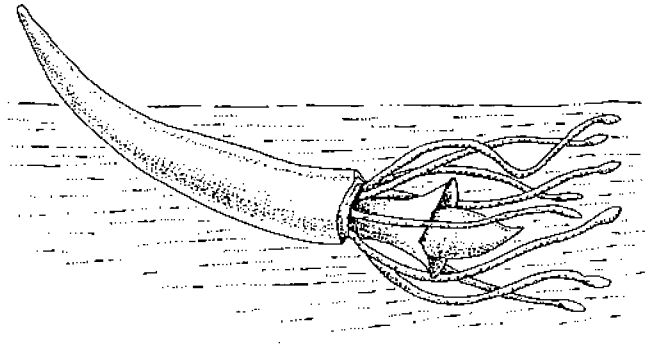
December, 1995 SCAMIT Newsletter Vol. 14, No.8

NEXT MEETING:	Scaphopods
GUEST SPEAKER:	Don Cadien - CSDLAC
DATE:	January 16, 1996
TIME:	9:30am - 3:30pm
LOCATION:	Natural History Museum of Los Angeles County 900 Exposition Blvd. Times Mirror Room

JANUARY 16th MEETING

Our January meeting will be largely an information transfer meeting for us to examine and evaluate the materials on scaphopods distributed by Ron Shimek at the last NAMIT workshop. We will attempt to integrate Ron's work on the fauna from the northern portion of the Southern California Bight up to western Canada with information and specimens from the central and southern portions of the Bight. We will also draw on the collections of the Los Angeles County Museum of Natural History for comparative materials, and specimens of rarer species from our area. Please bring specimens of all species of scaphopods you report from your programs to the meeting for comparison.



A dentaliid scaphopod beneath the sediment surface with foot and captaculi extended (from Meglitch, P.A. 1972. Invertebrate Zoology, ed. 2)

FUNDS FOR THIS PUBLICATION PROVIDED, IN PART, BY THE
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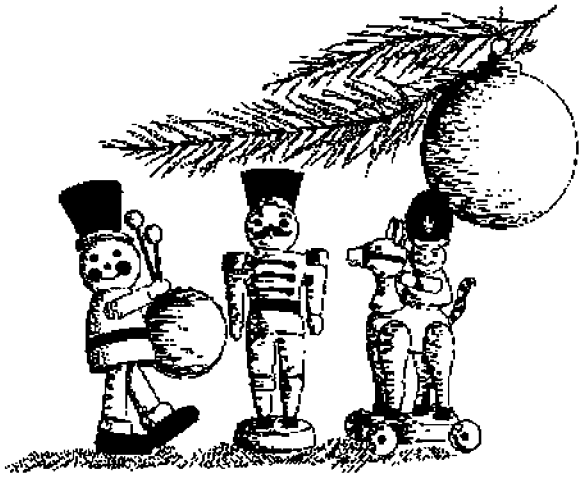


CHRISTMAS PARTY

On Saturday, December 2nd, SCAMIT held its annual Christmas Party at the Cabrillo Marine Aquarium. Although, many SCAMIT members from the San Diego area were unable to attend there was still a nice turnout with lots and lots of yummy food. Leslie Harris proved to all present that taxonomists do have other hidden talents with her gorgeous Christmas tree cake complete with handmade ornaments and presents.

The SCAMIT orchestra consisting of Ann Dalkey, Larry Lovell, John Shisko's daughters, Emily, Anne, and Carrie serenaded us all with Christmas carols much to the delight of everyone present. We greatly thank them for sharing their talent with us.

The evening ended with a visit from jolly ol' St. Nick (or St. Mary, as in Mary Cadien). Mary did a wonderful job filling in for Santa "John" Claus, who was too busy supervising the elves this year. Once again, Vice President Don Cadien did a fabulous job of arranging all the festivities. We also thank the Cabrillo Marine Aquarium for the use of its facility.

FUTURE MEETINGS

Currently, the February meeting will be a polychaete meeting on the family Lumbrineridae and hosted by Larry Lovell in Vista. The March meeting will be on aplacophores with Dr. Amalie Scheltema of Woods Hole Oceanographic Institute and will be held at the Santa Barbara Museum of Natural History. Tentatively scheduled for April is a meeting on California cephalaspids with Terry Gosliner from the Cal Academy of Sciences, John Ljubenkov, and Don Cadien. The venue for this meeting remains uncertain, although a second meeting at Dancing Coyote Ranch remains a possibility. SCAMIT Vice President, Don Cadien is also looking for other invertebrate topics for the rest of next year. A meeting on nuculanid pelecypods has been suggested. Please feel free to submit any ideas for future meetings to Don.

NEW LITERATURE

Another volume of the *Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel* is now out. Those of you with subscriptions to the Atlas should be receiving your copy soon if you haven't already. This volume 5 - The Annelida Part 2 covers the orders Phyllodocida (Syllidae and Scale-bearing families), Amphinomida, and Eunicida.

Member Mary Bergen has a paper in the latest Bulletin of the Southern California Academy of Sciences dealing with the distribution of the ophiuroids *Amphiodia urtica/digitata* in the Southern California Bight. Based on the State Survey collections of 1956-1959, her analysis examines the relationship between sediment granulometry, geographical position in the Bight and abundance of these ophiuroids in an attempt to better define "reference" conditions in the Bight.

A NUISANCE DIGEST?

A newsletter that some SCAMIT members may find interesting is a new quarterly publication by the Freshwater Foundation called ANS (Aquatic Nuisance Species) Digest. This publication provides current information on monitoring and controlling the spread of harmful nonindigenous species. The November issue includes an article by SCAMIT member, Gretchen Lambert and her husband Charles, on nonindigenous sea squirts in California harbors. Also, in this issue is an article by Andrew Cohen on the Chinese mitten crab and its introduction to North America. This crab created severe problems of damage to levees and earthen dams in Europe during the 1930's, with much attendant financial loss. SCAMIT recently had a flyer in the newsletter about the species. Those interested in this publication should contact:

Freshwater Foundation
Gray Freshwater Center
2500 Shadywood Road
Navarre, MN 55331
(612) 471-9773
fax: (612) 471-7685
e-mail: frshwtr@freshwater.org

SCAMIT TAXA LIST

Due to scheduling conflicts amongst members of SCAMIT's executive committee the final meeting to finish edition 2 of the Taxonomic Listing will not be until January. This gives members a second chance to submit any last minute voucher sheets or descriptions of species to be included in this edition. However, they should all be in by the end of this year. The 2nd edition should be out early next year.

Included in this newsletter are several voucher sheets on nemerteans and isaeids, many on species found in the SCBPP. Many of these voucher sheets are the result of the special nemertean meeting held at the end of October. (Refer to SCAMIT newsletter Vol. 14 no.7)

NAMIT MOLLUSCAN WORKSHOP

by Kelvin Barwick

The Northern Association of Marine Invertebrate Taxonomists (NAMIT) held a molluscan workshop in Seattle, Washington on November 18-19, 1995. It was hosted by the Seattle Aquarium. The organizer was Roland Anderson, Curator of marine invertebrates at the Aquarium. The topics covered included; Cephalopods, selected Gastropods, Scaphopods, benthic Opisthobranchs, Chitons, and selected Bivalves.

The first day began with a brief introduction by all the attendees followed by the first speaker, Roland Anderson. He discussed problems associated with identifying cephalopods commonly found in Puget Sound. Dr. Ronald L. Shimek, a professor at Montana State University, spoke on some of the more difficult groups of gastropods including the pyramidellids and turrids. He also previewed his work on the scaphopod section of the *Taxonomic Atlas of the Santa Maria Basin.* In closing, Sandra Millen (Ph.D.), a professor at the University of British Columbia, reviewed the northern species of benthic opisthobranchs.

The second day began with a live molluscan feeding demonstration held in the public aquarium. The first speaker of the day was Roger Clark. He reviewed the common species of chitons encountered in Puget Sound. Next was Susan Weeks who gave a brief introduction to bivalve morphology. She then conducted a mini workshop on bivalves by attempting to identify problem animals brought by participants.

Hats off to NAMIT for putting together an excellent workshop. Thanks to the host and organizer, Roland Anderson, who did an excellent job. All the presenters were superb. The next workshop will be on micro-crustacea

held at Friday Harbor. It is tentatively planned for late January or early February.

SCAMIT members interested on notes from this workshop should consider joining NAMIT. Dues are the same as SCAMIT's, a mere $15 per year. For membership information contact:

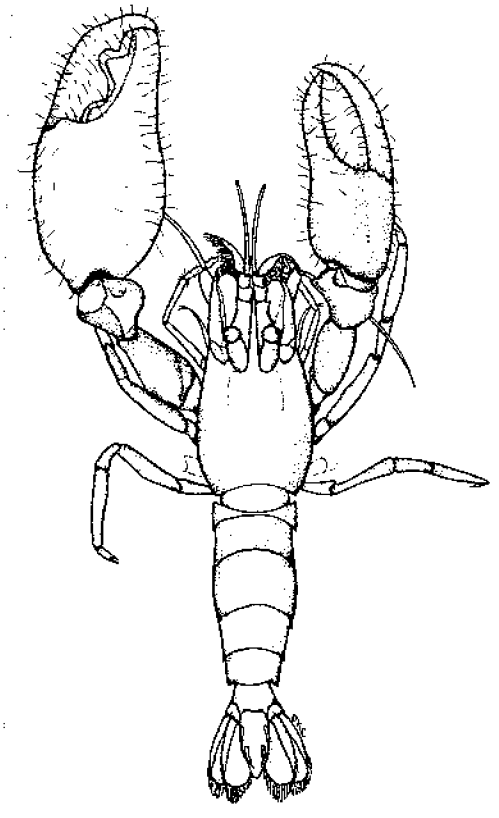
Roberto Llanso
State of Washington
Department of Ecology
300 Desmond Drive
P.O. Box 47710
Olympia, Washington 98504-7710

SYMBIOSIS IN ACTION

One of the advantages of having a varied monitoring program is the ability to sample habitats not covered in most permits. At CSDLAC we have the responsibility of monitoring inshore hard bottom communities by diver observation. During the November dives off Palos Verdes Pt. Dave Montagne spotted a large *Pyura mirabilis* hidden in a crevice in about 12m of water. He usually checks these tunicates for commensals, and this time his efforts were crowned with success. Once the tunicate was opened a large female *Pontonia californiensis* Rathbun 1902 was found inside. Both the tunicate and it's shrimp symbiont were collected for laboratory examination.

This shrimp is seldom seen, only four prior records being known to the writer; the original description from 55m off Santa Cruz Island, from off Santa Rosa Island at 27-29m (Holthuis, 1951), Word and Charwat's (1976) record from 26m on Engel's Bank in the tunicate *Ascidia vermiformis*, and at 43m off Carmel in the tunicate *Ascidia paratropa* (Standing 1981). The animal is eyed, despite its residence inside the thick opaque tunic of the ascidian, and is of a nearly uniform translucent dull orange brown, a color that closely matched the coloration of the internal tissues of its host. The internal organs, including the ripe ovaries, were clearly visible through the carapace. On closer examination the body, the legs, and the dorsal side of the chelae bore scattered minute dots of dull red.

For an animal leading such a retiring existence this female was quite assertive. When approached from the front with forceps she reached forward and snapped her chelae noisily, grasping and pinching the intruder. Her chelae were so disproportionately large as to resemble those of a homarid lobster or a scorpion. Her anterior end was kept low, and her tail flexed up in a "cocked" position to allow rapid escape (should she desire to run rather than fight). As might be expected she was negatively phototactic, and retired to the least well lit portion of the dish. If gently turned over she seemed to be perfectly at home in inverted orientation, laying calmly on her back and kicking her legs in the water.



Pontonia californiensis Rathbun 1902

She was much as illustrated (above) in Word and Charwat's Shrimp volume, but had a proportionately shorter rostrum, and a strongly medially curved tooth on the anterolateral corner of the antennal scale. Unlike many commensal palaemonids, she was not accompanied by a mate. After the tunicate was initially opened underwater it was maintained in a closed container until returned to the surface; there was no opportunity for escape from the host.

The preserved specimen is maintained in the Marine Biology Lab, CSDLAC, Carson, California. -Don Cadien

MINUTES FROM DECEMBER 11TH MEETING

The December meeting held at the County Sanitation District of Los Angeles was in two parts. The morning session focused on the *Octopus* problems that arose from the SCBPP and was led by Megan Lilly (CSDMWWD). Please refer to he article entitled, "*Octopus* Observations" in last month's newsletter. The afternoon session was led by Don Cadien and dealt with amphipods.

The meeting opened with Megan passing out laminated field sheets of *Octopus rubescens*, *O. veligero*, and *O. californicus* to all the major POTW's to assist them with correct identifications in their fieldwork. These sheets included photographs of these 3 species live depicting various characteristics that may be used to distinguish between them.

Megan also showed several slides of the live octopods that she had housed in aquaria for several months at San Diego's lab. In the slides she pointed out some of the distinguishing characteristics that separate these 3 species as she described in last month's newsletter.

She also passed out a packet of handouts with diagrams of a typical octopus, the mantle cavity, and funnel organ, as well as distribution maps for the 3 species and a useful pictorial character table done by Dr. Eric Hochberg (included in this newsletter). While this table is incomplete and Dr. Hochberg plans to add to it in future, it is a valuable resource now and we thank him for sharing it with us.

To give all the members present a better idea of the double "v" and "w" shaped funnel organs in *O. californicus* and *O. rubescens*, Megan demonstrated how to dissect the funnel on a preserved specimen. By making a vertical slit with a small pair of scissors along the funnel starting at the base it is then easy to pull the sides of the funnel back to examine the organ inside for the "v" or "w" shape. It should be noted that it is sometimes difficult to see this organ depending on the size of the octopus and the preserved condition of it.

Megan also demonstrated how to dissect the mantle of an octopus to determine the gill count, another characteristic used in taxonomic keys. The mantle should be cut on the ventral side above the funnel and to the left of the septum. The mantle may also be peeled back to show the lamellae of the gills, which may then be counted. There should be 10-13 in *O. rubescens* and 15-17 in *O. veligero* .

After lunch we watched a video shot at San Diego's lab on the octopods that were housed in the aquaria for several months. The video showed the interesting hunting and feeding behavior of several of the octopods with various prey items. The octopods got very excited at feeding time and displayed interesting color patterns, aggression displays, and fighting over food.

After the video we moved on to amphipods with Don Cadien. No detailed discussions of the changed taxonomic status of any of the pleustid species took place. We did, however, agree on the adoption of the changes introduced by

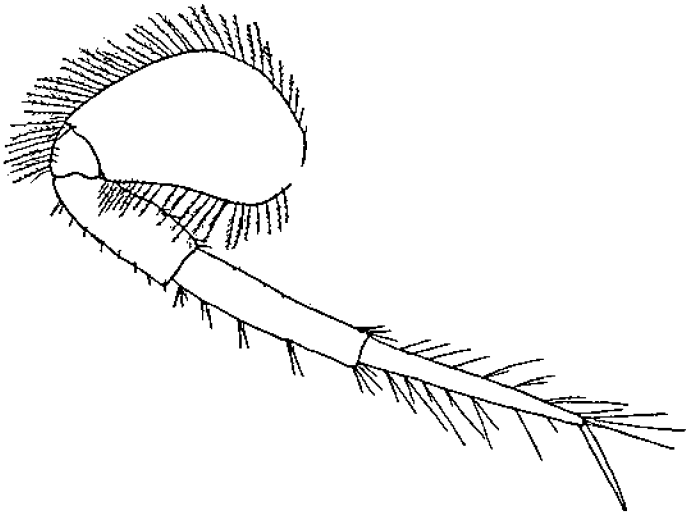
Bousfield and Hendrycks (see below) into our standard local practice. It was agreed that, although we may eventually choose not to use some of the innovations, the new definitions and subfamilial arrangement of the family are coherant and deserve adoption.

Only if we are actively using the modified taxonomy presented by Bousfield and Hendrycks will problems become apparent. Any which do arise can be circulated through the Newsletter and discussed. Some of the proposed changes may eventually be rejected, and at that time our standard practice will again be modified. A summary of how these changes affect prior local usage was appended in tabular form to SCAMIT Newsletter Vol. 14 #5. An elaboration of the information in that table is presented below.

After this discussion of pleustids we examined the type of *Heterophoxus oculatus* Holmes, 1908, on loan from the Smithsonian. The adult female holotype was collected off South Coronado Island in 63-66 fms in 1904. The type consists of the animal in alcohol and three slide mounts of removed parts. The mounted parts are, after 90 years, so nearly even in refractive index to the mountant that they are nearly invisible. Once located, however, they are still in fine condition and can be examined easily with a compound microscope. A complete set of mouthparts, including upper lips, mandibles, maxillas 1 and 2, and maxillipeds is on the slides. One each of antenna one, antenna two, gnathopod 1, epimeron 3, uropod 3, pereopod 6, and pereopod 7 are also present.

Initial counts by the three attendees indicated that the 21-22 ventral setae on the 3rd epimeron listed by Holmes in his original description may be in error. Each of us found only 15-17 ventral setae on the epimeron still attached to the holotype (the left). The right epimeron had been removed and mounted. It bears 21 setae, matching the count mentioned in the original description. The count of 15-17 matches those taken from the largest individuals examined by Dean Pasko at Pt. Loma, at MBC by Carol Paquette, and at CSDLAC by myself. None of us was ever able to find an individual with a count as high as that on Holmes' holotype female.

Examination of the setation pattern of article six of the sixth pereopod showed it much as indicated by Jarrett and Bousfield (1994); with doubly inserted setae along the posterior margin. In specimens from Pt. Loma, off Palos Verdes, and from various sites in the Bight (Carol Paquette) the smallest individuals lacked doubly inserted setal groups, and even the largest specimens generally had the most proximal groups composed of but a single seta. This is in conformance with the Jarrett & Bousfield concept of the species, which is that distally located setal groups on article six of pereopod six bear doubly inserted setae. The holotype has eight setal groups along the posterior margin of article six of pereopod six, the first three of which are singly, the last five doubly inserted. The multi-setose terminal group is excluded from the above count. The relative lengths of the fifth and sixth articles of pereopod six are not as unequal as indicated in Holmes' illustration (1908, pg.521, fig. 28 - reproduced below).



The drawing shows article six about 20% longer than article five; leading to the assertion in the Jarrett & Bousfield key that it is "distinctly

longer". The holotype's mounted left sixth pereopod shows that, although article six is slightly longer, it only exceeds article five in length by about 5%, meriting a description as subequal rather than distinctly longer.

As the condition of the mandible other than the palp was not presented in Holmes' description I provide information gleaned from examination of the holotype. The left mandible has 4 teeth on the incisor, with the lacinia mobilis bearing one large multicusped mesial tooth and a series of 4-5 small denticles; the blades of the raker row number 13, and are pectinate on the distal 2/3 of their posterior faces. Each is accompanied basally by a slender plumose seta about 1/2 it's length. The molar is a low elongate hump bearing three posteriorly pectinate blades along it's dorsum. These appear to merely continue the raker row, but are physically discontinuous. The right mandible has 4 incisor teeth, and the lacinia mobilis bears 7 denticles, with the mesial one largest; the raker row bears 13 blades, as on the left mandible. The blades on the molar hump are not clearly distinguishable in the slide preparation of the right mandible.

One of the unknowns surrounding this species can be definitely answered. There is well developed setosity on the pleonites dorsally on the holotype, a condition which is specifically excluded in the original description of *Heterophoxus conlanae*. It thus appears likely that *H. conlanae* and *H. oculatus* are not synonymous, even though the characters called out in the Jarrett & Bousfield key are not reliable for their separation in southern California (if *H. conlanae* occurs here). - Don Cadien

DISCUSSION OF PLEUSTID TAXONOMY

Several recent revisionary papers have addressed the taxonomy of the amphipod family Pleustidae in the northeastern Pacific (Bousfield & Hendrycks 1994a, 1994b, 1995). These are the first three of an estimated five articles completely revising the fauna, and affecting the family worldwide. The impetus for this revision came from the large series of collections made on the western coast of Canada and in Alaska during the 1950's and 1960's by representatives of Canadian institutions.

A new subfamilial division of the Pleustidae is proposed in the first of these articles (Bousfield & Hendrycks 1994a). It and the character analyses which underlie it form the basis for much of what follows in the later articles. An extended discussion of the morphology and deduced evolutionary trends within the family is presented here. Attempts are made to evaluate the relative apomorphy of each of the new subfamilies in order to properly orient the evolutionary flow of morphological change. The analyses are not as rigorous as the transformation series offered by Fitzhugh in his analysis of the Sabellidae (Fitzhugh 1989), but nearly always seem logically derived and are often supported by more than just conjecture.

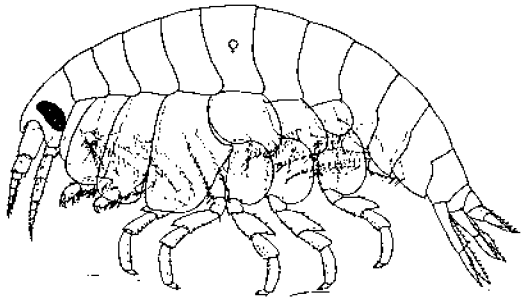
Of the twelve subfamilies erected half are represented in California waters: Stenopleustinae, Pleusymtinae, Dactylopleustinae, Pleustinae, Pleusirinae, and Parapleustinae. Of these the Pleustinae were covered in Bousfield & Hendrycks 1994b, and the Parapleustinae, Dactylopleustinae and Pleusirinae in Bousfield & Hendrycks 1995. The Stenopleustinae and Pleusymtinae are slated for coverage in forthcoming parts of the series.

The subfamily Pleustinae contains relatively large, often highly ornamented species with many representatives in boreal and arctic waters and few California representatives. Prior to the 1994 review the two species occurring in Californian waters were both allocated to the genus *Pleustes* as *P. depressus* and *P. platypa*. Both species are listed in the SCAMIT Benthic Species List Edition 1 under those names. Both were transferred by Bousfield and Hendrycks (1994b) to the newly erected genus *Thorlaksonius*

as *T. depressus* and *T. platypus*. These species, as nearly all other members of the subfamily, have relatively large rostrums. They were both illustrated in Barnard and Given (1960), and have probably been reliably distinguished in our area in the past.

The remaining species in the subfamily are all from cooler waters further north. The closest record of any other member of the subfamily is that of *T. grandirostris* from central Oregon (not central California as stated by Bousfield and Hendrycks in the discussion of distributional ecology for this species). Previous experience with range information in amphipods suggests, however, that many of the species not currently known from south of Vancouver Island may be found in some situations in the Southern California Bight (particularly on offshore islands). Within the Pleustinae species can be distinguished on the basis of gross external characters of the rostrum, gnathopods, coxal shape and ornamentation, and body carination.

Members of the Dactylopleustinae and Pleusirinae also have easily visible external characters of the appendages which allow their recognition and separation without the necessity of mouthpart dissection. Prior to Bousfield & Hendryck's treatment of the subfamily (1995) only two described species were known, *Dactylopleustes echinoicus* (Tzvetkova, 1975) from Alaska and Kamchatka, and *Dactylopleustes obsolescens* Hirayama, 1988 from Japan. They added a third species from British Columbia *Dactylopleustes echinoides*.



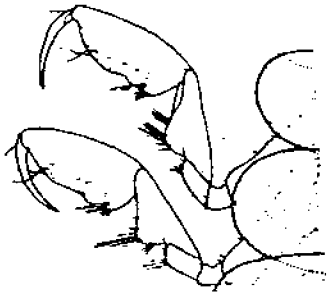
D. echinoides Bousfield & Hendrycks 1995

All three of these species are assumed to be commensal with strongylocentrotid urchins, although no host is yet known for *D. obsolescens*. In actuality none of these species are known from enough occurrences to warrant generalizations about their ecology. The most that can be said is that **so far** collections of these species seem to indicate host specificity to individual urchin species. *Strongylocentrotus polyacanthus* was the recorded host for *D. echinoicus*, while *S. purpuratus* was the inferred host for *D. echinoides* based on common occurrence at the type locality.

In the Southern California Bight the only species currently recognized is the provisional *Dactylopleustes sp A* found in association both with *Allocentrotus fragilis* and *Lytechinus pictus*. This association has been directly observed, with the commensal being removed from the host by the collector (*fide* Ron Velarde). This is currently the only record of a member of the genus from more than one host species; in this case from host species in different families (Strongylocentrotidae and Toxopneustidae). This is only the second report which directly links the commensal with the host through observation rather than indirectly through co-occurrence. Reports of the three northern species have so far been restricted to shallow water, algal associated urchins, and hard substrates. Although *D. echinoides* is assumed an associate of *S. purpuratus,* it was taken in clumps of surf-grass (*Phyllospadix*) or under algal mat (Bousfield and Hendrycks, 1995). It is not inconceivable that this habitat could also harbor urchins large enough to serve as hosts, but this seems unlikely. Perhaps this offers evidence that not all members of the genus are obligate echinoid commensals. After all, the specially modified dactyls which so admirably fit urchin spines could as easily grasp any other columnar or tubular structure of appropriate diameter (such as the thalli of mat-forming algae).

The subfamily Pleusirinae is represented in the Southern California Bight only by *Pleusirus*

secorrus J. L. Barnard 1969. It has only one other member, the subspecies *P. s. asiaticus* from Sakhalin Id. and the Sea of Okhotsk, and from Possjet Bay in the Sea of Japan. Bousfield & Hendrycks (1995) suggest this needs reexamination to verify its status. The subfamily, with its single genus, is easily recognized by the configuration of the gnathopodal carpi, which are elongate, and bear a shallow mid posterior lobe which makes the segment triangular.



Gnathopods of *Pleusirus secorrus* (from Bousfield & Hendrycks, 1995)

The majority of the pleustid species recorded from the Southern California Bight fall into the family Parapleustinae, and prior to the current revisions were all considered members of the genus *Parapleustes*. Seven species in the subfamily are recorded from locations within the Bight (plus a doubtful record of an eighth), only three of which were listed in Edition 1 of the SCAMIT Benthic Invertebrate List - *Parapleustes behningi*, *Parapleustes oculatus*, and *Parapleustes pugettensis*. None of these species retain the same names following the revision.

Parapleustes behningi, which had been *Parapleustes nautilus* prior to its synonymy by Barnard & Karaman (1991), was again separated from *P. nautilus* by Bousfield & Hendrycks (1995) and both were placed in the new genus *Micropleustes*. In reestablishing *M. nautilus* they indicate that *M. behningi* only occurs in the Sea of Japan, and that eastern Pacific occurrences are *M. nautilus*. Barnard's 1969 record of *Parapleustes sp A* is questionably assigned to their newly described *M. nautiloides* by Bousfield and Hendrycks (1995). Their "possibly central California" distributional record (Distributional ecology - pg 115) is in error, presumably being based on Barnard's 1969 record from La Jolla of *Parapleustes sp A*.

Parapleustes commensalis Shoemaker 1952, which was taken originally off Santa Barbara on the pleopods of a California spiny lobster, has also been taken further to the south in Santa Monica Bay, and probably elsewhere. Although the animal may be quite common it is rarely reported. Bousfield and Hendrycks (1995) erected a new genus (*Commensipleustes*) to contain the single species *commensalis*. The validity of this genus is questionable, for reasons which will be presented separately. Wicksten's record (1982) of this species from a different host, *Paralithodes californicus*, is probably a misidentification of a similar but undescribed pleustid. Numerous amphipod samples from both *P. californicus* and *P. rathbuni* examined in the Bight have contained no *C. commensalis*, but two different undescribed species have been found, neither in *Commensipleustes* as currently constituted.

Barnard's *Parapleustes den* was transferred to the new genus *Gnathopleustes* by Bousfield and Hendrycks (1995). This is a shallow water species not yet encountered in the Bight in any POTW monitoring programs, and thus not on the SCAMIT list. The genus is better represented to the north. It's members have large strongly subchelate sexually dimorphic gnathopods.

Previous shallow-water collections in the Bight have contained animals identified as *Parapleustes pugettensis*. These are apparently all misidentifications. The "true *P. pugettensis*" of Dana as defined by Bousfield and Hendrycks (1995) does not occur in the Bight. Two taxa which have been previously synonymized with it, and are now resurrected, do; both allocated to the rehabilitated genus *Incisocalliope*. This was originally created by Barnard (1959) to house *I. newportensis*, a species disavowed and synonymized with *P. pugettensis* by its author the following year (Barnard & Given 1960). A

second member of the genus is also recorded from the Bight, *I. bairdi*, which is distinguished from *I. newportensis* on the basis of antennal segment lengths, and proportions of some leg segments. *Parapleustes pugettensis* is now transferred to the genus *Gnathopleustes*. None of the POTW records of *P. pugettensis* can be accepted, although it is likely that they refer to one or the other of the above *Incisocalliope* species. Until each specimen is reexamined in light of Bousfield & Hendrycks (1995) to provide a corrected identification, data could be modified to read *Incisocalliope sp*, and records of *Parapleustes pugettensis* purged from the database.

A similar problem affects identifications of *Parapleustes oculatus* which has been transferred to the newly created genus *Chromopleustes* Bousfield & Hendrycks 1995 and redefined. Barnard & Givens specimens identified as *P. oculatus* (Holmes 1908) have been separated as a differing undescribed form named *Chromopleustes sp 1* by Bousfield & Hendrycks. In consequence historic records in POTW databases require reexamination using the new definitions of *C. oculatus* provided in their review (1995). Records could be corrected to *Chromopleustes sp* in the interim.

At least two other undescribed pleustid species (mentioned above) are found commensally on decapods in the Bight. One is a pure white species with specially modified pereopodal dactyls which is found on the carapace, abdomen, and legs of lithodid crabs in the genus *Paralithodes*. These animals have adopted a different type of structural modification from that used by either *Commensipleustes* which have setose propods against which the dactyls close for grasping setae or *Dactylopleustes*, which have hooklike modified dactyls shaped for grasping spines. The dactyls of this provisional "sucker-foot" species are of normally slender recurved type, but bear a flat flexible disc on their mesial surface. In observations of living animals it becomes clear that these discs are used in analogous fashion to the suction cups of window washers. They are pressed against the substrate (in this case the surface of the crab exoskeleton), forming a close adherent suction. When the animal wishes to move this leg it must first break the suction by a twisting lateral motion before the leg can be repositioned and reattached to the surface. The animals are quite adept at such movements on the host, where they will scoot along the surface to a sheltered position between elevations or tubercles before coming to rest.

A second undescribed pleustid is found commensal with decapods in our area, but this is pigmented with brown blotches on a white ground in life (though fading to white in preservative). This animal resembles the old concept of *Parapleustes pugettensis* as used by Barnard and Given 1960 in most gross aspects, but is clearly separable on the basis of the live coloration. Investigations are underway to determine which (if any) of the newly created genera of pleustids is appropriate for this species. Unlike the other commensal pleustids from the Bight, this species has no special modifications of the dactyls for position keeping. This species is catholic in its choice of hosts, occurring on several lithodids, on the majid *Loxorhynchus grandis*, and once on a large *Cancer*.

North of Pt. Conception, and particularly north of Oregon the pleustid fauna becomes much larger, with numerous new species in the genera *Gnathopleustes*, *Thorlaksonius*, and *Pleustes*. Some of these taxa may yet be discovered in the Southern California Bight. There may also be additional new species from our area described in the upcoming portions of this revisionary series dealing with the Pleusymtinae and Stenopleustinae. We also may find that the problems of introduced taxa found so frequently in nearshore marine environments are also manifest in the pleustids. *Incisocalliope derzhavini*, for instance, has been taken for some time in San Francisco Bay. This problem would be expected more frequently in estuarine associated groups such as *Incisocalliope* than in

the open coastal and offshore pleustids.

The pleustid fauna of the Southern California Bight (as presently known), thus contains the following species:

Chromopleustes oculatus (Holmes 1908)
Chromopleustes sp 1 Bousfield & Hendrycks *1995*
Commensipleustes commensalis (Shoemaker 1952)
Dactylopleustes sp A SCAMIT 1988
Gnathopleustes den (J. L. Barnard 1969)
Incisocalliope bairdi (Boeck 1871)
Incisocalliope newportensis J.L. Barnard 1959
Micropleustes nautilus (J.L. Barnard 1969)
?*Micropleustes nautiloides* Bousfield & Hendrycks 1995
Pleusirus secorrus J. L. Barnard 1969
Pleusymtes subglaber Barnard & Given 1960
Stenopleustes monocuspis Barnard & Given 1960
Thorlaksonius depressus (Alderman 1936)
Thorlaksonius platypus Barnard & Given 1960
"sucker-foot" pleustid
"brown-blotched" pleustid

COPYRIGHT LAW

In the 1 December issue of *Science* there is an article discussing the outcome of the Texaco case and its affect on photocopying by scientists ("How Does the Texaco Case Affect Photocopying by Scientists". Science 270: 1450-1451). The decision by the U.S. Court of Appeals in the case *American Geophysical Union* v. Texaco, Inc. does appear to affect photocopying practices that have been accepted as reasonable in scientific research. The decision suggests that any large, commercial, for-profit, corporation where employees systematically make copies of journal articles for archival purposes probably violates the copyright law. The court did, however, state two kinds of copying that it did not address in its decision. They are 1) an independent researcher copying articles for his/her own research, who is not employed by an institution that he/she is conducting the research for and 2) photocopying for personal use by an individual.

The court decision in this case raises many unresolved questions for scientists. For instance, "Is archival copying fair use if it is not systematic?" and "May an individual make copies for research purposes from a journal they received as membership in a scientific association?" Another important question that needs to be addressed is whether the distinction made between scientists working in industry and those employed by the government or an academic institution is actually valid since all are conducting research of potentially commercial value.

It would seem that the only lawful way for a scientist to obtain a copy of a publication is from the author directly, which may not be possible since publishers typically limit the number of reprints the author may obtain at no cost. Of course, the author may pay for more reprints so he can distribute his own research, but why should the author have to incur this expense. The main compensation a researcher receives for his contribution to science doesn't come in the form of any financial gain. The compensation comes from the recognition they receive in having their work disseminated, not only amongst their colleagues and peers, but the widest possible audience. Are we saying that the scientist should pay for the consumer's privilege of reading his research? This seems a bit backwards. Perhaps the publishers that seem so forthright in pursuing the enforcement of the Copyright Act might want to remember that without research to publish they would not be in business. Or perhaps they would like to share the royalties or copying fees they receive from the Copyright Clearance Center with the individual authors.

For those who find the topic sufficiently engaging there is now an electronic forum available for discussion of copyright law in

relation to scholarly publishing. This can be accessed through information provided in the "Beyond the Printed Page" section of *Science* On-Line (http://science-mag.aaas.org/science/).

EMPLOYMENT OPPORTUNITY

The Natural History Museum of Los Angeles County has an immediate opening for a Collections Manager in the Crustacea Section. Please see the flyer enclosed with this newsletter for more information.

A CORRECTION

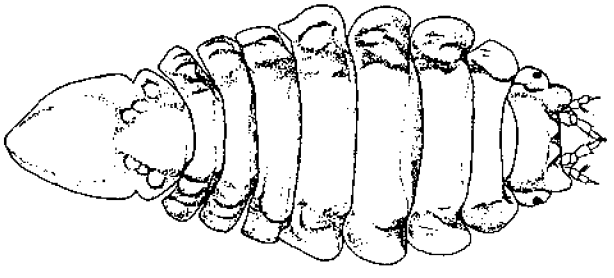
In the last issue of the Newsletter (Vol. 14 #7) I reported collection of a specimen of *Ambidexter swifti* off Palos Verdes. I recently was informed by Mary Wicksten that this was not a range extension from the original collection in Panama (as I stated) as she had reported the species from the Gulf of California (Wicksten 1983). I met with Mary at the Los Angeles County Museum of Natural History on the 19th of December, and she examined the specimen there. She found that I had erred in my identification, and the animal was *Processa peruviana* which she had described as a new species in the same paper. The present collection extends the range of that species north from the outer coast of Baja California into the Southern California Bight. The northern range limit of Ambidexter swifti remains at Isla San Benito, Gulf of California based on Mary Wicksten's record. - Don Cadien

E-MAIL COMMUNICATION

SCAMIT has been receiving communications via E-mail recently; in gradually increasing frequency . In addition to greetings, and orders for back issues of the Newsletter, we have had several notes from members concerning taxonomy. Member Roy Kropp (Batelle, Duxbury, Maine) sent an inquiry prompted by discussion in the newsletter of the isopod genus **Edotia** during SCBPP QA activities . I quote from his E-mail message "...After reading the newsletter about the two MEC provisional species and being reminded of the comments in Rafi and Laubitz regarding their material of **E. sublittoralis**, I would like to take a closer look at the Morro Bay material. Therefore, I was curious if there was any written information about the MEC species (e.g., voucher sheets) that I could use for a comparison.

Just for your interest, the **Edotia** situation on the east coast has been confused by many people. Starting with Wallace (~191) people synonymized **E. montosa** and **E. acuta** with **E. triloba**. After seeing much material from Mass Bay and Boston Harbor (and looking at the type of **E. acuta** in the USNM), I think **E. triloba** and **E. montosa** definitely are distinct and **E. acuta** is a synonym of **E. montosa**. Eric Lazo-Wasem and I are hoping to write this up (if we ever get time) soon. Also, I have looked at some material from the Gulf ...that has been called either **triloba** or **montosa** and think that it is different...and so the story goes."

I know of no sheets for either of the MEC provisionals, and hopefully some will be prepared soon. If anyone else has any information on local **Edotia** I am sure that Roy would be delighted to hear it. Contact him at kropp@battelle.org directly.



Edotia sublittoralis (from Rafi & Laubitz, 1990)

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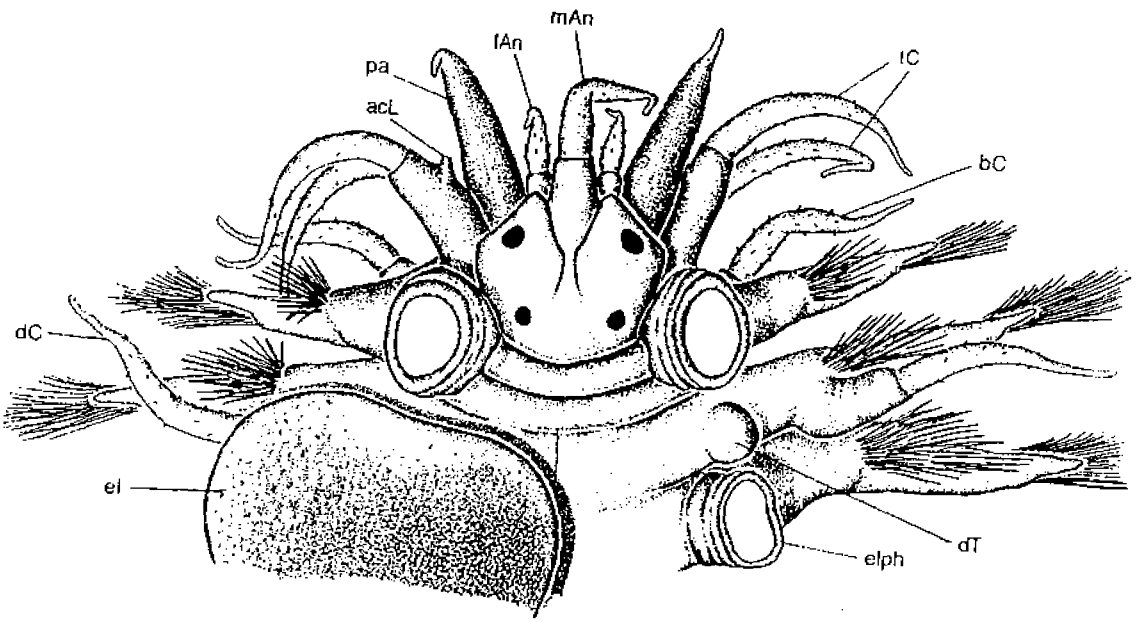

Ysideria hastata Ruff n. sp. (=Harmothoe sp A SCAMIT) from Ruff, 1995
Family Polynoidae Malmgren, 1867 IN: Blake, J.A., B. Hilbig, and P. H. Scott (eds).
Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel
Vol. 5 - The Annelida (Part 2)

SCAMIT OFFICERS:
If you need any other information concerning SCAMIT please feel free to contact any of the officers.

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Secretary	Cheryl Brantley	(310)830-2400 ext. 403
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Back issues of the newsletter are available. Prices are as follows:

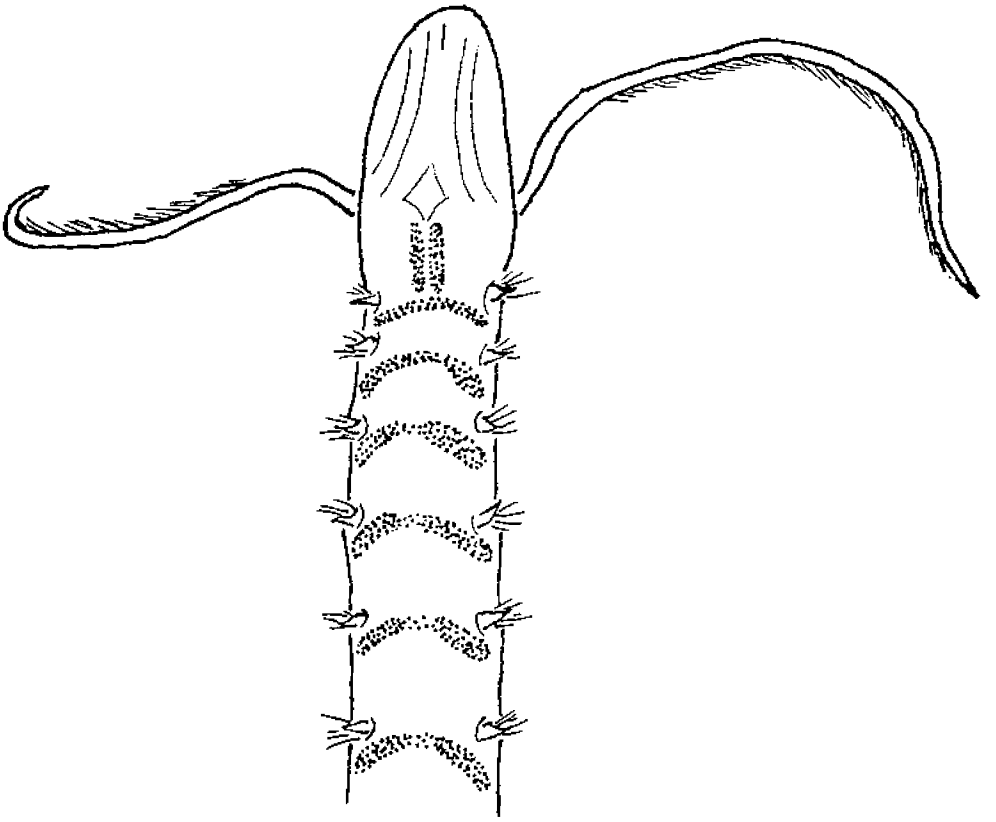
Volumes 1 - 4 (compilation).....$ 30.00
Volumes 5 - 7 (compilation).....$ 15.00
Volumes 8 - 13 .....$ 20.00/vol.

Single back issues are also available at cost.

Collections Manager, Invertebrate Zoology

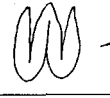
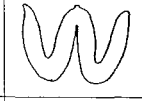
An immediate opening exists for a Collections Manager at the Natural History Museum of Los Angeles County. This is a permanent position funded by the Natural History Museum Foundation. The successful applicant will be responsible for the care and maintenance of the second largest collection of Crustacea in the United States. Responsibilities include supervision of volunteers, visiting researchers, and student workers; processing loans; and the successful completion of a current NSF grant for care of the collections. Applicants should have the MS degree or its equivalent in work experience at a major museum, as well as a strong background in invertebrate biology. Knowledge of relationships among the major groups of crustaceans is highly desirable. Starting salary is $30,500 / year. To apply, send curriculum vitae, names and addresses of three references, and letter of application outlining your qualifications, educational background and work history by January 16, 1996, to Dr. Joel W. Martin, Invertebrate Zoology, Natural History Museum of Los Angeles County, Los Angeles, CA 90007, USA. The Natural History Museum of Los Angeles County is an equal opportunity employer.

This illustration should have been included in the October SCAMIT Newsletter (Vol. 14, No. 6) with the information on staining patterns in polychaetes. The SCAMIT secretary apologizes for this omission.



Rose bengal staining pattern of *Magelona sacculata* Hartman,1961

KM Langan, Oct. 1995

Character	californicus	rubescens	veligero	selene
Funnel Organ				
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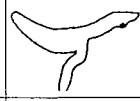
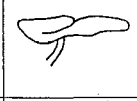
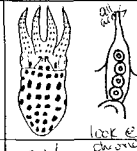
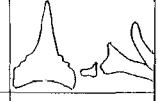
Terminal Organ Shape				
Paralarvae	N/A			
Iridophores		gold (head & arms)	gold (head & arms)	gold (head & arms)
Radula				
Papillae				
Dark Spots	N/A			

SCAMIT CODE: None

Date Examined: 12 December 1995
Voucher By: Timothy Stebbins & Dean Pasko

SYNONYMY: Photis sp SD1 of Point Loma

LITERATURE: Barnard, J.L. 1962. Benthic marine Amphipoda of southern California: Families Aoridae, Photidae, Ischyroceridae, Corophiidae, Podoceridae. Pac. Nat., 3(1): 3-72.

Conlan, K.E. 1983. The amphipod superfamily Corophioidea in the northeastern Pacific region: 3. Family Isaeidae: Systematics and distributional ecology. Natl. Mus. Nat. Sci. (Canada) Publ. Nat. Sci., 4: 1-75.

DIAGNOSTIC CHARACTERS:

1. Female with distinct "male-type" gnathopod 2 (Figure 1A) consisting of a large emarginate palmer process with a denticulate margin. Gnathopod 1 slightly sinuous, almost transverse; dactyl overlapping palm.

2. Coxae weakly setose (< 10 setae along ventral margin). Coxa 2 completely overlaps coxa 1. Coxae 2 through 5 deep, with coxa 4 being the deepest: e.g., much longer than *Photis brevipes* and *P. californica*, but shorter than *Photis* sp A.

3. Eyelobe is acute.

4. Pigment pattern: body generally greyish white with light diffuse pigment anteriorly, most pronounced (as bands) dorsally on pereonites 1, 4 and 5, and on coxae 4 and 5..

RELATED SPECIES AND CHARACTER DIFFERENCES: None known.

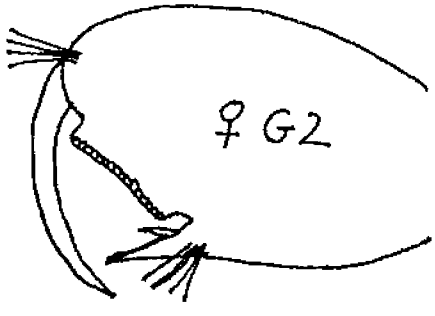
COMMENTS: Male unknown. Specimens examined = single gravid female approx. 3mm in length.

DEPTH RANGE: 138 m

DISTRIBUTION: Southern California Bight Pilot Project station #1916.

Figure 1. Photis sp. E: (A) gnathopod 2, lateral view; (B) gnathopod 1, lateral view.

A.



B.

SCAMIT CODE: None

Date Examined: 12 December 1995
Voucher By: Timothy Stebbins & Dean Pasko

SYNONYMY: *Photis* sp SD2 of Point Loma

LITERATURE: Barnard, J.L. 1962. Benthic marine Amphipoda of southern California: Families Aoridae, Photidae, Ischyroceridae, Corophiidae, Podoceridae. Pac. Nat., 3(1): 3-72.

Conlan, K.E. 1983. The amphipod superfamily Corophioidea in the northeastern Pacific region: 3. Family Isaeidae: Systematics and distributional ecology. Natl. Mus. Nat. Sci. (Canada) Publ. Nat. Sci., 4: 1-75.

DIAGNOSTIC CHARACTERS:

1. Male with distinct gnathopod 2 (Figure 1A) with a large flat palmer process and a large defining tooth; dactyl overlapping palm. Gnathopod 1 palm sinuous, almost "stepped", with posterior margin of article 6 equal to 1/2 the length of anterior margin.

2. Coxae weakly setose (< 10 setae along ventral margin). Coxa 1 with scalloped ventral margin. Posterior margins of coxae 1 and 2 strongly curved (i.e., not quadrate) (Figure 1C). Coxa 2 approximately 1/3 wider than deep (width to depth ratio=1.3). Coxa 3 has a quadrate ventral margin.

3. Eyelobe is not acute, though it is tappered.

4. Pigment pattern: body white, without pigment.

RELATED SPECIES AND CHARACTER DIFFERENCES:

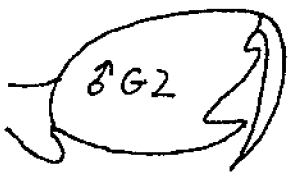
1. Male gnathopod 2 of *Photis* sp F is very similar to that of *Photis* sp B, but the eyelobe is not acute and gnathopod 1 is quite different.

COMMENTS: Female unknown.

DEPTH RANGE: 151 m

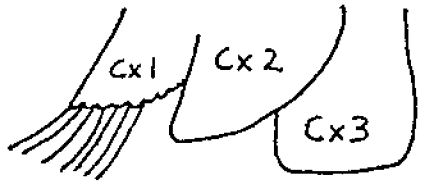
DISTRIBUTION: Southern California Bight Pilot Project station #1874.

Figure 1. Photis sp F: (A) gnathopod 2, lateral view; (B) gnathopod 1, lateral view; (C) coxae 1 - 3 (setae not included for coxae 2 & 3).



A.

B.



C.

SCAMIT CODE: None

Date Examined: 8 November 1995
Voucher By: Dean Pasko

SYNONYMY: Anopla sp. SD1 of CSDMWWD

LITERATURE: Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

Blake, J. A. and A. L. Lissner, 1993. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 1. Introduction, Benthic Ecology, Oceanography, Platyhelminthes and Nemertea.

DIAGNOSTIC CHARACTERS:

1. Body somewhat elongatete, thick, tappered at both ends.
2. Color white without other markings.
3. Eyes absent.
4. Proboscis unarmed.
5. Cerebral ganglia large (dumbbell-shaped) .

RELATED SPECIES AND CHARACTER DIFFERENCES:

None known. At first glance this species has the general appearance of a Polyclad flatworm.

DEPTH RANGE: 90-120 m

DISTRIBUTION: Found off Point Loma, California in silty sediments at shelf depths.

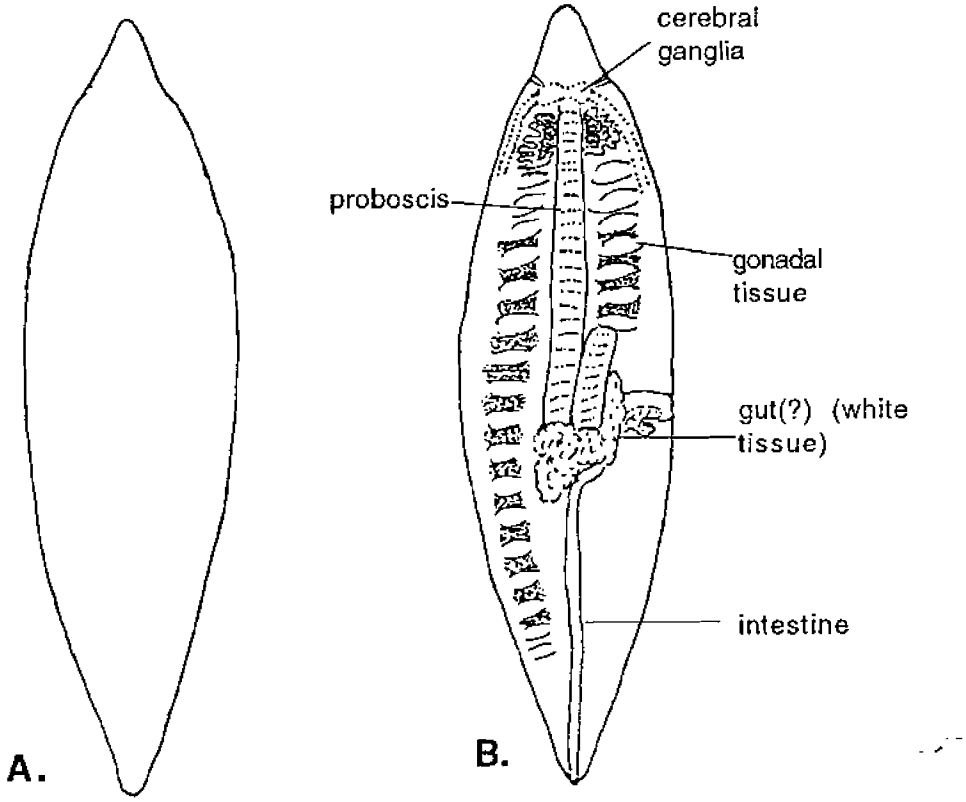


Figure 1. Anopla sp. B: **A.** whole animal, dorsal view; **B.** whole animal cleared, doral view.

SCAMIT CODE: None

Date Examined: 8 November 1995
Voucher By: Dean Pasko

SYNONYMY: Anopla sp. SD2 of CSDMWWD

LITERATURE: Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

Blake, J. A. and A. L. Lissner, 1993. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 1. Introduction, Benthic Ecology, Oceanography, Platyhelminthes and Nemertea

DIAGNOSTIC CHARACTERS:

1. Body light colored (cream to tan or light olive), thin, elongate and thread-like.

2. Head somewhate elongate and rounded anteriorly.

3. Mouth modereatly seperated from proboscis pore.

4. White band present anteriorly, just anterior to mouth.

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. This species closely resembles Anopla sp. D SCAMIT in being an elongate, white, fairly featureless nemertean; however, Anopla sp. D has a mouth much separated from proboscis pore, a head that is tappered anteriorly, and a white body without a white band near the mouth.

DEPTH RANGE: 90-120 m

DISTRIBUTION: Found off Point Loma, California in silty sediments at shelf depths.

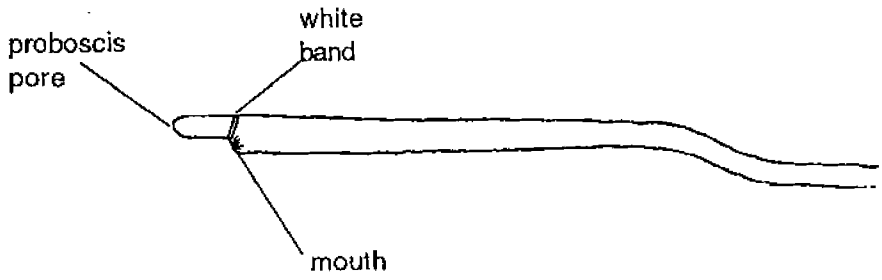


Figure 1. Anopla sp. C : **A.** anterior end, lateral view.

SCAMIT CODE: None

Date Examined: 8 November 1995
Voucher By: Dean Pasko

SYNONYMY: *Procephalothrix major* of CSDMWWD

LITERATURE: Bernhardt, P. 1979. A key to the nemertea from the intertidal zone of the coast of California. (Unpublished.)

Blake, J. A. and A. L. Lissner, 1993. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 1. Introduction, Benthic Ecology, Oceanography, Platyhelminthes and Nemertea.

Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

DIAGNOSTIC CHARACTERS:

1. Body white, thin, elongate and thread-like, often coiled posteriorly
2. Head elongate and tappered anteriorly
3. Mouth seperated from proboscis pore by approximately 5 body widths
4. Eyes absent

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. This species resembles Anopla sp. C SCAMIT in being an elongate, white, fairly featureless nemertean; however, Anopla sp. C has a mouth much less separated from proboscis pore (approx. 2 body widths), a rounded head, a white band present just anterior to mouth, and a body generally cream to light olive in color.

DEPTH RANGE: 90-120 m

COMMENTS: This species closely resembles the illustration of *Procephalothrix spiralis* shown in Hyman, 1951, (Fig. 174, C & D) but with a more elongate mouth. It was originally identified as *Procephalothrix major* because the body was snarled or coiled posteriorly, not wrapped into a spiral as discribed in Bernhardt, 1979.

DISTRIBUTION: Found off Point Loma, California in silty sediments at shelf depths.

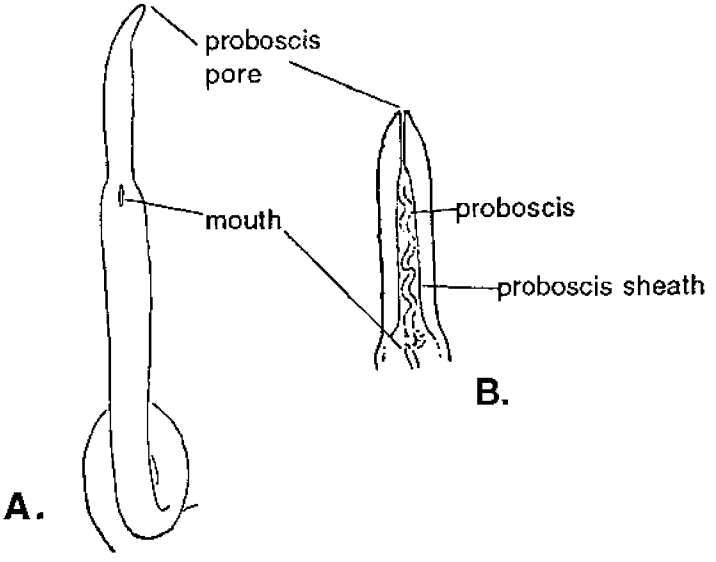


Figure 1. Anopla sp. D : **A.** anterior end, ventral view (from Hyman, 1951); **B.** anterior end, ventral view.

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: Dean Pasko

SYNONYMY: Polystylifera sp. SD 1 of CSDMWWD

LITERATURE: Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

Gibson, R. 1982. Nemertea. In: Synopsis and Classification of Living Organisms. Vol. 1. PP: 823-846.

DIAGNOSTIC CHARACTERS:

1. Generally a large, thick bodied, dorso-ventrally flattened hoplonemertean with a large terminal proboscis pore. Body thickest in middle and tappering laterally to form ribbon-like lateral margins.

2. Color usually cream to light brown with mid-dorsal longitudinal band formed by fading of brown coloration laterally.

3. Eyes absent.

4. Cerebral ganglia large.

RELATED SPECIES AND CHARACTER DIFFERENCES:

An accurate affiliation of this species with described species (or higher taxa) is not possible at this time. The species superficially resembles a uniporian nemertean (Enopla: Hoplonemertea: Polystilifera: Uniporidae) because of the large atrium-like opening forming the proboscis pore, its large size, the appearance of a simple stomach lacking appendages, and the absence of eyes; however, the author's unfamiliarity with this group precludes assignment of this species to any lower taxon.

DEPTH RANGE: 60 m

DISTRIBUTION: Point Loma, California in sandy and silty sand sediments.

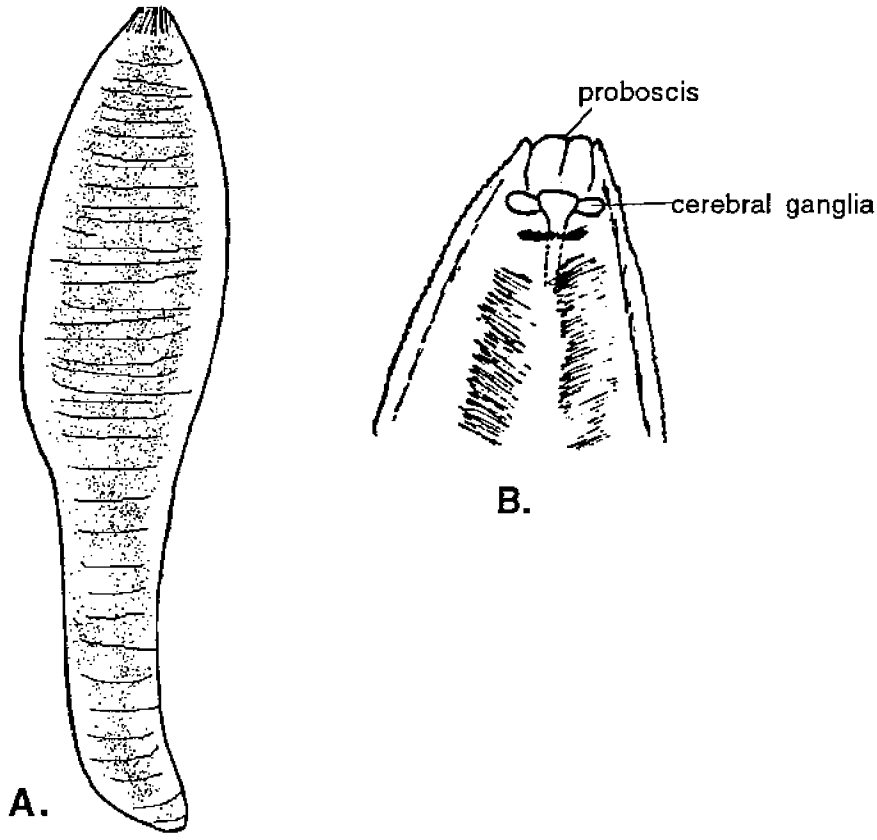


Figure 1. Enopla sp. A SCAMIT : **A.** whole animal, dorsal view; **B.** anterior end cleared, dorsal view.

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: John Ljubenkov & Dean Pasko

SYNONYMY: Monostylifera sp. SD 2 of Point Loma (for SCBPP)

LITERATURE: Gibson, R. 1986. Redescription and taxonomic reappraisal of *Nemertopsis actinophila* Bürger, 1904 (Nemertea: Hoplonemertea: Monostilifera). Bulletin of Marine Science, 39(1): 42-60.

DIAGNOSTIC CHARACTERS:

1. Body generally elongate, thin, rounded anteriorly and tappered posterioirly; without pigment (white).

2. There are four eyes. The anteriormost are brick red, simple cup-shapped ocelli, much larger than posterior pair and fairly close set. The posterior eyes consist of irregular aggregations of pigment granules (frequently round in appearance) and are located alongside the cerebral ganglia. They are sometimes difficult to see, but are generally brick red, much smaller and more seperated than anterior pair, and fairly distant from the anterior pair.

3. Proboscis sheeth extends ~1/4 the length of body.

4. Proboscis armature consists of a long stylet (approx. equal to basis length) wth a cylindrical basis, and from 2-4 accessory pouches.

RELATED SPECIES AND CHARACTER DIFFERENCES:

DEPTH RANGE: intertidal to 150 m

DISTRIBUTION: Southern California Bight, frequently found in rocky substrates, and reported to live commensally among actinarians (hence the name "actinophila").

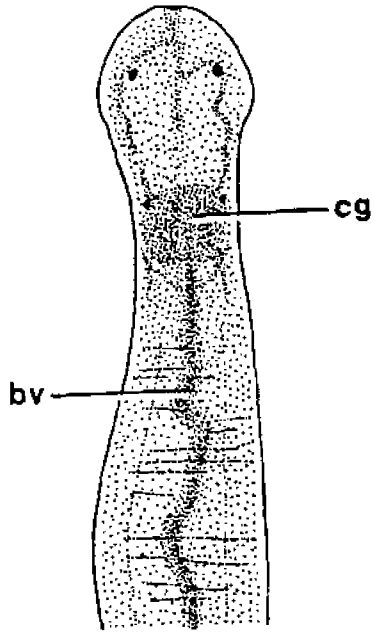


Figure 1

Figure 1. *Cryptonemertes actinophila*: **A.** anterior end, dorsal view (from Gibson, 1986).

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: Dean Pasko, J. Ljubenkov

SYNONYMY: *Prosorhochmus albidus* (Coe 1905) of MEC and CSDMWWD

LITERATURE: Coe, W. R. 1905. Nemerteans of the west and northwest coasts of America. Bulletin of the museum of Comparative Zoology, Harvard. 47: 1-318.

Bernhardt, P. 1979. A key to the nemertea from the intertidal zone of the coast of California. (Unpublished.)

DIAGNOSTIC CHARACTERS:

1. Body generally elongate, somewhat tapered posteriorly, without pigment (white) but with two triangular pigment patches dorsally on head. Head somewhat tapered anteriorly, set-off from the rest of body by a transverse cephalic slit, which arches anteriorly ("∩" shaped) on the ventral surface.

2. There are two pairs of eyes, both crescent shaped and red to rose colored.

3. Proboscis sheath extends ~3/4 the length of body.

4. Proboscis armature consists of a long stylet (approx. 2/3-3/4 the length of the basis) and a cylindrical basis with an expanded end. There are two accessory pouches with two stylets each.

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. This species is closely related to Monostylifera sp. C SCAMIT but differs from it by the presence of two pigment patches on the head, the presence of two pairs of eyes, and a longer proboscis sheath (~3/4 the length of body vs. $\leq$ 1/2 the length of the body in Monostylifera sp. C). The size and shape of the proboscis armature is very similar in both species.

1. This species is closely resembles *Prosorhochmus albidus* but differs from it in having well defined eyes that are not "large", "irregular" or with "rootlike processes of pigment extending on all sides" as described and figured in Bernhardt, 1979.

DEPTH RANGE: intertidal to 150 m

DISTRIBUTION: Southern California Bight.

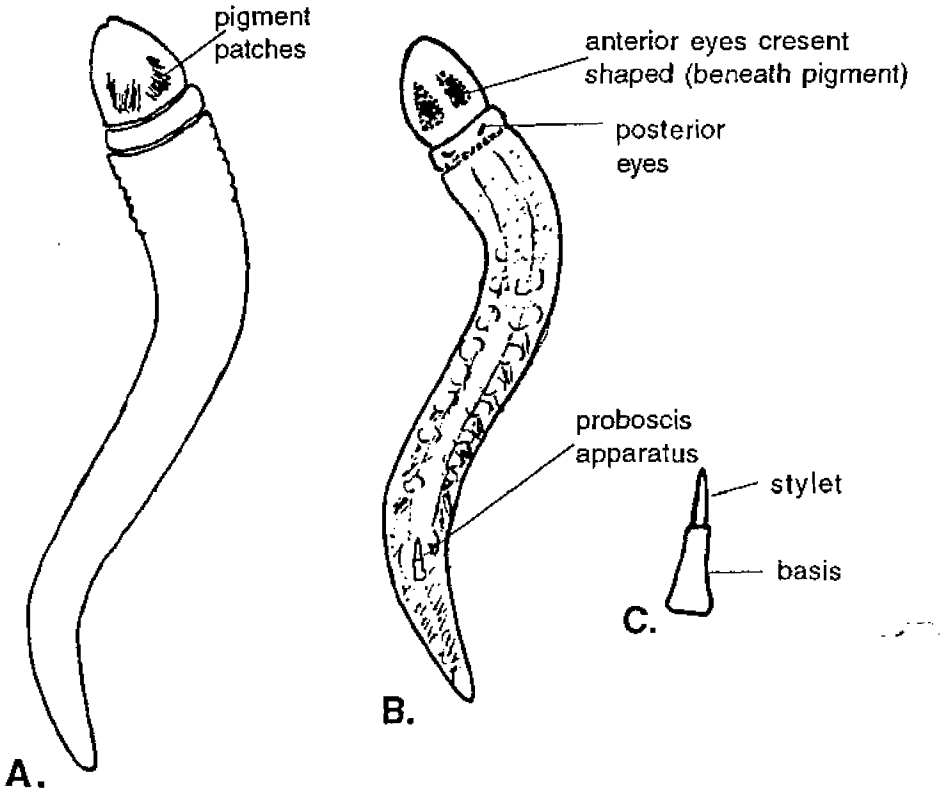


Figure 1. Monostylifera sp. B SCAMIT: **A.** entire animal, dorsal view; **B.** entire animal, cleared, dorsal view; **D.** proboscis armature.

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: Dean Pasko

SYNONYMY: Prosorhochmidae sp. SD 1 of CSDMWWD

LITERATURE: Coe, W. R. 1905. Nemerteans of the west and northwest coasts of America. Bulletin of the Museum of Comparative Zoology, Harvard. 47: 1-318.

Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

DIAGNOSTIC CHARACTERS:

1. Body generally elongate, somewhat tapered posteriorly without pigment (white). Head somewhat tapered anteriorly, set-off from the rest of body by a transverse cephalic slit which arches anteriorly ("∩" shaped) on the ventral surface.

2. Ocelli absent (though hints of a single pair of anterior eyes were present in some specimens).

3. Proboscis sheath extends ~ 1/2-3/5 the length of body.

4. Proboscis armature consists of a long stylet (approx. 2/3-3/4 the length of the basis) and a cylindrical basis with an expanded end. There are two accessory stylet pouches with two stylets each. At 50x magnification, the stylets appear to have longitudinal lines or grooves. At 400x magnification, the stylets appear to be made of two layers: an outer transverse matrix and an inner granular core.

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. This species appears to be closely related to Monostylifera sp. B SCAMIT but differs from it in the absence of any head pigment and ocelli, and the shorter proboscis sheath ($\geq$ 3/4 the length of the body in Monostylifera sp. B). The size and shape of the proboscis armature is very similar in both species.

DEPTH RANGE: intertidal to 150 m

DISTRIBUTION: Southern California Bight.

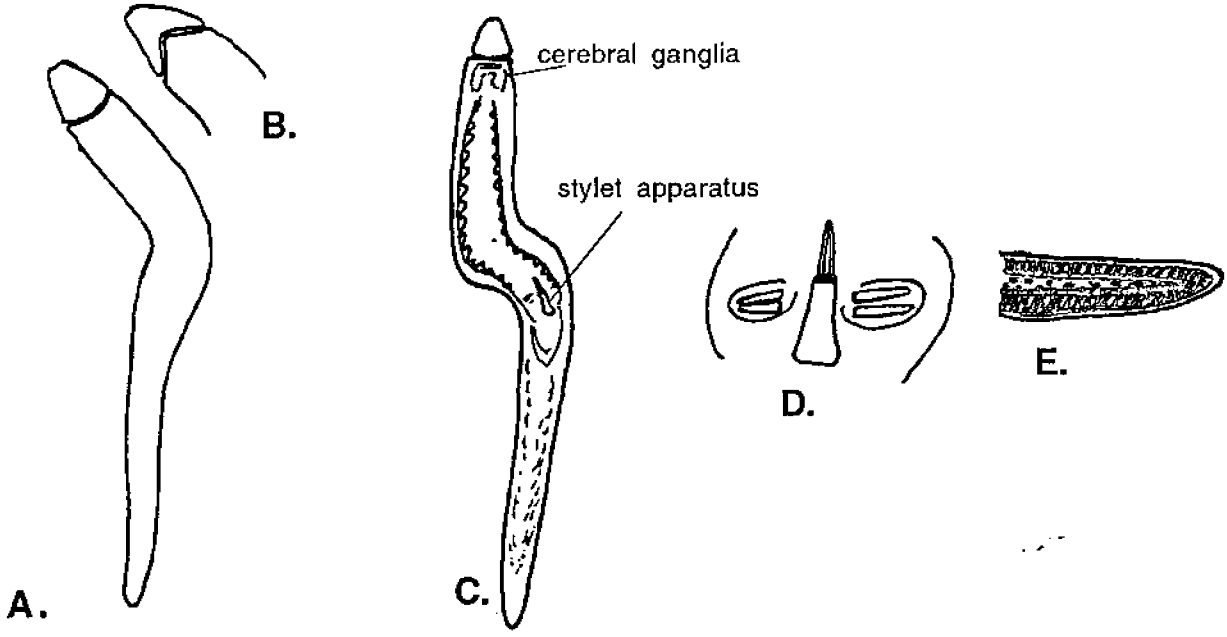


Figure 1. Monostylifera sp. C SCAMIT: **A.** entire animal, dorsal view; **B.** anterior end, ventral view; **C.** entire animal, cleared, dorsal view; **D.** proboscis armature, 100x; **E.** stylet, 400x.

Paleonemertea sp. C SCAMIT 1995 SCAMIT Vol. 14, No. 8
Group: Nemertea: Anopla: Paleonemertea

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: Dean Pasko & Don Cadien

SYNONYMY: Paleonemertea sp. SD 1 of Point Loma
Paleonemertea sp. C of Cadien, LA County
Tubulanus sp. of Paquette, MBC

LITERATURE: Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

Blake, J. A. and A. L. Lissner, 1993. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 1. Introduction, Benthic Ecology, Oceanography, Platyhelminthes and Nemertea.

DIAGNOSTIC CHARACTERS:

1. Generally a large, thick bodied "Tubulanid-type" nemertean with cream colored body and brownish-red preservation band in the esophageal region preceded by thin white preservation band anteriorly. Other variations on preserved pigmentation may include brownish speckling anteriorly on head and/or a thin white (isosceles) triangular patch posteriorly in preservation band (See Figure 1).

2. Lateral sense organ absent (i.e., paired lateral white rings typical of the lateral sense organs found in *Tubulanus polymorphus* are absent).

3. Eyes absent.

4. A very short longitudinal cephalic groove is present.

5 Just posterior to the cephalic groove, the head bears two flattened field--one of each side of the head--which are sharply defined, but not sunken below the body surface. These may be sensory.

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. *Tubulanus polymorphus*: cephalic groove absent and lateral sense organ present.

2. *Carinomella lactea*: cephalic groove absent; thin white band anterior to preservation ring also absent.
3. Paleonemertea sp. A of Phillips: cephalic groove absent; thin white band anterior to preservation ring absent; thin white band present on head in vicinity of mouth.

DEPTH RANGE: intertidal to 150 m

DISTRIBUTION: Southern California Bight.

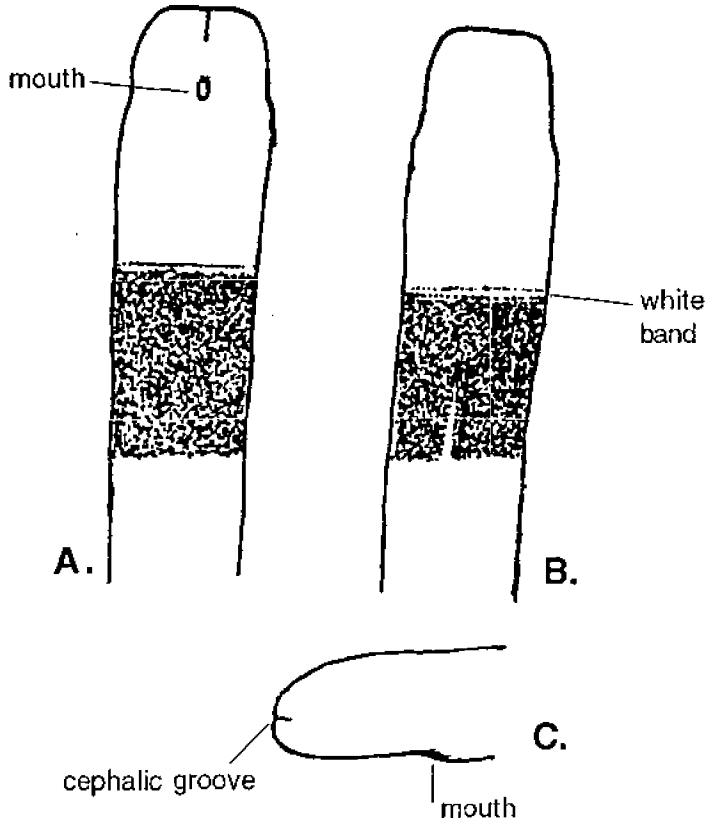


Figure 1

Figure 1. Paleonemertea sp. C SCAMIT: A. anterior end, ventral view; **B.**anterior end, dorsal view; **C.** head, lateral view.

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: John Ljubenkov & Dean Pasko

SYNONYMY: *Tetrastemma nr. candidum* of MEC and CSDMWWD

LITERATURE: Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

Blake, J. A. and A. L. Lissner, 1993. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 1. Introduction, Benthic Ecology, Oceanography, Platyhelminthes and Nemertea.

DIAGNOSTIC CHARACTERS:

1. Body generally short, plump and without pigment (white).
2. Four crescent shaped rose-colored eyes with posterior pair facing posteriorly.
3. Proboscis sheath 2/3-3/4 the length of body.
4. Proboscis armature consists of short stylet ($\leq$1/5 of basis length) and cylindrical basis expanded and flattened posteriorly.

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. *Tetrastemma candidum*: Color gray, yellow, green or brownish green; stylet only slightly shorter than hourglass-shaped basis (cylindrical, constricted in middle, with round end) (See Figure 2).

DEPTH RANGE: intertidal to 150 m

DISTRIBUTION: Southern California Bight

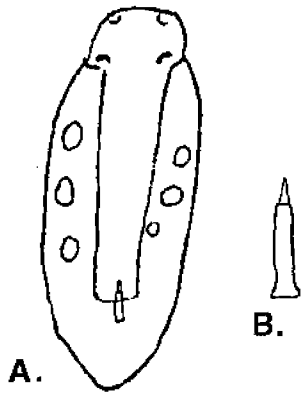


Figure 1

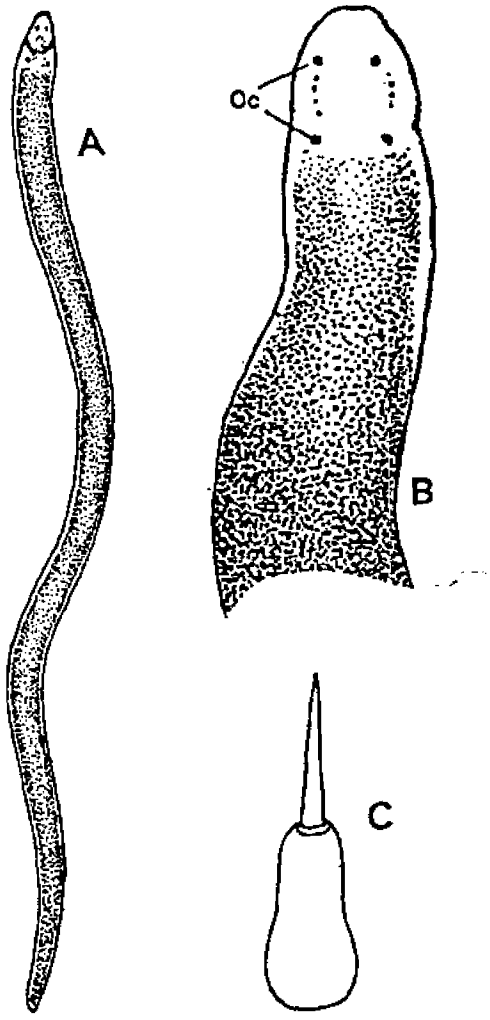


Figure 2

Figure 1. *Tetrastemma* sp. A SCAMIT: **A.** entire animal cleared; **B.** entire specimen, cleared; **C.** stylet apparatus.

Figure 2. *Tetrastemma candidum*: **A.** entire animal, dorsal view; **B.** anterior end, dorsal view; **C.** stylet apparatus. (From Blake and Lissner, 1993.)

SCAMIT CODE: None

Date Examined: 27 October 1995
Voucher By: Dean Pasko

SYNONYMY: Tubulanidae sp. SD1 CSDMWWD

LITERATURE: Coe, W. R., 1940. Revision of the nemertean fauna of the Pacific coasts of North, Central, and northern South America. Allan Hancock Pacific Expeditions. 2 No. 13: 247-323.

Blake, J. A. and A. L. Lissner, 1993. Taxonomic Atlas of the Benthic Fauna of the Santa Maria Basin and Western Santa Barbara Channel. Volume 1. Introduction, Benthic Ecology, Oceanography, Platyhelminthes and Nemertea.

DIAGNOSTIC CHARACTERS:

1. Generally a large, thick bodied "Tubulanid-type" nemertean with dark, redish-brown colored body, with thin, light colored lateral line present; head cream colored.

2. Head set-off from body by distinct, fairly deep cephalic groove.

3. Eyes absent.

4. Lateral sense organ present as white (cream colored) lateral spot (one on each side).

RELATED SPECIES AND CHARACTER DIFFERENCES:

1. Hoplonemertea sp. A of Ljubenkov: Pigment pattern very similar, but the proboscis pore and mouth are united.

COMMENTS:

Specimens have been collected with a thin, orange silt covered tube tightly adherent to the body.

DEPTH RANGE: 90 to 120 m

DISTRIBUTION: Point Loma, California in silty sediments along the shelf.

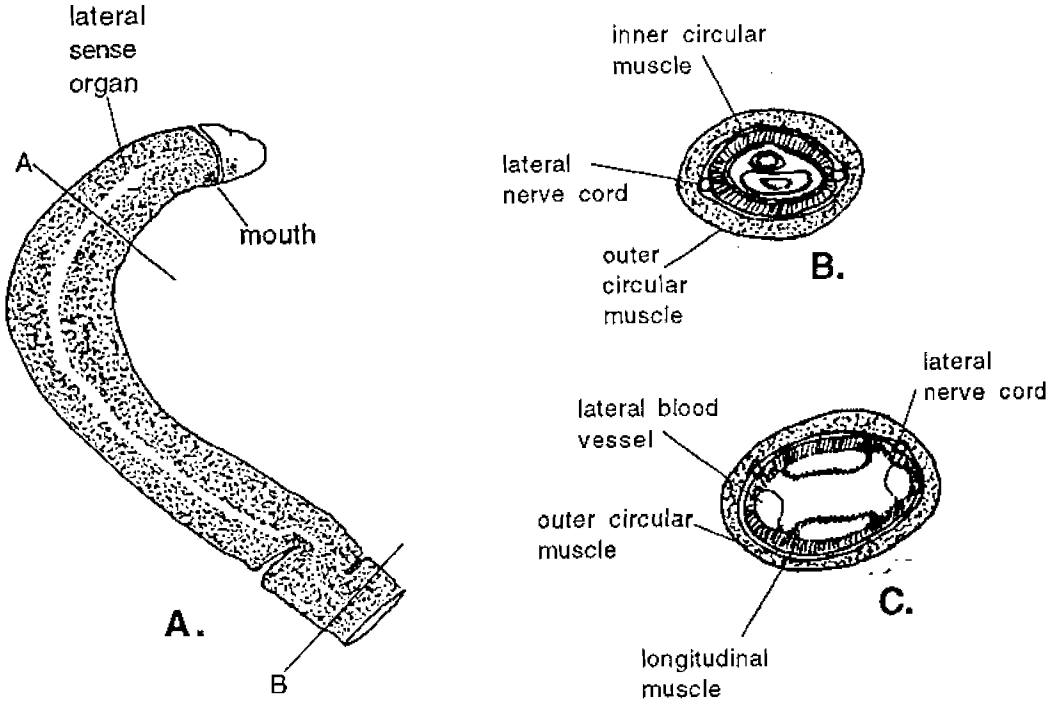


Figure 1. Tubulanidae sp. A : **A.** anterior end, lateral view; **B.** cross section through "A"; **C.** cross section through "B".