



**Southern California Association of  
Marine Invertebrate Taxonomists**

3720 Stephen White Drive  
San Pedro, California 90731

December 1989

Vol. 8, No. 8

**NEXT MEETING:** Pagurid Workshop

**GUEST SPEAKER:** SCAMIT Members

**DATE:** Monday, January 8, 1989, 9:30 AM

**LOCATION:** Cabrillo Marine Museum  
3720 Stephen White Drive  
San Pedro, CA 92009

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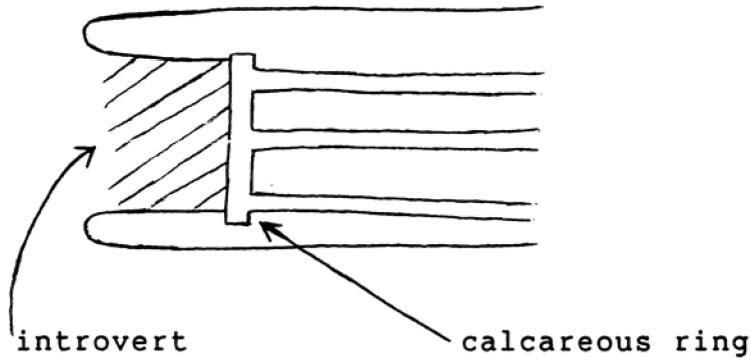
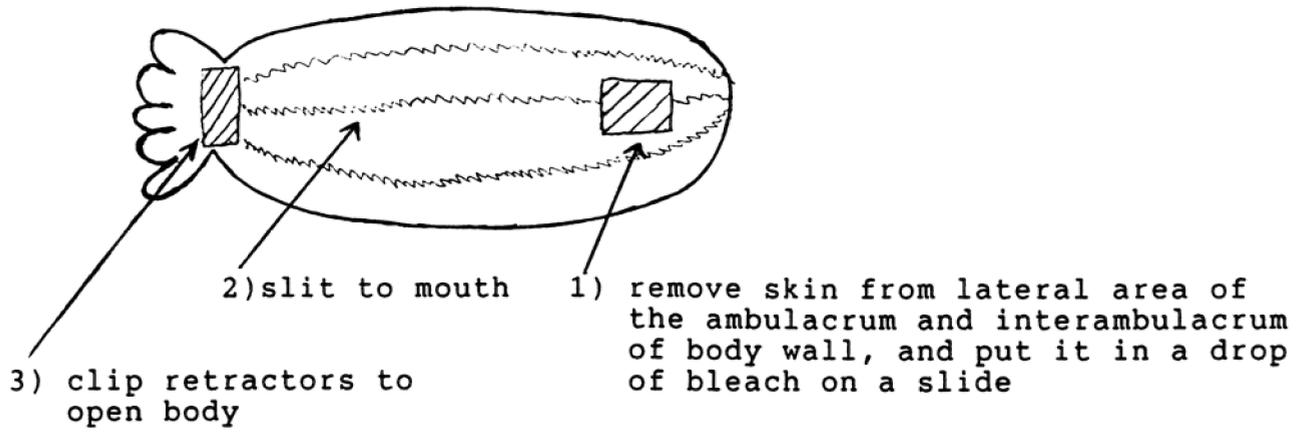
**MINUTES FROM MEETING ON DECEMBER 8, 1989**

**Holothuroidea Workshop:** Dr. Mary Bergen, California State Lands Commission, hosted a holothuroid workshop on 8 December 1989 at the Cabrillo Marine Museum. The SCAMIT video equipment attached to a compound and dissecting microscopes was used to examine the southern California holothuroids. Mary distributed artificial keys to the genera of shallow-water holothuroids and the Thyoninae from California (attached to this newsletter), and discussed dissections, classification, general morphology, and morphologic characters used in the keys.

Dissections should be done on the lateral areas of the body wall. The skin section should be taken from the ambulacrum and interambulacrum, and placed in a drop of bleach on a slide. The bleach will dissolve the body tissue leaving the spicules intact; this results in a cleaner slide preparation. An incision can be made up to the mouth, and the retractors can be cut to allow the body to be opened for examination of the internal anatomy. Because the introvert may have unique spicules, spicules from the introvert should be examined. Also, since various layers of ossicles may contain different shapes, all layers should be taken when thinning sections; only the muscles tissue should be discarded.

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The SCAMIT newsletter is not deemed to be a valid publication  
for formal taxonomic purposes.



Higher level classification of holothuroids in general is presently determined by morphology of tentacles and calcareous rings. Shallow-water holothuroids of California can be divided into three major groups by the presence or absence of tube feet and the morphology of the tentacles (see below).

TUBE FEET ABSENT (APODES)	TUBE FEET PRESENT	
	FEATHERY TENTACLES	FLATTENED TENTACLES
Synaptids (long, cylindrical, vermiform)	Dendrochirotes	Aspidichirotes
<u>Molpadia</u> (body tapers to a tail; phosphatic body present)	<u>Pentamera</u>	<u>Parastichopus</u>
<u>Caudina</u> (body tapers to a tail; phosphatic body absent)	<u>Cucumaria</u>	<u>Holothuria</u>
	<u>Eupentacta</u>	

Phosphatic bodies are degenerated plates that appear as red sand grains in the body wall. If the specimen is only 1 cm in length, it is probably a juvenile with some taxonomically important characters (used in the key) not yet developed.

Chiridota and Leptosynapta probably should not be identified to species since there are some taxonomic problems in species identification of these two genera. Studies on the internal anatomy must be done to resolve this problem. Illustrations of wheel-type spicules of Chiridota and anchors and anchor plates of Leptosynapta are provided in this newsletter.

Key to species of Lissothuria written by Dr. Dave Pawson, National Museum of Natural History, Smithsonian Institution has been published. Apparently, there are two species of Lissothuria found off southern California.

SCAMIT Christmas Party: The SCAMIT Christmas Party was held on Saturday, 6 December 1989 from 5:00-9:30 PM at the Cabrillo Marine Museum. It was a huge success with excellent food, especially the desserts, an entertaining snowman pinata, and a visit from the jolly Big John Claus. A great time was had by all. Wish you were there!

SCAMIT Executive Meeting: An executive meeting was held on 6 December 1989. Several topics were discussed:

- 1) SCAMIT meetings and workshop schedule,
- 2) cut-back of SCAMIT meetings to once/2 months,
- 3) SCAMIT's possible involvement with the MMS/Santa Maria Basin Project and Atlas,
- 4) future goals of SCAMIT,
- 5) SCAMIT funding of proposals,
- 6) donation to the American Association of Zoological Nomenclature,
- 7) Biodiversity Fair at the L.A. County Museum of Natural History, and
- 8) an offer to host a symposium at the Southern California Academy of Sciences.

Future SCAMIT Workshops: Some of the possible workshops are:

<u>Paguridea</u>	-----	Janet Haig
<u>Asellota</u>	-----	George Wilson
<u>Cumacea</u>	-----	Les Watling
<u>Tharyx/Cirratulidae</u>	-----	Jim Blake
<u>Mysidacea</u>	-----	Velarde/Gleye
<u>Flatworms</u>	-----	combined agencies
<u>Odostomia</u>	-----	LaFollete
<u>Mollusca/Bryozoa</u>	-----	Chaney
<u>Amphipoda</u>	-----	Barnard

The tentative schedule is:

JAN 8	-----	pagurid workshop (in order to isolate problems)
FEB 12	-----	Janet Haig
MAR 12	-----	<u>Photis</u> ?



This schedule may be modified by the substitution of the pagurid workshop by polychaete workshops presented by applicants from the short-list for the polychaete curatorial position open at the L.A. County Museum of Natural History. Leslie Harris has already spoken to Dr. John (Kirk) Fitzhugh concerning a cladistic workshop during his interview period.

Ann Martin suggested that voucher sheets be written by participants of a workshop during the workshop. This would ensure that voucher sheets are completed in time for inclusion in the appropriate newsletter. The conclusions about a specific species have been reached by the end of the workshop, and input from the participants can be included at that time. The idea seemed to be a good one, but we will consider this on a trial basis to see if it will work well.

A Suggestion For Less Frequent SCAMIT Meetings: Mas Dojiri suggested that SCAMIT meetings be held on a less frequent basis, perhaps once/2 months. This would ease the pressure on the executive committee to come up with new workshops and speakers to fill the dates. This would also allow the secretary sufficient time to write and prepare the newsletters, and allow SCAMIT members to work on research projects concerning SCAMIT provisional new species during the time slotted for SCAMIT meetings.

MMS/Santa Maria Basin Project: Discussion concerning the MMS/Santa Maria Basin Project and Atlas and SCAMIT's possible involvement in this project was held. Mas mentioned his previous telephone conversation with Dr. Blake, and mentioned that Dr. Blake seemed genuinely interested in SCAMIT's participation, and that this participation would take various forms: 1) conducting taxonomic research, 2) writing the manuscript, 3) reviewing a completed manuscript, 4) providing distributional data, etc. If the SCAMIT member helps conduct the taxonomic research and helps write the paper, then a coauthorship would result. If the individual helps review or provides additional distributional data, etc., then an acknowledgment would be in order. This would be decided on a case by case basis. Mas suggested that the taxa coordinator would be the person to contact.

Mas agreed to write a letter to Dr. Blake pertaining to SCAMIT's willingness to participate on the project, and its level of involvement. Then SCAMIT members can write letters to the individual taxa coordinators to discuss specific involvement.

Future Goals of SCAMIT: The Executive Committee discussed the future goals of SCAMIT. Our association was originally organized to discuss taxonomic problems pertaining to southern California marine invertebrates. The provisional new species were partially described in voucher sheets not only for ease in identification, but also for agreement on tentative names, e.g. Ampelisca sp. A. Many of the problematic species have been assigned the provisional new species

status; there is an unanimous agreement on many of these same species. Our initial goal seems to have been reached, and it is time for us to move on to loftier goals (without, of course, losing sight of our original one). With this in mind, Ann Martin suggested, with the agreement of the other SCAMIT officers, that the primary goal for SCAMIT should be to publish the provisional new species. This discussion provided a smooth transition into the next topic; that is, SCAMIT funding of proposals.

SCAMIT Funding: Two proposals will be funded by SCAMIT:

1) The first proposal was submitted by James D. Roney, Hyperion Treatment Plant for \$100.00 to cover the cost of reprints of a manuscript entitled "A new species of marine amphipod (Gammaridea: Ampeliscidae) from the sublittoral of southern California" and accepted for publication by the Bulletin of the Southern California Academy of Sciences. This new species was formerly known as Ampelisca sp. A. of SCAMIT, and is the second provisional to be published. (The first was a syllid polychaete coauthored by John Dorsey and Tony Phillips.) Since the guidelines for SCAMIT funding did not specifically state that reprint costs could be covered by the Fund, the Executive Committee voted to amend the guidelines to include this valuable part of publication. Don Cadien stated in support of funding that the dissemination of SCAMIT information, or any scientific information, is accomplished in large part by the exchange of reprints. The funding of a manuscript already accepted for publication would provide the first step in the move toward SCAMIT's next goal. It was unanimously agreed to support this proposal.

2) The second proposal was submitted by Dr. Deborah L. Zmarzly, Pt. Loma Treatment Plant, City of San Diego, for \$3,055.00 to cover the cost of illustrations for her manuscript entitled "Monograph of shallow-water California crabs in the genus Pinnixa (Decapoda: Brachyura: Pinnotheridae), with descriptions of two new species". The Executive Committee unanimously agreed that this was a worthy and necessary project. The Committee voted to partially fund this project in the amount of \$1,500.00, and hopes that Dr. Zmarzly can find matching funds from her place of employment, the City of San Diego, or a granting agency.

Mas asked about the possibility of travel expenses for Dr. Jurgen Sieg to host tanaid workshops for SCAMIT. The Committee answered that SCAMIT does not provide travel expenses, although it can pay for hotel and living expenses once the scientist is here in L.A.

Donation to AAZN: Dr. Ray Manning, National Museum of Natural History, Smithsonian Institution, sent SCAMIT a letter asking for financial support for the American Association for Zoological Nomenclature (AAZN). SCAMIT had supported this association in the past. Leslie Harris stated that if taxonomists do not support them,



who will? Her actual statement was more eloquent than just paraphrased, but the meaning is the same. The Committee agreed, and a check for \$50.00 will be forwarded.

Miscellaneous Topics: Requests were received by SCAMIT concerning the possibility of manning a booth at the Biodiversity Fair to be held at the L.A. County Museum of Natural History in April 1990, and sponsoring a symposium at the next meeting of the Southern California Academy of Sciences. For various valid reasons, the Committee declined.

Original Volumes of the Danish Ingolf Expedition: Don Cadien will send in an order for originals of the various volumes of the Steenstrupia's Danish Ingolf Expedition. He will be taking orders during the January SCAMIT workshop, so bring your order and money to this workshop or notify Don.

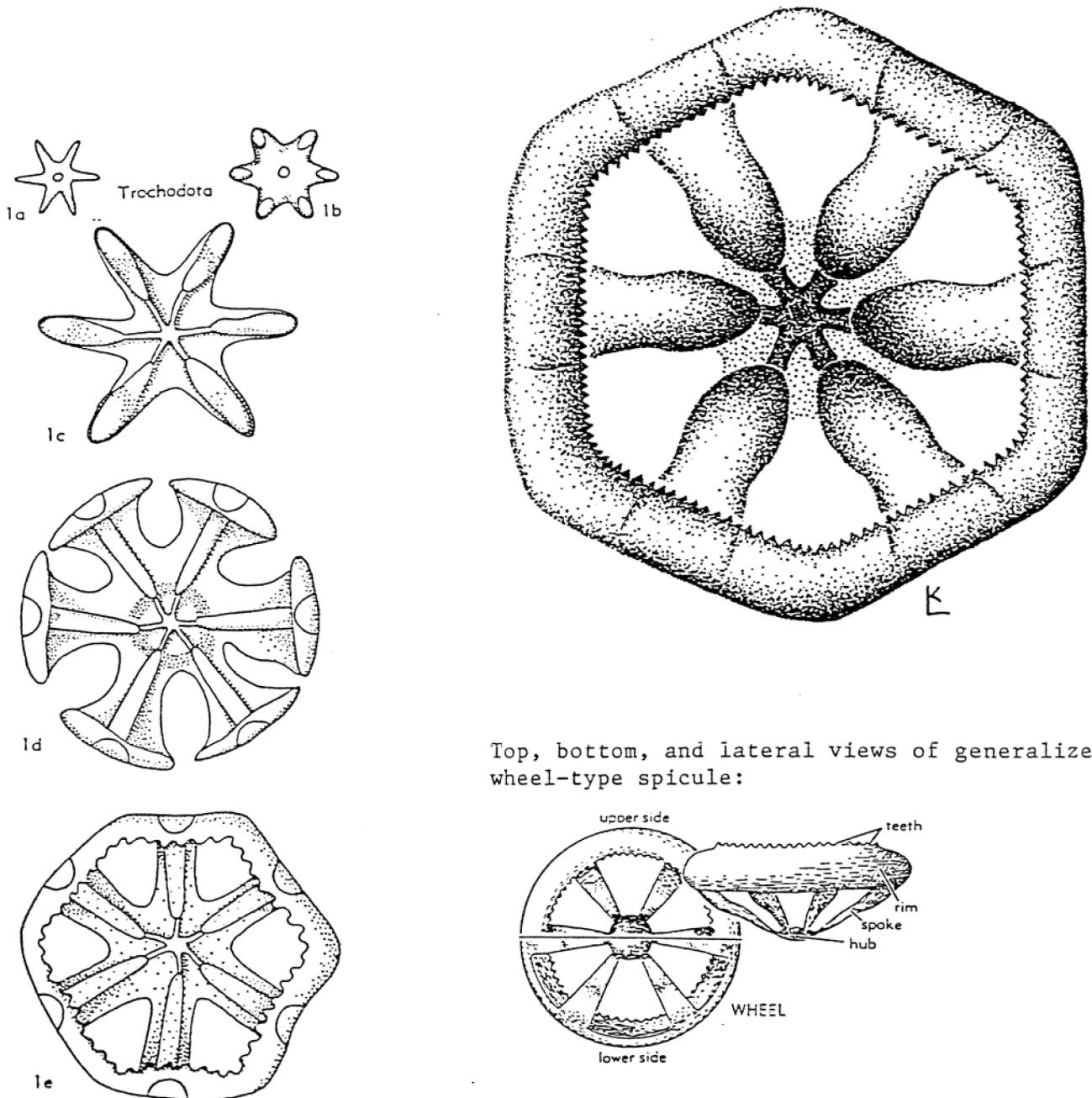
Dana Reports: The series of Dana reports, results of the Dana Expeditions, which include papers on many pelagic, marine organisms are for sale at a special reduced price through a nonprofit trust. For details, see Journal of Crustacean Biology, volume 9, number 4, p. 666.

Biological Illustrator Available For Free Lance Work: Deborah Allison Horn-Bostel is available for free lance biological illustrations. Her education includes a Bachelor's of Fine Arts from the California State University, Long Beach, and a Biomedical Illustration Certificate. She has experience with pen and ink, stippling, charcoal, acrylics, oils, tempera, watercolors, and computer graphics. Her work includes illustrations of a three volume marine biology textbook (in press), and published illustrations in vertebrate and invertebrate taxonomic papers. References are available. Telephone: (213) 322-2507.

Job Opportunity in San Diego: An NSF-funded half-time Research Assistant position will be available for 1-2 years, beginning around January 1990. The incumbent would work with Dr. Richard C. Brusca on various projects related to marine isopod systematics. Responsibilities would include all levels of systematic work, including: rough sorting of samples, preliminary identification of species, writing preliminary species descriptions, and perhaps a modest amount of scientific illustration. Experience in isopod systematics is desirable, although applications from persons with taxonomic experience primarily in other crustacean groups will also be considered. Although this position is structured for a graduate-level student, other persons with substantial crustacean taxonomic backgrounds will also be considered (e.g. taxonomically-oriented environmental consultants). Salary range is \$9,000-\$11,000/year (20 hours/week), depending on experience. For additional information, or to apply for this position, contact Rick Brusca at the San Diego Natural History Museum at (619) 232-3821 or (619) 696-6969.

CHIRIDOTA SP.

Wheel-type spicule from Chiridota sp.,  
Station B-4, 260 ft., Point Loma.



Top, bottom, and lateral views of generalized wheel-type spicule:

FIG. 522. Successive stages in development of *Chiridota*-type wheel, illustrated by *Trochodota venusta* (SEMONT) (14, fig. 8a-e).

FROM: Treatise on Invertebrate Paleontology. R.C. Moore (ed.) Part U, Echinodermata 3, Vol. 2 (1966).

LEPTOSYNAPTA SP.

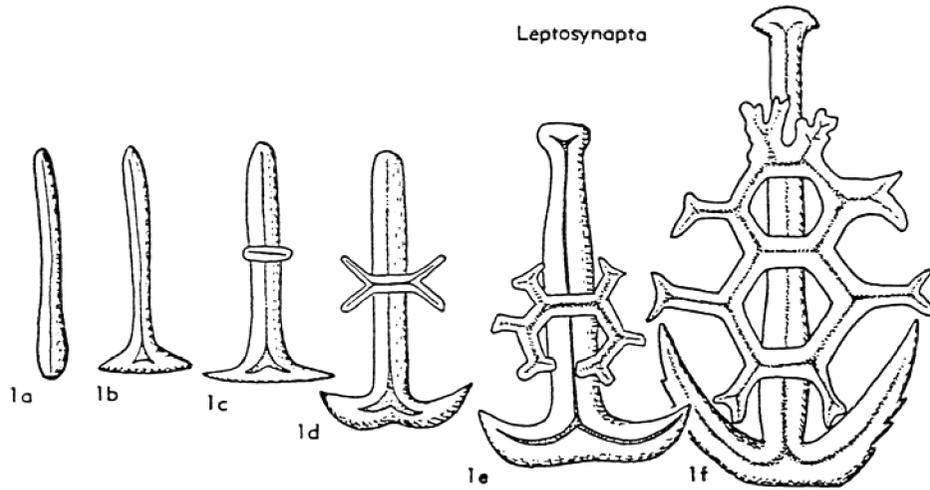
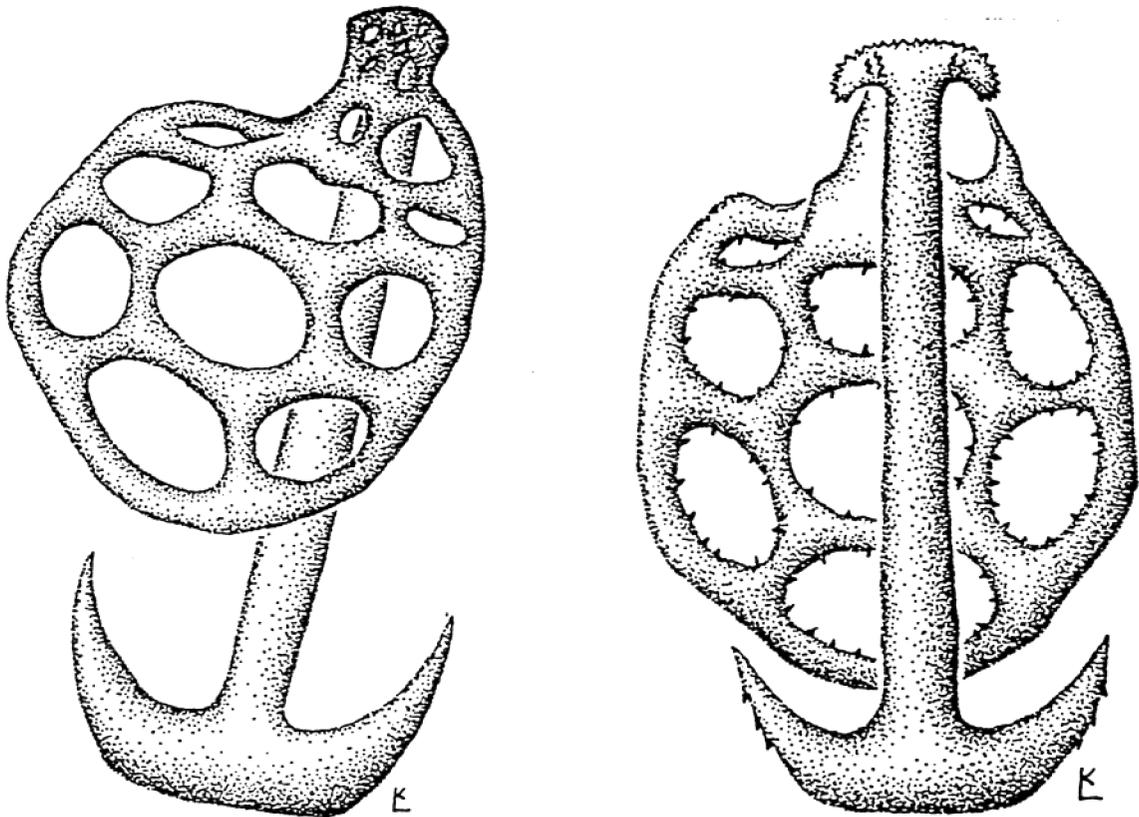


FIG. 521. Successive stages in development of anchor and anchor plate of *Leptosynapta inhaerens* (O. F. MÜLLER) (14, fig. 7a-f). = *L. albicans* (Selenka, 1867)



Dorsal and ventral views of anchor and anchor plates of *Leptosynapta* sp., Station B-4, 260 ft., Point Loma.

Artificial Key to Genera of Shallow-Water,  
Holothuroidea from California

- 1. Tube feet and papillae absent..... 2
- 1. Tube feet and/or papillae present..... 7
- 2. Body cylindrical; spicules as anchors and plates or wheels or sigmoid bodies, but not as tables or phosphatic deposits..... 3
- 2. Body more or less tapering posteriorly to a caudal appendage; spicules as tables, fusiform rods or perforated plates, anchors sometimes present, wheels and sigmoid bodies absent, phosphatic bodies often present..... 6
- 3. Deposits as anchors and anchor plates..... 4
- 3. Deposits as wheels..... 5
- 4. Anchor plates elongate, irregular in outline.....  
..... Rynkatorpa Rowe and Pawson, 1967.
- 4. Anchor plates oval, regular in outline.....  
..... Leptosynapta Verrill, 1867.
- 5. Wheels with 8 or more spokes.....  
..... Myriotrochus Steenstrup, 1851.
- 5. Wheels with 6 or less spokes.....  
..... Chiridota Escholtz, 1829.
- 6. Tentacles with an unpaired terminal digit; phosphatic bodies present; spicules in caudal appendage as tables with round to fusiform disk or fusiform rods or as anchors and racquet-shaped plates.....  
..... Molpadia Cuvier, 1817.
- 6. Tentacles lacking a terminal digit; phosphatic bodies absent; spicules as perforated plates or rods or, in juveniles, small tables; spicules often reduced or entirely lacking..... Caudina Stimpson, 1853.
- 7. Body flattened, bilaterally symmetrical; distinct sole present..... 8
- 7. Body cylindrical; distinct sole absent..... 9

\* Do not use this key on specimens collected outside of California or in more than 200 m of water.

8. Dorsal scales present, but covered by a layer of deposits including hour-glass shaped spicules; tube feet present on the dorsal surface and in the midventral radius of the sole.....Lissothuria Verrill, 1867.
8. Dorsal scales naked; tube feet absent from the dorsal surface and the midventral radius of the sole.....Psolus Oken, 1815.
9. Tentacles peltate, ventrally placed; retractor muscles absent; tube feet restricted to ventral surface; dorsal surface with papillae.....Parastichopus H.L. Clark, 1922.
9. Tentacles dendritic, terminally placed; retractor muscles present; tube feet present on both the dorsal and ventral surface..... 10
10. Calcareous ring simple, lacking posterior processes.... 11
10. Calcareous ring complex, with paired or unpaired posterior processes..... 12
11. Spicules flat, rounded, sometimes with spines.....Cucumaria Blainville, 1834.
11. Spicules knobbed, three-dimensional, often with a dentate handle.....Pseudocnus Panning, 1949.
12. Processes short, cartilaginous, entire..... 13
12. Processes long, in pieces.....Thyoninae Panning, 1949
13. Tube feet restricted to ambulacra; spicules knobbed plates and baskets or cups.....Eupentacta Deichmann, 1938.
13. Tube feet not restricted to the ambulacra; spicules reticulated plates and regularly-knobbed 4-holed buttons; no baskets or cups present.....Pachythone Deichmann, 1941.

ARTIFICIAL KEY TO SHALLOW-WATER THYONINAE  
FROM CALIFORNIA

1. Spicules in body wall predominantly plates..... 2.
1. Spicules in body wall mostly tables or a mixture of tables and plates..... 6.
2. Lozenge-shaped plates, 0.05-0.15 mm long, common; supporting tables in tube feet with well-developed spire..... Pentamera lissoplaca (H.L. Clark, 1924).
2. Lozenge-shaped plates rare or absent ..... 3.
3. Spire on supporting tables in tube feet well developed ..... 4.
3. Spire on supporting tables in tube feet reduced or lacking ..... 5.
4. Spire on supporting tables with four pillars ending in a spiny mass; body wall spicules plates, usually oblong, often covered with spines and knobs ..... Stolus trachyplaca (H.L. Clark, 1924).
4. Spire on supporting tables with two pillars, sometimes elongate and flattened; body wall spicules large, irregularly-shaped plates, 0.2-0.4 mm in diameter; star-shaped tables occasionally present..... Pentamera pseudocalcigera Deichmann, 1938.
5. Body wall spicules oval buttons with two central and up to eight marginal knobs ..... Havelockia montereyensis Deichmann, 1938.
5. Body wall spicules flat, irregularly shaped plates and smaller, more delicate rectangular plates, often with two enlarged central holes; buttons sometimes present. ....Havelockia benti var. zaca (Deichmann, 1938).
6. Lozenge-shaped plates common..... 7.
6. Lozenge-shaped plates absent..... 8.
7. Tables delicate, 0.03-0.06 mm in diameter..... Pentamera lissoplaca (H.L. Clark, 1924).
7. Tables robust, 0.05-0.16 mm in diameter..... Pentamera deichmannae sp. nov.

- 8. Discs on tables oblong, regular in outline; spire long with 3-6 crossbars .....  
..... Havelockia charlottae (Deichmann, 1938).
- 8. Discs irregular in outline; spire short with 1-2 crossbars ..... 9.
- 9. Teeth on spire of supporting tables bifurcate .....  
..... Pentamera pseudopopulifera Deichmann, 1938.
- 9. Teeth on spire of supporting tables not bifurcate... 10.
- 9. Four-holed tables common; star-shaped tables absent ...  
..... Havelockia benti (Deichmann, 1937).
- 10. Four-holed tables not common; star-shaped tables present .....  
..... Pentamera populifera (Stimpson, 1837).