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ACROCIRRUS COLUMBIANUS AND *A. OCCIPITALIS*, TWO NEW POLYCHAETES (ACROCIRRIDAE) FROM THE NORTHEAST PACIFIC OCEAN

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Abstract.—Two new species of *Acrocirrus* from shallow water of southern British Columbia are described. They belong to the group of North Pacific species with compound neurosetae throughout.

In connection with a joint study of previous records and new collections of benthic polychaetes from Washington and British Columbia, specimens of *Acrocirrus* were found by the late Katharine D. Hobson and sent to the author for further identification. Eight species of this genus had been covered by Banse (1969). Two species were added since then: *Acrocirrus incisa* by Kudenov (1975) and *A. aciculigerus* by Kudenov (1976). Two new species are described herein. The types are deposited in the British Columbia Provincial Museum, Victoria (BCPM), and the National Museum of Natural History, Smithsonian Institution, Washington (USNM).

The new species from British Columbia belong to the group of *Acrocirrus* species distinguished *inter alia*, by having compound neurosetae throughout; even a heavy neuropodial hook on segment 14 is absent. With one possible exception (a doubtful record of *A. uchidai* Okuda by Hartman, 1976, from the Indian Ocean), this group is restricted to the North Pacific Ocean (see Banse 1969). Its six members can be distinguished as follows:

1. Segment 14 with single heavy acicular hook, or with several simple, slender hooks
   A. aciculigerus Kudenov; *A. frontifilis* (Grube); *A. heterochaetus* Annenkova; *A. incisa* Kudenov; *A. okotensis* Imajima; *A. trisectus* Banse.
– Segment 14 with only compound hooks in neuropodium, as in all other setigers 2
2. First gill-bearing segment dorsally not visible (Fig. 1d) *A. occipitalis* n. sp.
– First gill-bearing segment dorsally at least partly visible (as in Fig. 1a) 3
3. Neurosetae from fourth gill-bearing segment *A. crassifilis* Moore
– Neurosetae from third gill-bearing segment 4
4. Notosetae from second setiger *A. uchidai* Okuda
– Notosetae from third setiger 5
5. Usually one notoseta and two neurosetae per parapodium *A. columbianus* n. sp.

–	Several noto- and neurosetae per parapodium	6
6.	Upper face of prostomium smooth	*A. muroranensis* Okuda
–	Upper face of prostomium ridged	*A. validus* Marenzeller

Acrocirrus columbianus, new species
Fig. 1a, b

Diagnosis.—A slender *Acrocirrus* species with a posterior, mid-dorsal extension of the prostomium on segment 1. No large papilla on segment 2. Without parapodial cirri; with distinct neuropodia. Notosetae from segment 6. Neurosetae from segment 4, compound throughout. Without heavy neuropodial hook on segment 14. Parapodia usually with one notoseta and two neurosetae. Nephridia through segment 10 or 11, straight.

Etymology.—The species name refers to the region of the type-locality.

Material.—Holotype, British Columbia: Brochie Ledge, off Ogden Pt. breakwater, 4.5 to 7.5 m, in rocky habitat, from base of *Balanus nubilus* clump (apparently in burrows of unknown origin in the calcareous material), 8 February 1973, B. Cooke and P. Lambert coll., holotype (BCPM 977-233), 5 paratypes (BCPM 977-234), and 3 paratypes (UNSM 55731).

Description.—The well-preserved type-material consists of slender, mature males and females some of which are entire, and a few smaller, immature specimens. The holotype, a mature female, has about 47 setigers and is approximately 2.4 cm long and 0.15 cm wide. The posterior third, although complete, seems to be recently regenerated as it is markedly thinner than the anterior part of the body.

The prostomium (Fig. 1a) is divided into an anterior and a posterior part, the latter bearing the two pairs of eyes which vary appreciably in size. The left palp is missing, the right one is regenerating. The prostomial posterior border is demarcated by a deep furrow and extends mid-dorsally on segment 1. Segments 1 and 2 are clearly visible dorsally and laterally. Segment 2 carries the first of the four pairs of gills but lacks a large papilla. Segment 3 has a conspicuous papilla below the gill.

The body segments are clearly demarcated; they lack annuli or wrinkles as described for other species, e.g., *A. validus* Marenzeller by Okuda (1934). The neuropodia are conspicuous (Fig. 1b), especially so in the thorax. In the depicted, fifth parapodium some interramal, epidermal papillae could be seen; there may be a few similar papillae ventrad to the neuropodium which, however, could not be clearly distinguished. In both sexes, a large colorless papilla is distinct below the parapodia on segments 11 (sometimes 10) through 13 (position indicated by broken line in Fig. 1b). There are no modifications of the parapodia themselves at the transition from thorax to abdomen, and specialized hooks are lacking on segment 14.

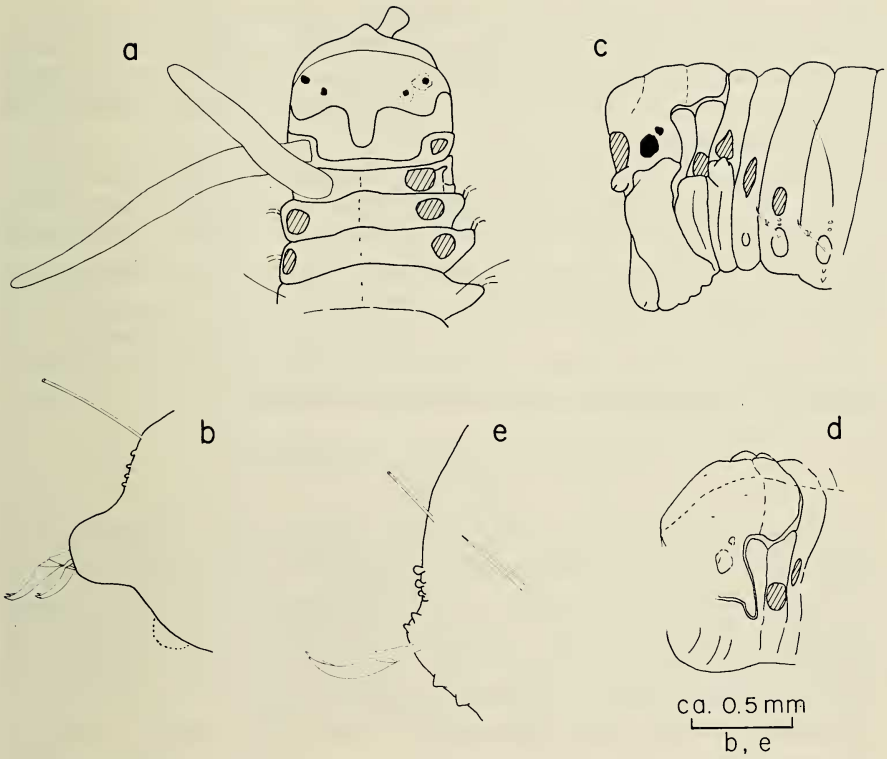

Fig. 1. *Acrocirrus columbianus*: a, Holotype, anterior end, dorsal view; scars of lost gills hatched; b, Parapodium from segment 8; note that epidermal papillae were difficult to make out; the position of the ventral papillae on segments 11–13 indicated by broken line; setae sketched. *Acrocirrus occipitalis* (holotype): c, Anterior end, side view; scars of missing appendages hatched; d, Anterior end, seen from the left side and above; ventral parts sketched; the broken line is the imaginary mid-dorsal line; e, Parapodium from segment 16; setae sketched (notoseta broken-off), notopodial aciculae indicated.

Neurosetae start on segment 4 (third gill-bearing segment), and notosetae on segment 6. Usually, notosetae occur singly, and neurosetae in pairs in each parapodium. In both sexes the cutting edges of the blades of the neurosetae face posteriorly through segment 12 (setiger 9) and anteriorly in all succeeding setigers.

Females have gonads present from segments 11 and 12 (2 specimens) through 27 (regenerating holotype) and 32 (1 specimen); the egg size is about 0.15 mm. Males have gonads from segments 11 and 12 (2 specimens each) through segments 39, about 43 and about 49, in one specimen each respectively; these segments were missing in the fourth animal. The nephridia in a dissected male are straight and extend into segment 10 or 11.

The color in life is dark brown, especially anteriorly. Some of the preserved animals are yellowish, others are brownish to greyish in the thorax, from numerous scattered small, black (in transparent light) pigment spots of varying size; the abdomina of these specimens appear dusted. The cirri are unpigmented.

Discussion.—*A. columbianus* belongs to the group of six *Acrocirrus* species which is characterized by having compound neurosetae throughout. Diagnostic characters of the new species have been summarized in the preceding key. In addition it may be noted that *A. columbianus* is similar to *A. validus* in respect to the form of the prostomium (see the interpretation of Okuda's [1934] description in Banse 1969) but is distinguished by the slenderness of its body and the straight, short nephridia. Both *A. columbianus* and *A. muroranensis* have markedly slender bodies.

Acrocirrus occipitalis, new species
Fig. 1c–e

Diagnosis.—A relatively thick *Acrocirrus* species with a mid-dorsal, apparent extension of the prostomium to the posterior border of segment 2. No large papilla on this segment. Without parapodial cirri; with distinct neuropodia. Notosetae from segment 6. Neurosetae from segment 5, compound throughout. Without heavy neuropodial hook on segment 14. Parapodia usually with one notoseta and one neuroseta.

Etymology.—The species name refers to the dorsal, posterior extension of the prostomium.

Material.—British Columbia: mouth of Brundige Inlet, 54°36.8′N, 130° 50.4′W, less than 29 m, rock reef, 22 June 1974. P. Lambert coll., holotype (BCPM 974-236-21).

Description.—The holotype is well-preserved, lacking only palps and gills; it has about 82 setigers, and is almost 2 cm long and up to about 0.1 cm wide. The prostomium appears to extend dorsally to the anterior border of the second gill-bearing segment (segment 3, cf. Fig. 1c), which has not previously been observed in this genus. A faint epidermal demarcation (Fig. 1c, d) running across this extension suggests that the cause might be subepidermal, e.g., an elongated brain as in *Nephtys* or *Pisione*. As a consequence of this extension and the extruded proboscis, the first segment is visible only laterally while the second segment can be seen laterally and ventrally. In side view, the postero-lateral corner of the prostomium is partly hidden by an extension of the ventral lip (cf. Fig. 1c and d). The ventral lip and the lateral and ventral parts of segments 1 and 2 are whitish suggesting glandular tissue which on segment 3 extends upward to the usual papilla present below the second gill.

The body is almost circular in cross-section in the first five or so setigers. Thereafter in the anterior half of the body, the dorsal side becomes high and arched, with the neuropodia occupying the lower corners of the arch. While the ventral side is flat, relatively narrow, and almost smooth, the dorsum is mostly triannulate. Each annulus, faintly biannulated in itself, is crossed by longitudinal ridges so that the dorsal surface in places appears divided into irregular rectangles (similar [but smaller] as in *A. validus*, Fig. 8 in Okuda [1934]). The epidermis is finally roughened and seems to be sticky (in contrast to, e.g., *A. trisectus*, cf. Banse 1969). In the posterior half of the body the dorsum is not much higher than the body is wide, and the segments are essentially simple annuli.

On segment 4, a rudimentary neuropodium is found on the left side only (Fig. 1c). Well-developed neuropodia begin on segment 5, each usually having one compound seta, except the anterior abdominal segments where occasionally two setae emerge. As usual in the genus, the direction of the blades changes between segments 12 and 13. There is no modification of these segments. Approximately three papillae with triangular outline (cf. Fig. 1e) occur below the thoracic and anterior abdominal neuropodia which are lacking in the posterior half to third of the body. About three round papillae can be seen between the neuro- and notopodia. Notosetae—usually single—start on segment 6. Their length does not exceed the body width even in the narrow, posterior body section. The color of the preserved animal is yellowish, with some darkening in the thorax, except the glandular region mentioned above.

Discussion.—*A. occipitalis* is to be included into the group of *Acrocirrus* species which possess only compound neurosetae. Among them, the new species is close to *A. crassifilis* on account of the starting segments of neuro- and notosetae (see Banse 1969). It is distinguished from this species by the usually single setae per parapodial ramus as well as by the form of the dorsal, apparent posterior extension of the prostomium. In fact this extension differentiates the new species from all other known species of the genus. However, a similar dorsal, "prostomial" extension is present in *Macrochaeta papillosa* Ehlers as redescribed in Banse (1969) but was observed in less detail than here. That species possesses also other similarities to *Acrocirrus*, i.e., the close proximity of the origin of the palps and the pads below them. It is included among *Macrochaeta*, however, on account of the usually papillose epidermis and its small size.

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