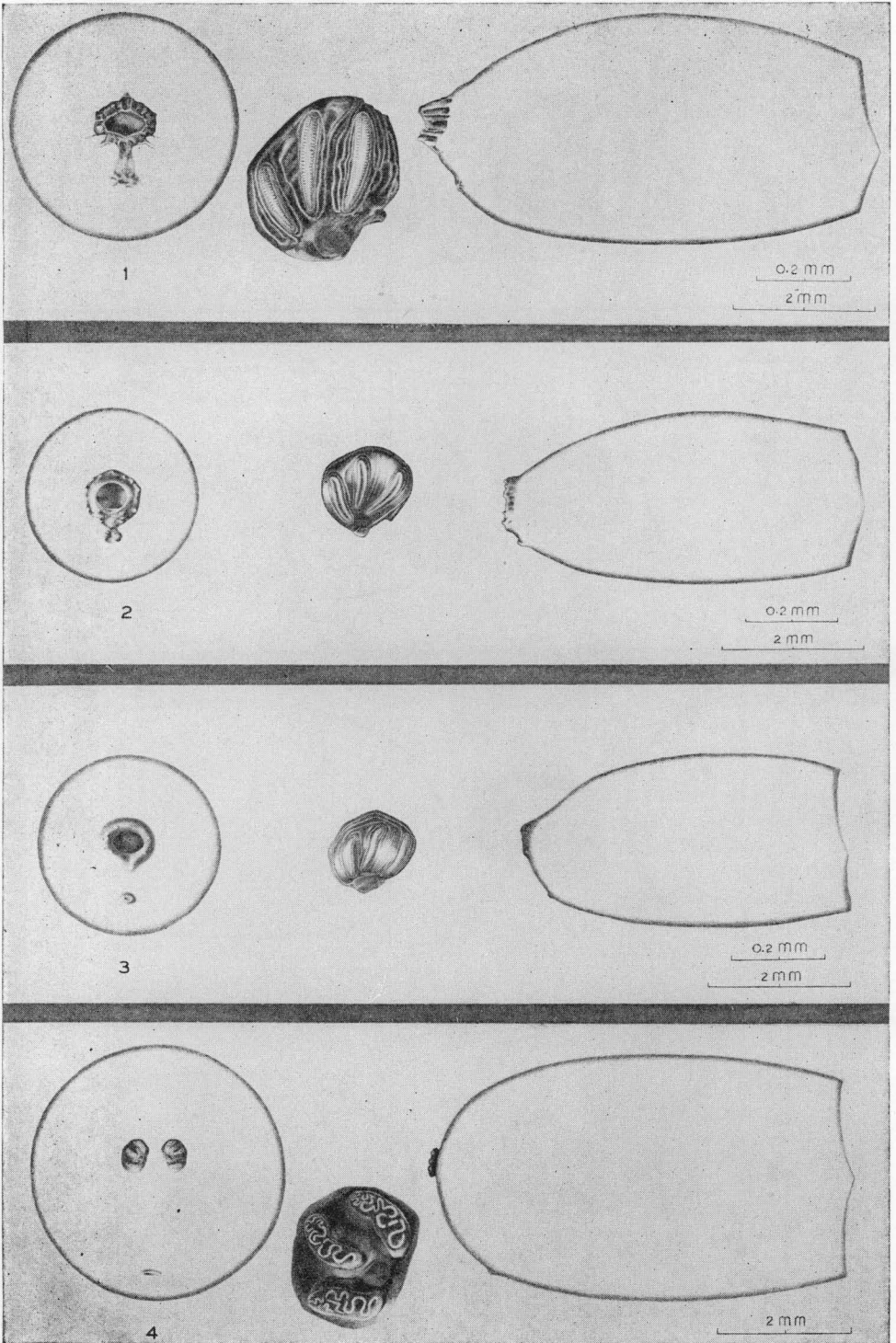
† Stigmal slits normally much more serpentine than in figure. (G. E. S.)

\* Adults of species marked with an asterisk emerge during the summer; the remaining species overwinter as puparia and the adults emerge during the spring.

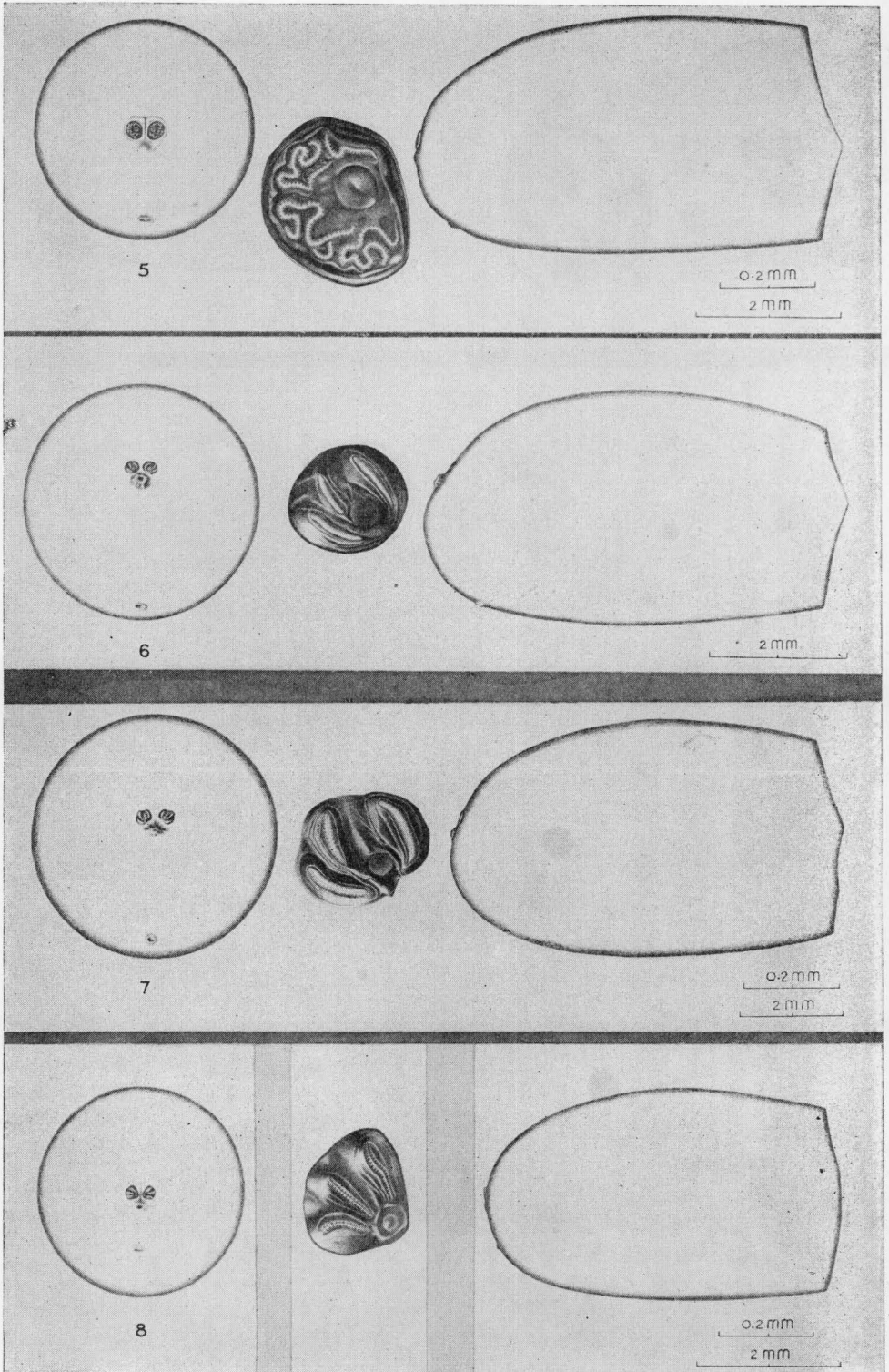
9. Protuberance small and shallow; plate fan-shaped, button at edge; ridges bearing stigmal slits almost straight; puparium smooth.....(Fig. 8) **Compsilura concinnata** Mg.\*
- Protuberance very prominent; plate circular, button not at edge; stigmal slits curved; puparium rugose (Fig. 9) (**Rileymyia americana** (B. & B.))
10. Centre of button above horizontal axis of stigmal plate; stigmal ridges, narrow, strongly raised, gradually curved downward toward ends; anal slit vertical; usually adult emerges from host pupa ..... (Fig. 10) **Nemochaeta lateralis** (Macq.)\*
- Centre of button below horizontal axis of plate; stigmal ridges only slightly raised; anal slit horizontal .....11
11. Stigmal slits, at most, only slightly curved; stigmal button well-defined, off centre of area enclosed by stigmal slits ..... (Fig. 11) **Euexorista futilis** (O.S.)\*
- One or more stigmal slits usually with double curve, or a right-angled curve; button ill-defined, centrally located among stigmal slits ..... (Fig. 12) **Patelloa pachypyga** A. & W.

#### References

- Gardner J. C. M. 1940. The puparia of some Indian Tachinidae (Diptera) I. Indian Forest Records (N. S.), Entomology 6(7):227-251.
- 1940. The puparia of some Indian Tachinidae (Diptera) II. Indian J. Ent. 2(2):177-181.
- Greene, C. T. 1921. An illustrated synopsis of the puparia of 100 muscoid flies (Diptera). Proc. U. S. N. M. 60(10):1-39.
- Mathur, R. N. 1950. The puparia of some Indian Tachinidae (Diptera) III. Indian Forest Records (N. S.), Entomology 8(1):1-7.
- Ross, D. A. 1952. Key to the puparia of the dipterous parasites of *Choristoneura fumiferana* (Clem.) Canad. Ent. 84(4):108-112.

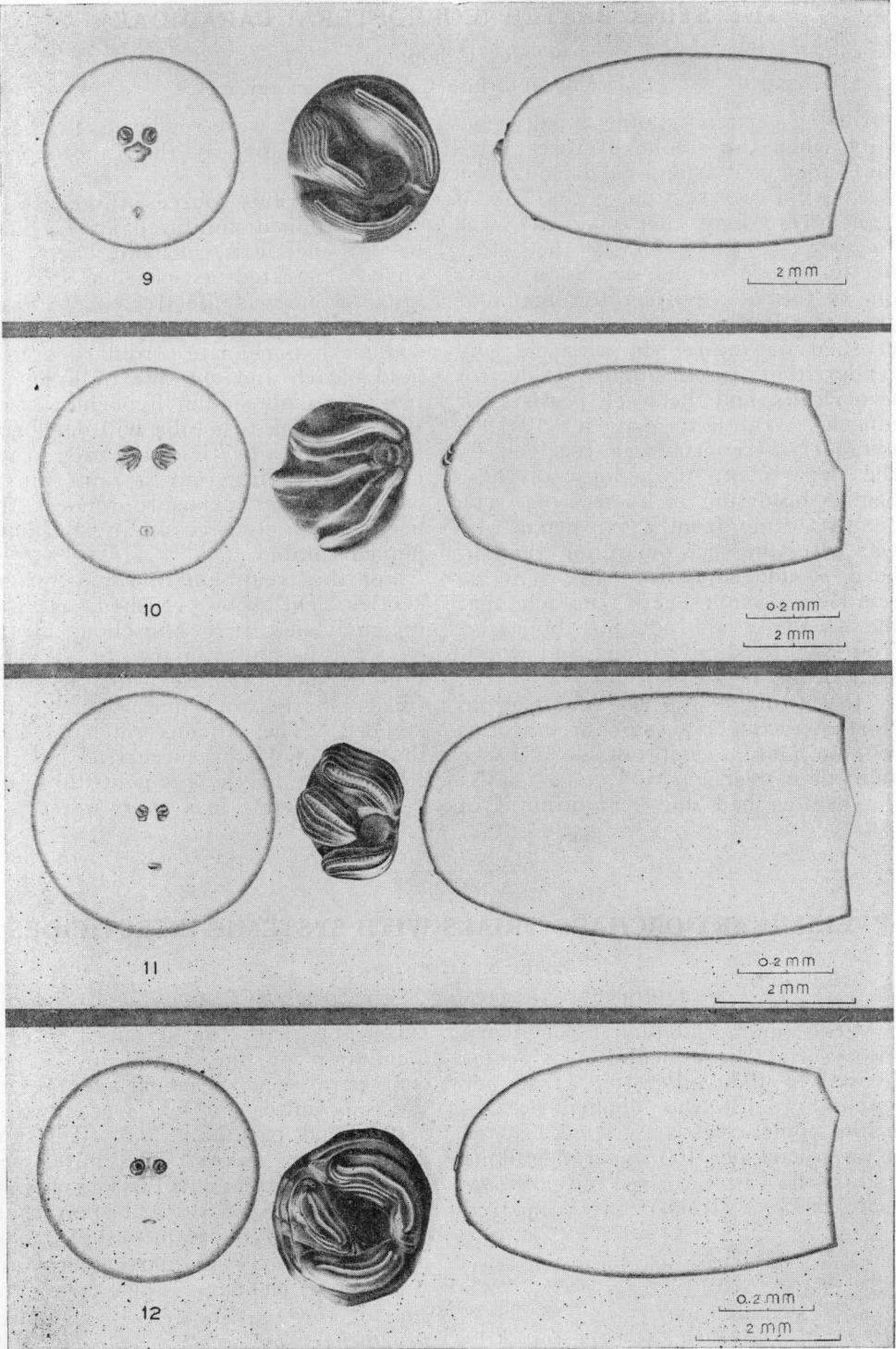


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