

Multiple Phasmids in *Hoplolaimus concaudajuvencus* (Nematoda: Hoplolaimidae)

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A striking feature of both males and females in the genus *Hoplolaimus* Daday, 1905 is the presence of two large, shield-like phasmids or scutellae. These are located laterally, in the center of the lateral field, one in the anterior and the other in the posterior part of the body in most species of the genus.

During later examination of paratype material of *Hoplolaimus concaudajuvencus* Golden and Minton, 1970 (1), we found several adult specimens which showed a marked departure from the usual number of two phasmids. Eight females had two phasmids (Fig. 1-F and G) on the same side of the body adjacent to each other. On the other side of the body in some of the same specimens only one, apparently normal, phasmid (Fig. 1-E) could be seen; in several females, however, there were two phasmids on each side of the body. A ninth female was found to have three phasmids in close proximity to each other on one side and two phasmids on the other side of the body (Fig. 1-H). Two males were seen, each of which had two adjacent phasmids on each side of the body (Fig. 1-B and C). A third male

had three phasmids on one side and two on the other side of the body (Fig. 1-D).

In both males and females the multiple phasmids were generally located in the anterior part of the body on one side and in the posterior part on the other, the typical arrangement of single phasmids of most species in the genus. In one female having four phasmids, two were located anteriorly, opposite each other and in the lateral fields; the other two were located posteriorly with this same arrangement. One of the multiple phasmids was always in the center of the lateral field and at the body surface, as is common with normal, single phasmids (Fig. 1-A and E). The extra phasmids were generally in close proximity to the phasmid in the lateral field and were near the body surface, overlaid by the cuticle. However, in one male with a single phasmid on each side as usual, a structure appearing to be a large phasmid was noted above and partially anterior to the stylet knobs. This phasmid or structure was fairly deep in the body and appeared to have a texture, size, and shape similar to other large phasmids.

Although not presented herein, we compared morphometric data on various morphologic characters of adult specimens having multiple phasmids with those having normal phasmids. No differences in body

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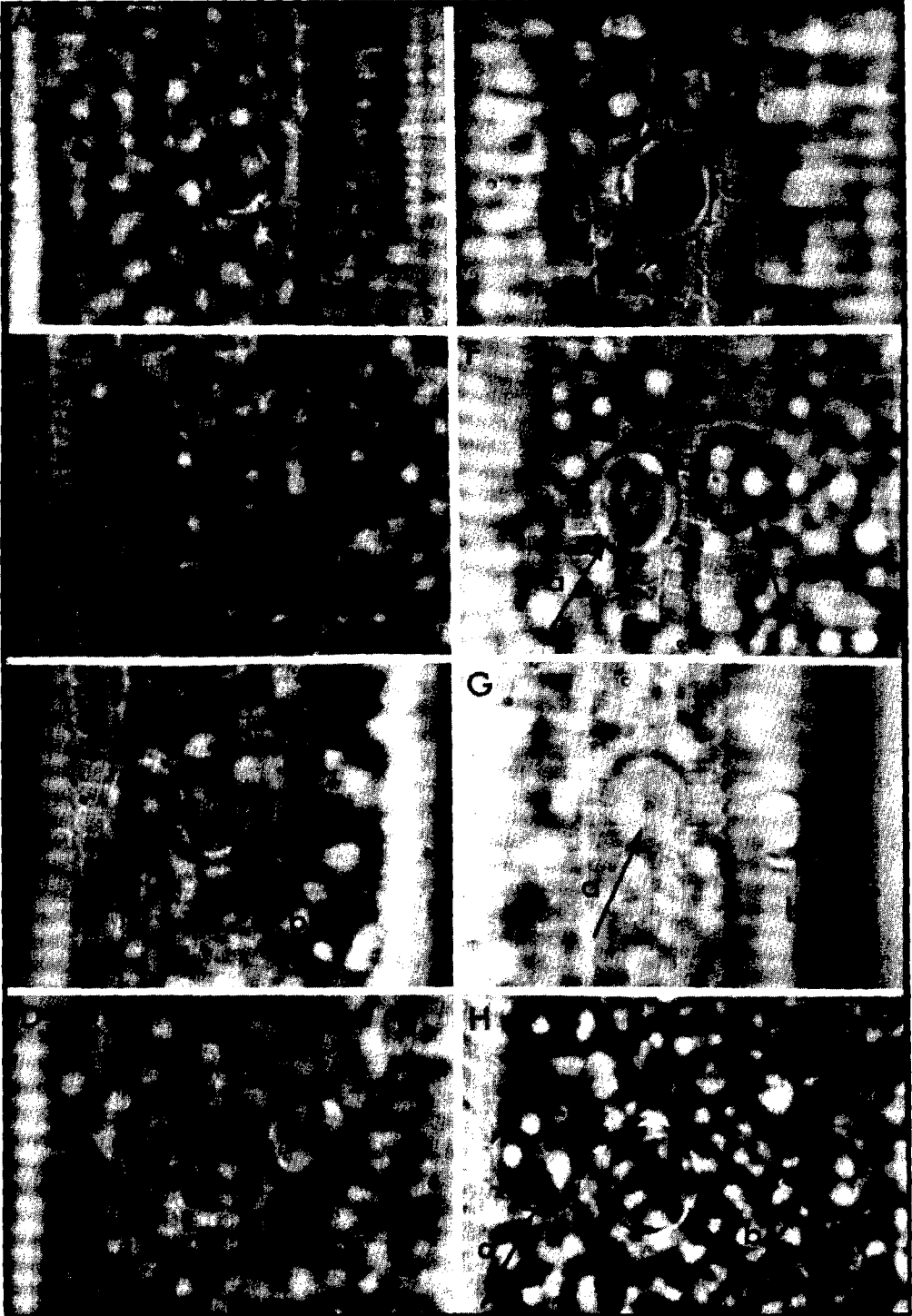
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FIG. 1. Photomicrographs of normal and multiple phasmids in *Hoplolaimus concaudajuvencus* (All at the same magnification).

MALE: **A.** Single normal phasmid; **B.** Two phasmids, well separated; **C.** Two phasmids, adjacent to each other; **D.** Three phasmids.

FEMALE: **E.** Single normal phasmid; **F.** Two phasmids, near each other; **G.** Two phasmids, rather widely spaced; **H.** Three phasmids. (a = presumed "normal" phasmid, located in center of lateral field. b = "extra" phasmids. Note occurrence at different depths just beneath the cuticle.)



length and width, stylet length and shape, nature of lateral field, spicule length, and position of phasmids on body in relation to body length were noted. Size of phasmids (not given in original description) were also essentially the same, as follows: FEMALES: Width—Normal 7.4μ , Multiple 7.1μ ; Length—Normal 8.9μ ; Multiple 9.5μ . MALES: Width—Normal 7.1μ Multiple 6.6μ ; Length—Normal 8.6μ , Multiple 9.2μ .

The frequency of occurrence of multiple phasmids was surprisingly high. Of 50 females examined specifically for this purpose, nine specimens (18%) were found to have multiple phasmids. Among 26 males similarly examined, four specimens (15%) possessed multiple phasmids. We recognize that examination of a larger number of specimens might modify these percentage figures to some extent.

Our observation of multiple phasmids appears to be unique in *H. concaudajuvencus*. They were not observed in specimens of other *Hoplolaimus* species, such as *H.*

galeatus (Cobb, 1913) Thorne, 1935 and *H. stephanus* Sher, 1963 which were examined specifically for multiple phasmids. At this time we have no satisfactory explanation for the presence or function of these extra phasmids in this species. The rather high frequency of occurrence (15%–18%) tends to rule against an explanation simply on the basis of an aberrant specimen. Also, molting or immature specimens do not seem to be a factor, since both males and females were obviously adults, with several of the females containing eggs; furthermore, larval phasmids are much smaller and are often difficult to see. We hope that these observations will encourage other workers to be particularly alert for such structures in the future.

LITERATURE CITED

1. GOLDEN, A. M. AND N. A. MINTON. 1970. Description and larval heteromorphism of *Hoplolaimus concaudajuvencus*, n. sp. (Nematoda: Hoplolaimidae). *J. Nematol.* 2:161–166.