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| PROTULA FROM THE       | N E PACIFIC by <b>Leslie Harris</b>                                                                                                              | h:\Serpulidae\ProtulaLHarrisCharTable2Feb99.wpd                                                                                                                                                                                                                | R. Rowe 10Feb99                                                                                                                                                                                                                                                                                                                        |
| CHARACTER              | P. ATYPHA<br>Bush 1904                                                                                                                           | P. PACIFICA<br>Pixell 1912                                                                                                                                                                                                                                     | P. SUPERBA<br>Moore 1909                                                                                                                                                                                                                                                                                                               |
| size                   | thorax 9 x 3 mm; longest branchiae 9 mm; specimen incomplete, only 12 abdominal segments                                                         | 48 to 75 mm (body 38 to 60, crown 10-15) mm); 7 thoracic setigers, 83-110 abdominal segments                                                                                                                                                                   | 125 mm (body 88, crown 37), 16 mm at widest point; 7 thoracic setigers, 115- 120 abdominal segments                                                                                                                                                                                                                                    |
| branchiae              | elongated ventrally & involute, numerous (about 30 plus few rudimentary ventral ones) long, delicate (?), densely pinnate branchiae in each lobe | greenish w/ line of opaque white spots down outer side of each branchial rachis; crown w/ 1.5-2 spirals; interbranchial membrane connects lower 1/3 of gills; about 60 pairs; each rachis w/ small closely placed pinnae almost to tips                        | colorless; crown w/ 7-8 spirals; 320 prs. of bradioles in 1 specimen; interbranchial membrane connects about 1/5 of length; each rachis w/ narrow membranous border reaching nearly to tip; each rachis w/ double row of pinnae which continues nearly to tips                                                                         |
| mouth region           | not determinable                                                                                                                                 | slight ridge at junction of branchiae & stout basal membrane which carries them; oral membrane arises from inner side of ridge; oral membrane continuous across median line & up each of the spirals; another, shorter, membranous lip on dorsal side of mouth | oral membranes w/in branchial bases, enclosing mouth & about 1/3 as high as interbranchial membranes; mouth trans- verse, corners bounded above by low rounded elevation, from between which a tongue- shaped process projects over mouth; ventral to it is soft irregular lip, and below this again a much larger firm triangular lip |
| ventral lobe of collar | collar rather deep irregular (multilobed); ventral lobes not mentioned                                                                           | notched in median line, w/ deep fissure on each side                                                                                                                                                                                                           | notch is wide & shallow, lateral notches deep & narrow                                                                                                                                                                                                                                                                                 |
| thorax                 |                                                                                                                                                  | broad & flattened w/ nearly parallel sides; 7 setigers                                                                                                                                                                                                         | depressed, broader anteriorly than posteriorly; 7 setigers                                                                                                                                                                                                                                                                             |
| thoracic membrane      | wide, does not form scalloped border along the sides                                                                                             | very wide, w/ entire margin which can extend past setae but is generally considerably crumpled                                                                                                                                                                 | thin, greatly developed, margins appear to be entire but folded                                                                                                                                                                                                                                                                        |
| abdomen                |                                                                                                                                                  | 83-110 segments; last 30+ segments covered w/ calcareous-looking gland                                                                                                                                                                                         | calcareous incrustation occupies nearly circular area on dorsum of caudal end                                                                                                                                                                                                                                                          |
| thoracic setae         | one form, slender, unequal (shorter ones the broader), capillary, those on collar fascicles not different from others                            | simple blades with sometimes a few setae of Apomatus-type posteriorly (i.e., bladed sickles)                                                                                                                                                                   | 1st fascicle in 2 ranks, other fascicles in 3 ranks of setae; setae pale yellow, narrowly bilimbate; more dorsal ones longer & posterior ones slightly curved                                                                                                                                                                          |
| abdominal setae        | in small fascicles, bent at base of the moderately broad tapered blade                                                                           | somewhat sickle-shaped in anterior region, narrow terminal bladed ones posteriorly; about 13 setae in anterior, short, stout, somewhat sickle-shaped; 2 kinds of setae in posterior: long w/ narrow striated wing & shorter, more distinctly winged            | seldom more than 12 shorter but otherwise similar to thoracic setae; setae at caudal end much longer, very slender capillary setae w/out limb                                                                                                                                                                                          |

**uncinigerous tori**

extend from segment 3 to end of abdomen (Note:  
elsewhere in paper he says begin on 3rd setiger. LHH)

**uncini**

both thoracic & abdominal tori small, w/ thin uncial  
plates of similar size & form, apparently smooth, w/ only  
a long pointed terminal tooth, serrations but faintly  
visible on the exposed surface even under a high  
objective

w/ numerous small teeth, the posterior one long w/  
bulbous extremity

small, w/ toothed margin very long, conspicuously  
elevated above & prolonged into a slender, blunt &  
slightly bifid process below & bearing 20-25 long,  
slender, acute teeth, of which 4-5 smaller ones are on  
inferior prolongation; no difference between thoracic &  
abdominal tori; abdominal tori w/ small group of simple  
spines at ventral end, which persist thru caudal region  
after the uncini have ceased; uncini numerous, not less  
than 350 on segment VIII

**tube**

white, calcareous, irregularly bent

Pixell's material did not include tubes

white, massive, walls 5-6 mm thick, outer diameter to 19  
mm; older parts coiled, newer parts horizontal up to 145  
mm; orifice perfectly terete, smooth, polished & thin

**type locality**

Pacific Grove

Departure Bay & Puget Sound

Pacific Grove, 40 fm; Monterey Bay

**comments in original  
description**

many characteristics distinguishing this from *P. superba*  
& other Pacific species; *P. atypha* Bush might be a  
young specimen of this same species (Note: Pixell's  
phrasing makes it uncertain if he is saying that *P. atypha*  
belongs to *superba* or *pacifica*. Presumably he is  
paraphrasing Moore 1909. LHH)

several species of *Protula* described from Pacific & is  
possible that *P. atypha* Bush or other smaller species  
may be young of this

Characters in bold are the ones Pixell included in his species diagnosis

This was included as an attachment to an E-mail forwarded from Leslie Harris on the SCCWRP LISTSERVEN 2/10