

TWO NEW SPECIES OF HARMOTHOINAE  
(POLYCHAETA: POLYNOIDAE) FROM  
THE EAST PACIFIC RISE, COLLECTED BY  
ALVIN DIVES 2000 AND 2003

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*Abstract.*—*Alvin* dives in the East Pacific Rise in 2700 meters near 11°N collected two polynoid species of Harmothoinae: *Harmothoe hollisi*, n. sp. from dive 2000, associated with a “wood island,” and *Eunoe alvinella* n. sp. from dive 2003, collected from an inactive sulfide chimney.

As a part of the dive series of the DSRV *Alvin* on the East Pacific Rise, during Dive 2000 in March 1988, near 11°51'N in 2750 meters, the pilot picked up a piece of wood that was densely covered with biota, including serpulid worms, gastropods, galatheids, ophiuroids, and additional fauna (Van Dover 1988). Among the latter were two polynoid polychaetes sent to me for study by Cindy Lee Van Dover of the Woods Hole Oceanographic Institution. The collection site was in a field of lightly sedimented pillow basalt, within a few kilometers of known hydrothermal vent communities. The fauna of this “wood island” is of particular interest in comparing it with the fauna associated with the hydrothermal vents.

The polynoid is described below as a new species of *Harmothoe*, *H. hollisi*, a widely distributed genus in Harmothoinae. A large polynoid, collected by Dive 2003 on an inactive sulfide chimney, is described as a new species of *Eunoe*, *E. alvinella*, also a widely distributed genus is the same subfamily. Previously reported species of *Harmothoe*, associated with the “wood island” and panel experiments by Turner (1973, 1981) in the deep water of the North Atlantic, included two species described by Pettibone (1985a): *H. ingolfiana* Ditlevsen and *H. vagabunda* Pettibone. *Harmothoe macnabi* Pettibone was described by Pettibone (1985b) from

*Alvin* dive 895 in the Galapagos Rift. The above three species of *Harmothoe*, as well as the new species, lack eyes, as characteristic of most deep sea polynoids. The new species of *Eunoe* differs from other species of *Eunoe* in having very large eyes, occupying the lateral borders of the prostomium.

Subfamily Harmothoinae Horst, 1917  
Genus *Harmothoe* Kinberg, 1856  
*Harmothoe hollisi*, new species  
Figs. 1, 2

*Material.*—East Pacific Rise, *Alvin* dive 2000, 22 Mar 1988, 11°52'N, 103°51'W, 2750 m, “wood island,” holotype (USNM 118867) and paratype (USNM 118868).

*Description.*—Length of complete holotype 24 mm, width with setae 15 mm, segments 37, last one minute. Length of incomplete paratype 15 mm, width 7 mm, segments 21. Without color except for golden setae.

Body flattened, subrectangular, tapered slightly anteriorly and posteriorly. Elytra 15 pairs, on large prominent elytophores on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, and 32 (Figs. 1A, 2A). Elytra large, overlapping, covering dorsum, oval to subreniform in shape, delicate (tear easily), densely covered with conical microtubercles, smaller on anterior part, becoming gradually larger on posterior and lateral

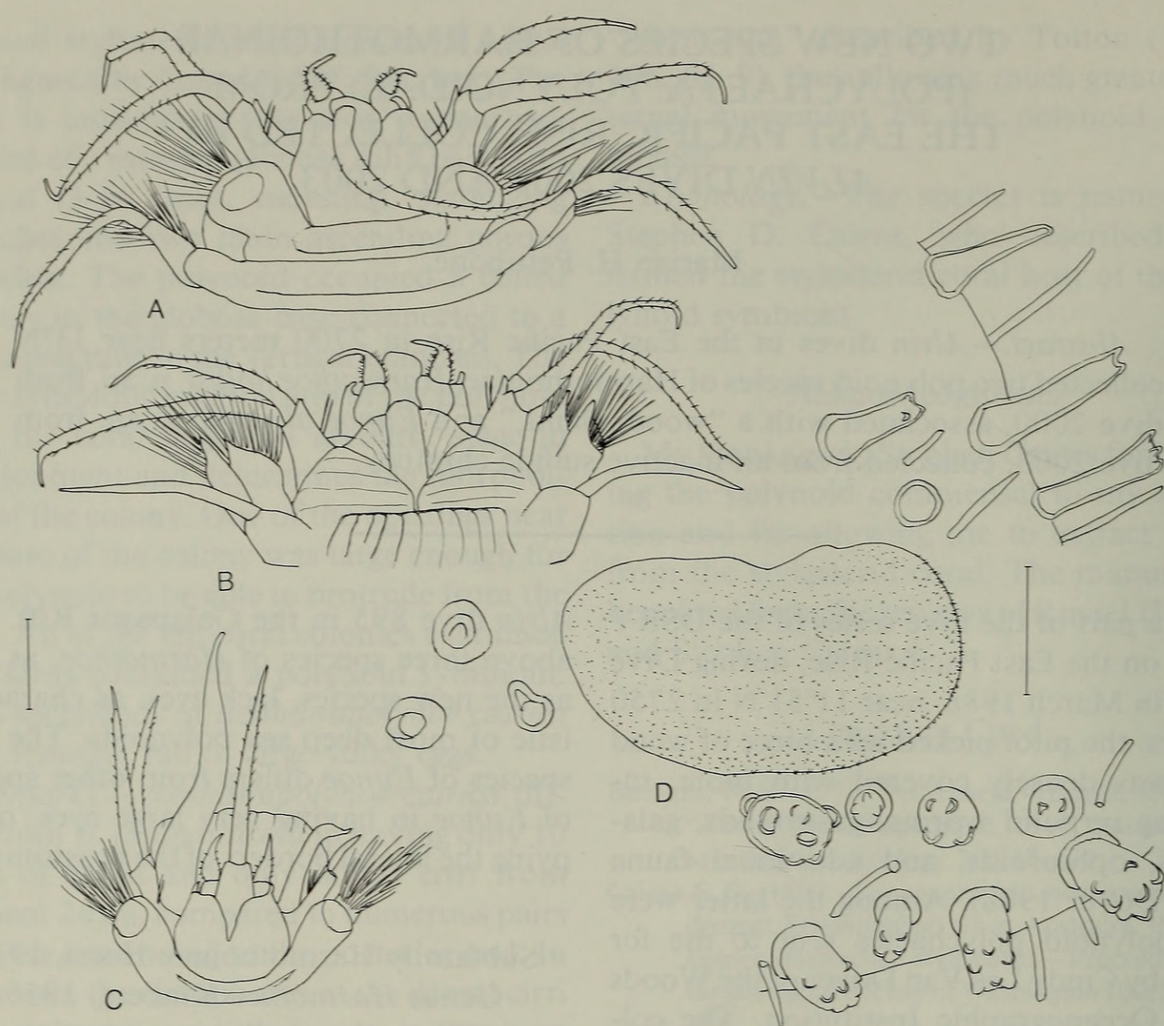


Fig. 1. *Harmothoe hollisi*, A, B, D, holotype (USNM 118867); C, paratype (USNM 118868): A, Anterior end, dorsal view, palps missing; B, Same, ventral view; C, Anterior end, dorsal view, pharynx partially extended, right palp and right ventral tentacular cirrus shorter, regenerating, right dorsal tentacular cirrus missing; D, Right 5th elytron from segment 9, with detail of microtubercles and papillae (not to scale). Scales = 1.0 mm for A–C; 2.0 mm for D.

borders; larger tubercles cylindrical or ovoid, with tips entire or with 2–8 nodular extensions; scattered filiform papillae on surface and lateral and posterior borders (Fig. 1D). Non-elytra-bearing segments with dorsal cirri and nodular to digitiform dorsal tubercles (Figs. 1A, 2B).

Prostomium deeply bilobed, with distinct cephalic peaks, tending to curl inward, without eyes; median antenna with large bulbous ceratophore in anterior notch and long papillate style; lateral antennae with short bulbous ceratophores inserted ventrally, with styles short, bulbous and papillate basally, and long filamentous tips; palps (missing on holotype) stout, tapered, smooth (Fig.

1A–C). Tentaculophores lateral to prostomium, each with small acicular process and 2–3 short notosetae on inner side, and dorsal and ventral tentacular cirri similar to median antenna (Fig. 1A–C). Second or buccal segment with first pair of large elytraphores, biramous parapodia, and long ventral buccal cirri inserted basally on neuropodia lateral to ventral mouth, similar to tentacular cirri (Fig. 1A, B).

Parapodia biramous, with golden setae. Notopodia rounded basally, with projecting acicular lobe on lower side, almost as long as neuropodia (Fig. 2A, B). Notosetae numerous, forming radiating bundle, slightly curved, about four different lengths, shorter

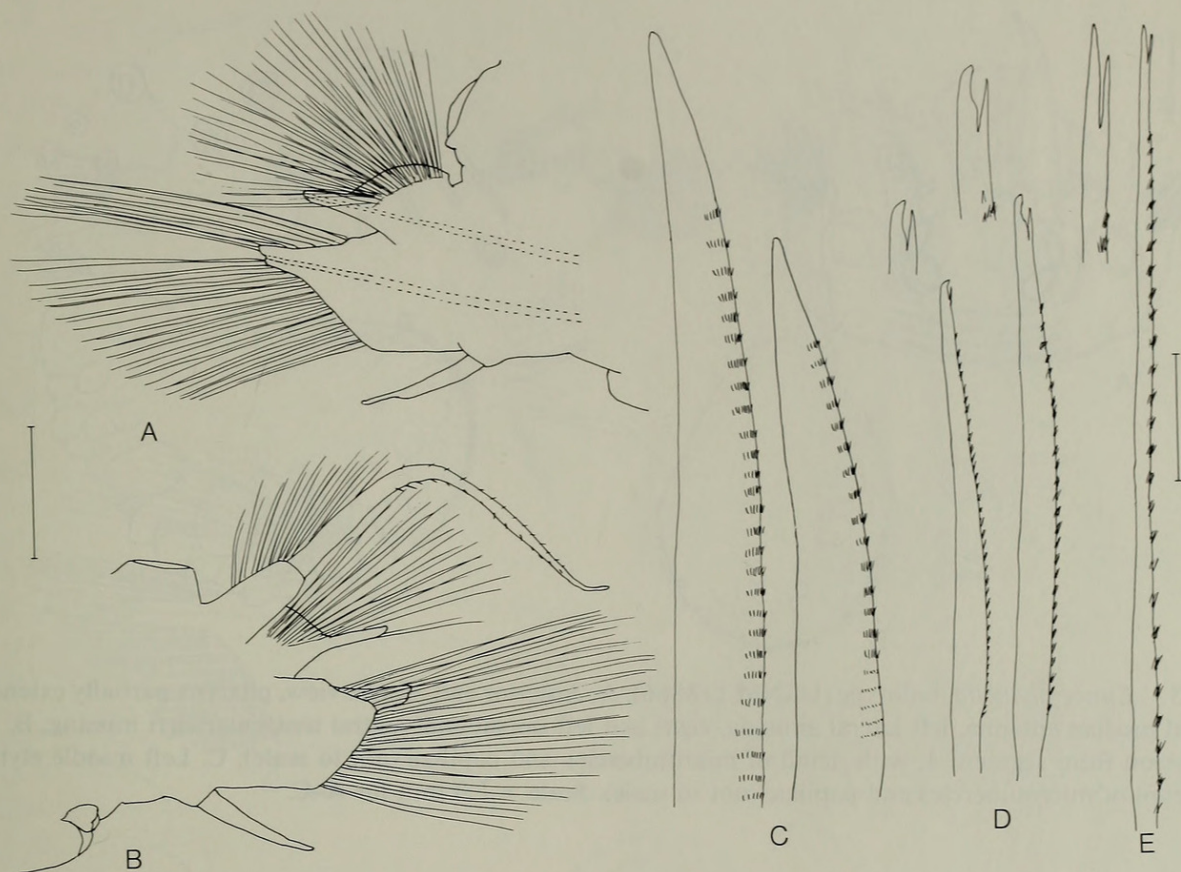


Fig. 2. *Harmothoe hollisi*, holotype (USNM 118867): A, Right elytrigerous parapodium from segment 11, anterior view, acicula dotted; B, Right cirriferous parapodium from segment 12, posterior view; C, Long and short notosetae; D, Subacicular neurosetae, with detail of tips; E, Supraacicular neuroseta, with detail of tip. Scales = 1.0 mm for A, B; 0.1 mm for C–E.

than and much stouter than neurosetae; notosetae with numerous spinous rows and rather long, tapered bare tips (Fig. 2C). Cylindrical cirrophores of dorsal cirri on dorso-posterior sides of notopodia, with slender papillate styles extending beyond neurosetae (Fig. 2B). Neuropodia with conical pre-setal lobe and projecting acicular process with small supraacicular extension, and shorter rounded postsetal lobe (Fig. 2A, B). Neurosetae numerous, forming fan-shaped bundle, with numerous spinous rows. Supraacicular neurosetae more slender, with long spinous regions and bare split tips (Fig. 2E). Subacicular neurosetae stouter, with shorter spinous regions, and slightly hooked bare tips, all with rather long secondary tooth (Fig. 2D). Ventral cirri short, tapered, with abruptly narrowed distal tip (Fig. 2A, B).

Pharynx not extended and not examined. Inflated ventral nephridial areas with small papilla on posterior side, beginning on segment 6 (Fig. 2B). Pygidium forming small lobe between small parapodia of 2 posterior

Table 1.—Comparison of *Harmothoe ingolfiana* and *Harmothoe hollisi*.

|                              | <i>H. ingolfiana</i>                                               | <i>H. hollisi</i>                 |
|------------------------------|--------------------------------------------------------------------|-----------------------------------|
| Cephalic peaks of prostomium | small                                                              | prominent, tending to curl inward |
| Elytral macrotubercles       | present                                                            | absent                            |
| Neurosetae                   | upper ones with bifid tips, middle and lower ones with entire tips | all with bifid tips               |

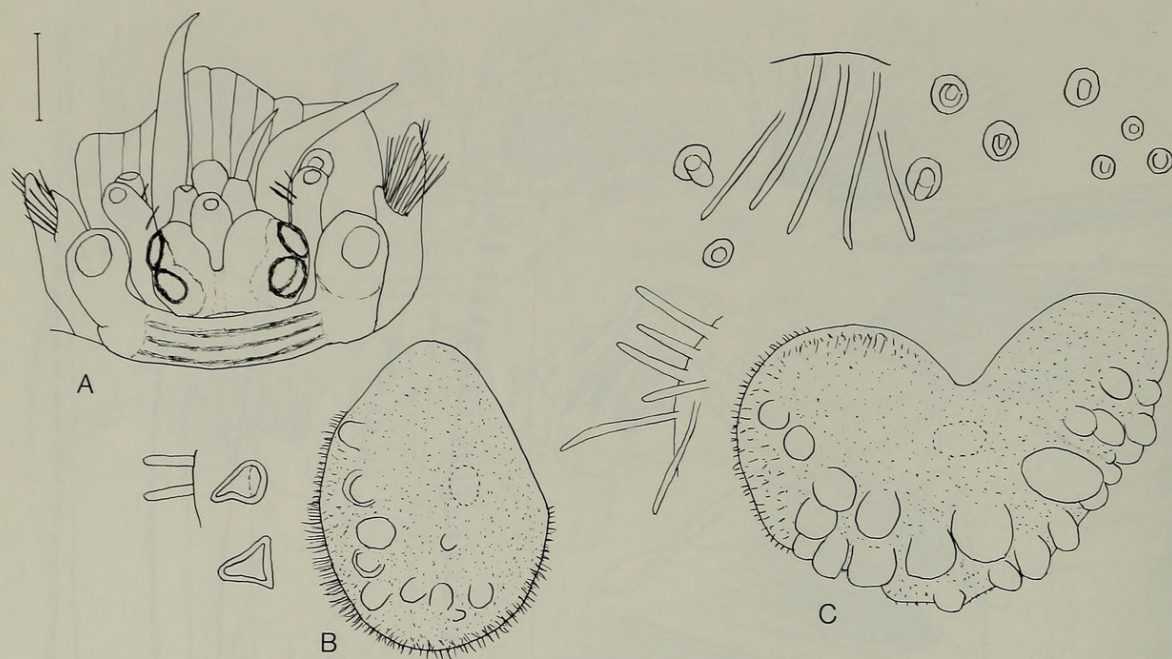


Fig. 3. *Eunoe alvinella*, holotype (USNM 118866): A, Anterior end, dorsal view, pharynx partially extended, styles of median antenna, left lateral antenna, right and left dorsal and ventral tentacular cirri missing; B, Left 2nd elytron from segment 4, with detail of microtubercles and papillae (not to scale); C, Left middle elytron, with detail of microtubercles and papillae (not to scale). Scale = 1.0 mm for A–C.

segments, with pair of anal cirri (styles missing).

**Etymology.**—The species is named for Ralph Hollis, the pilot of *Alvin* dive 2000, who collected the interesting “wood island” with its associated biota.

**Comparison.**—*Harmothoe hollisi* agrees in most respects with *H. ingolfiana* Ditlevsen, reported from the North Atlantic south of Iceland to off New England in 1830–3506 meters and found in burrows of wood-boring bivalves (Ditlevsen 1917:32, Pettibone 1985a:143). The two species are compared in Table 1.

#### Genus *Eunoe* Malmgren, 1865

##### *Eunoe alvinella*, new species

Figs. 3, 4

**Material.**—East Pacific Rise, *Alvin* dive 2003, 25 Mar 1988, 11°46'N, 104°47'W, 2725 m, inactive sulfide chimney, sample no. 9, holotype (USNM 118866).

**Description.**—Length of complete holotype 41 mm, width with setae 14 mm, seg-

ments 34, last one minute. Dorsum light brown, with colorless transverse bands.

Body elongate-oval, slightly tapered anteriorly and more so posteriorly, flattened ventrally, arched dorsally. Elytra 15 pairs, on large bulbous elyrophores on segments 2, 4, 5, 7, alternate segments to 23, 26, 29, and 32 (Figs. 3A, 4A, C). Elytra large, overlapping, covering dorsum, oval to subreniform in shape, thickly covered with rusty yellow and brown foreign material; elytral surface with microtubercles on most of surfaces large globular macronodules on posterior third of elytra, variable in number and size, and filiform papillae on lateral border and scattered on surface (Fig. 3B, C). Non-elytra-bearing segments with dorsal cirri and nodular dorsal tubercles (Fig. 4B, D).

Prostomium deeply bilobed, wider than long, without distinct cephalic peaks, with two pairs of very large eyes occupying lateral sides of prostomium; median antenna with large bulbous ceratophore in anterior notch, style missing (probably long); lateral anten-

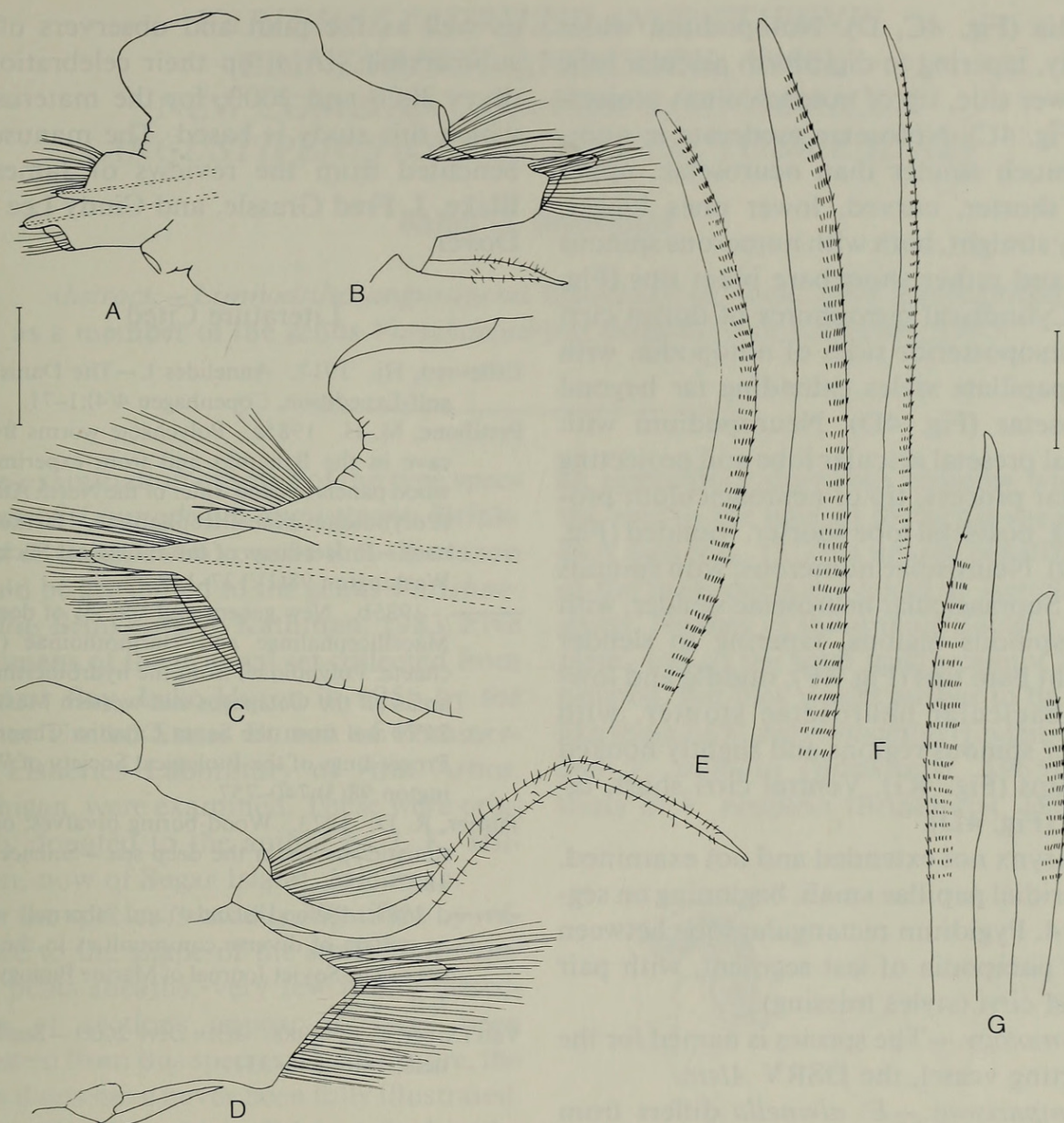


Fig. 4. *Eunoe alvinella*, holotype (USNM 118868): A, Right elytrigerous parapodium from segment 2, anterior view, acicula dotted, style of ventral buccal cirrus missing; B, Right cirriferous parapodium from segment 3, posterior view, style of dorsal cirrus missing; C, Right elytrigerous parapodium from segment 13, anterior view, acicula dotted, style of ventral cirrus hidden from view; D, Right cirriferous parapodium from segment 14, posterior view; E, Short and long notosetae; F, Supraacicular neuroseta; G, Middle and lower subacicular neurosetae. Scales = 1.0 mm for A-D; 0.1 mm for E-G.

nae with short bulbous ceratophores inserted ventrally, styles short, tapered; palps stout, tapered, about one and a half times length of prostomium (Fig. 3A). Tentaculophores lateral to prostomium, each with projecting aciculum and one or two notosetae on inner side, and dorsal and ventral tentacular cirri, styles missing (probably long); bulbous facial tubercle medial to cer-

atophores of lateral antennae (Fig. 3A). Second or buccal segment with first pair of large elytriphores, biramous parapodia; ceratophores of ventral buccal cirri inserted basally on neuropodia lateral to ventral mouth, styles missing (probably longer than following ventral cirri) (Figs. 3A, 4A).

Parapodia biramous, with golden setae. Notopodia smaller and shorter than neu-

ropodia (Fig. 4C, D). Notopodium wider basally, tapering to digitiform acicular lobe on lower side, tip of notoaciculum projecting (Fig. 4C). Notoetae moderate in number, much stouter than neuroetae, upper ones shorter, curved, lower ones longer, nearly straight, both with numerous spinous rows and rather short bare blunt tips (Fig. 4E). Cylindrical cirrophores of dorsal cirri on dorsoposterior sides of notopodia, with long papillate styles extending far beyond neuroetae (Fig. 4D). Neuropodium with conical presetal acicular lobe and projecting acicular process, tip of neuroaciculum projecting; postsetal lobe shorter, rounded (Fig. 4A–D). Neuroetae numerous, with spinous rows. Supraacicular neuroetae slender, with long spinous regions, tapering to slender straight bare tips (Fig. 4F); middle and lower subacicular neuroetae stouter, with shorter spinous regions and slightly hooked bare tips (Fig. 4G). Ventral cirri short, tapered (Fig. 4D).

Pharynx not extended and not examined. Nephridial papillae small, beginning on segment 4. Pygidium rectangular lobe between small parapodia of last segment, with pair of anal cirri (styles missing).

*Etymology.*—The species is named for the collecting vessel, the DSRV *Alvin*.

*Comparisons.*—*E. alvinella* differs from other species of *Eunoe* in having very large eyes occupying the lateral sides of the prostomium. The elytra, with their unique type of numerous globular macronodules, also differ from other species of the genus.

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