Southern California Association of
Marine Invertebrate Taxonomists

3720 Stephen White Drive
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SCAMIT Newsletter

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SUBJECT:	Non-polychaete taxonomic problems in B'98 samples, Part III
GUEST SPEAKER:	None: Discussion leaders Don Cadien (CSDLAC) & Megan Lilly (CSDMWWD)
DATE:	24 May 99
TIME:	9:30 a.m. to 3:30 p. m.
LOCATION:	Marine Biology Lab, City of San Diego 4918 N. Harbor Dr. suite 201

Thyasiridae sp LA 1, B'98 station 2491, 95m, off San Miguel Id.

Scheduling conflicts have again postponed our Cnidarian meeting, which is now scheduled at Dancing Coyote Ranch on Friday, 18 June. The agenda of that meeting remains as previously discussed. The May meeting will continue our unfinished considerations of a number of taxa and groups from the April meeting. Attendees should bring material for examination, questions, objections, assertions, and hopefully answers. It is anticipated that we will be dealing with flatworms, nemerteans, hemichordates, ascidians, echinoderms, sipunculids, crustaceans, and perhaps some more mollusks as well.

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NEW LIT

At CSDLAC questids were the only interesting polychaetes that we didn't see; until several were encountered during the B'98 sampling. Fortuitously the family was just reviewed (Giere & Erseus 1998), with all known species covered. Our local species, *Questa caudicirra* Hartman 1966, was not prominently treated, but this review paper serves as a good starting place for someone confronted with a questid bearing sample.

It has been a number of years since Wicksten & Butler erected *Eualus lineatus* as the name for what had previously been referred to in southern California as *Eualus herdmani*. They showed that *E. herdmani* was actually a *Heptacarpus*, and erected *E. lineatus* for the now nameless *Eualus* species. Now we must again consider shifting gears. Jensen & Johnson (1999) remove *Eualus subtilis* from the synonymy of *E. lineatus*, and provide distribution information that suggests we may commonly take this species in our area. They examined the type series of *E. lineatus*, and found both species represented there, but the holotype allows fixation of the name to one of the forms. Rather than summarize the evidence for this change I urge you to read the paper, and apply it's findings to your own material.

Most of us do not work on the species of *Metacrangon*, which live on the lower parts of the continental shelf and upper slope. These are extremely spiny shrimp with carinae on the carapace and abdominal somites. One species, previously known as *Crago lomae* Schmitt, 1921, has been found off San Diego and San Miguel Island, California. In a recent paper, Komai (1997) synonymizes the species with *Metacrangon procax* (Faxon, 1893). As now interpreted, *M. procax* ranges from San Miguel Island, California to Peru. - Mary K. Wicksten (TAMU).

Cnidarians, especially anemones, can be difficult to identify because of their variability, contractility, and frequent lack of distinctive external characters. One of the characters which has often been used in their description and identification is their cnidom - the complement of cnidae found in the tentacles, and other body regions. This is determined by microscopic examination of squash mounts of tissue; a single mount usually providing ample material for determination of the sizes, identity and relative abundance of the different types. Williams (1998) recently tested assumptions about variability in nematocyst size he had previously questioned, and again found that size alone is not a reliable taxonomic character for sea anemones. He provides recommendations for the use and interpretation of nematocyst size data in anemone taxonomy which should be reviewed by anyone using cnidom examination as a method of speciating their anemones.

The status of the erstwhile indicator polychaete *Capitella capitata* has been confused for some time. It seemed to be resolving into a complex of sibling species which were separated by minor morphological characters and major ecological ones, frequently dealing with reproductive pattern. Willcox & Nickell (1998) now produce evidence that *Capitella capitata* may be one of those rare species which engage in poecilogony. Although claims of poecilogony have been raised for many species, few have been substantiated. Poecilogony is the ability of a species to vary it's developmental mode in response to external factors (changing from production of large lecithotrophic larvae to small direct development larvae, for instance, in response to changes in food availability or predation pressure). The authors report on collection of a single animal off the west coast of Scotland which bore both Type 1 and Type 2 eggs, providing field evidence of poecilogony in *Capitella*, and casting doubt on sibling species which involve only reproductive mode differences.

Cassai & Prevedelli (1998a) investigated reproductive effort and energetic requirements of reproduction in *Marphysa sanguinea*. They found that the amount of energy allocated to reproduction was not dependent on the animal's age, remaining relatively constant in younger and older worms. Using jaw length as an indication of animal size they found no linear relationship between size and fecundity, with egg production varying by a factor of 3 between different individuals. Similar analyses were also performed for *Perinereis cultrifera* (Cassai & Prevedelli 1998b), while Prevedelli & Zumarelli Vandini (1998) examined the effect of diet on reproduction in *Ophryotrocha labronica*.

Behavioral aspects of decapod/rhizocephalan symbioses were discussed by Innocenti et al (1998). The nature of the relationship between the crab and it's parasite is complex and fascinating. The authors found observable behavioral modifications were related to the presence of externae of the parasite, rather than to the parasitism itself. Infected crabs lacking externae showed no behavioral changes, while those bearing externae had the typical suite of activity modifications designed to benefit the barnacle parasite. The crab normally buries itself in surface sediments, so modifications of burying behavior are of potential impact on the hosts susceptibility to predation. In these tests crabs with externae continued digging at the same rate as other parasitized and unparisitized crabs, but had difficulty burying.

With many crustaceans, the shedding of the female cuticle is the signal for reproduction to begin. Only during the period when the females exoskeleton is soft and flexible can sperm be lodged in her body for later use in egg fertilization. In some cases the eggs can only be laid during soft-shelled periods as the female gonopores are too small to allow their exit once the carapace is calcified. In other cases this is not required. Lobsters deposit sperm masses externally on the carapace for instance. For many crustaceans the brief period of female reproductive receptivity leads to a male strategy involving mate guarding, a precopulatory behavior designed to increase the likelihood of successful reproduction. Jormalainen (1998) provides a broad scale review of this strategy, and it's consequences [including intersexual conflict].

The reexamination of higher level taxonomy in the light of new morphological and molecular taxonomic data using cladistic methodology continues in nearly all groups. The insights generated are particularly necessary in groups such as the platyhelminths, where large groups of species are strongly modified as parasites. Agreeing that these widely divergent groups were all members of a single phylum took time, and their evolutionary relationships were largely speculative. Such speculation is placed on firmer ground by the analyses of Littlewood et al (1999). They used a combination of morphological and 18S rDNA derived molecular characters in a cladistic analysis of the entire phylum in an attempt to elicit the higher level connections between constituent flatworm groups. They were ultimately not to fully succeed, due in large part to a lack of data on a broad spectrum of species. They connected the dots, but there were too few for the pattern to emerge clearly. The effort is instructive, none-the-less.

The higher relationships in the arthropods remain in dispute, even with all the new morphological and molecular data available for analysis. One reason for this is the timing of the "Cambrian Explosion" when the group diversified massively, establishing the main evolutionary lines still seen today. This problem is explored by Regier & Schultz (1998). Even if we can agree on the internal relationships (and mono- or polyphyly) of the group, we have further puzzles in placing the arthropods among the remaining invertebrate phyla. Giribet & Ribera (1998) comment on the problem of finding reliable outgroups for cladistic analysis. These two papers are among the latest in what has become somewhat of a

cottage industry - phylogenetic analysis of the arthropods. The subject has intrinsic interest as a considerable portion of the worlds biotic diversity is included in this phylum. Increased understanding of its evolutionary history and interrelationships is a worthwhile goal, and is pursued by many investigators. More reports will undoubtedly follow, but the "final" word on the subject will probably never be spoken.

The relationships within the mollusks are both less confused and less contentious than with the arthropods, but disagreements still exist in a number of areas. The scaphopods are one such, and we have mentioned several papers discussing scaphopod cladistic reanalysis in earlier Newsletters. Steiner (1998) modifies his earlier views slightly on reanalysis using additional characters, and after consideration of criticism of his earlier efforts by Reynolds. Much of the scaphopod picture now seems relatively stable, although there are still concerns about the polarity of some possibly important characters which may eventually require changes to the current arrangement.

OLD LIT

There has been controversy over the correct usage for the "cosmopolitan" tanaid *Leptochelia dubia*. SCAMIT lists it under that name currently, on the basis of the usage by Dojiri and Sieg 1997. It is, however, treated as *Leptochelia savignyi* by both Holdich & Jones (1983) and Ishimaru (1985). The latter work was just recently encountered, and provides a detailed redescription of the species, as well as a history of its nomenclature. There is also a question of previously established synonymy, and a suggestion that the form is actually a complex of sibling species, one of which is described as new in the paper. These comments are pertinent to local occurrences of the species, where two differing male forms have been noted, one pigmented and one unpigmented. Although we have never been able to find morphological support for separating these two differently colored forms, we may have not been examining the right characters.

Ishimaru (loc. cit.) also takes issue with Lang's (1973) examination of character variability within the group, correctly pointing out that we cannot automatically extend his results with one species to all others in the genus. Additional work seems to be called for on this (or these) species. Perhaps our nomenclatural usage problem will eventually become moot if *L. dubia* and *L. savignyi* can be demonstrated to be different forms rather than synonyms. Ishimaru's comments must, however, be taken with caution as he was dealing not with type material, or even topotypic material from the north Atlantic, but with material commonly identified as *L. dubia* in the northeastern Pacific.

Any consideration of this group must keep in mind it's complex sexual patterns. In the genus *Heterotanais*, a related genus in the Paratanaidae, Buckle-Ramirez (1965) found a very elaborate pattern with both primary and secondary males which differ morphologically. The secondary males are sex-reversed females, and can be one of three types depending on which female molt was the last prior to the sex-reversal. It is likely that a similar (although perhaps not identical) pattern exists for *Leptochelia*, and Ishimaru describes both primary and secondary males for his new species.

It is unfortunate that Dojiri and Sieg did not choose to revisit the rationale for usage of *L. dubia* over *L. savignyi*, which has page priority, in their recent treatment of our tanaid fauna. Although their usage was deliberate, and based on opinion, they avoided the issue of synonymy and usage history entirely, and did not remark on the name in their comments on the species. Enquiries of Mas Dojiri concerning the rationale led nowhere, as he had accepted Jurgen Sieg's usage during the

preparation of the section. Now that Dr. Sieg is no longer with us, it will be hard to reconstruct. Perhaps the answer is given in one of his numerous papers on the world tanaid fauna, but I have not, as yet, found it.

19 APR MINUTES

Ron Velarde opened the meeting with reference to the upcoming Coastal Zone 99 conference which is in San Diego. Pamphlets containing information about the meeting were passed around for those interested. Ron also circulated a flyer from Scripps Institution of Oceanography listing weekly scheduled talks on various marine subjects.

A review of the Channel Islands Symposium was then provided by Ron, who was in attendance. The talks were evenly spaced among all aspects of the Channel Islands - geography, terrestrial biology, marine ecology, etc.. Ron noted that there were no presentations dealing with "offshore" benthic sampling around the islands. He suggested that the Bight'98 data concerning the Channel Islands would be an excellent addition to the next Symposium scheduled for 2004.

There were talks dealing with the question of offshore oil platforms. Should they be removed now that they've established communities existing around their structures? Are they indeed representative of a stable community or are they just an artificial attraction which if removed would not harm the community? It was noted that this question was not answered at the meeting.

According to the talks attended by Ron, the abalone and echinoderm populations of the Channel Islands have been hit hard during this last El Niño. As we all know, the abalone were already declining due to the spread of "withering foot" syndrome. However, the surprise was the echinoderm decline. What some scientists are calling "wasting disease" seems to have taken a great toll on the *Asterina* and *Pisaster* populations. Of great interest as well is evidence of this disease being noted in populations of ophiuroids and holothuroids. This occurrence was less of a surprise to old-timers who remember the "black spot" disease in echinoderms, particularly asteroids, in previous warm-water years. The most likely explanation for this syndrome was *Vibrio* infection, although the agent was never definitively isolated.

Everyone was then reminded that the Santa Barbara Museum of Natural History's bibliography of Channel Islands literature is available on line through their web site (the SCAMIT homepage has a link to this site). A flyer was circulated for the much anticipated bivalve book of Scott, Coan and Bernard. The book will be a great tool for those working on Eastern Pacific Bivalves. The approximate cost of the publication will be $100. It is now expected to be ready some time this summer; a boon to those who have long awaited it's availability.

The Australasian Nudibranch Newsletter is free to those wishing to access it on the web. Like the SCAMIT NL, The Australasian Nudibranch News comes in PDF format, and can be downloaded off the site. Steve Long has archives of all of the issues so far on his slugsite (available as a link on the SCAMIT Website). Don brought to our attention the posting of a flyer on this site which announced the closing of a few harbors up in the Darwin area of Australia, due to a heavy infestation of the introduced bivalve *Congeria sallei*. It seems the United States is not the only country dealing with severe problems caused by introduced bivalves.

Tony Phillips then took the floor and told those present that he was reviewing the Terebellid chapter of Vol. 7 of the MMS Atlas. The target date for completion of this volume is June or July of this year. This will be the final polychaete volume, and the final volume in the series.

The first problem animals to be tackled were bivalves, specifically *Lyonsia* vs. *Entodesma*. Kelvin Barwick had labored long and hard to create a growth series of *Lyonsia* which he then digitized. This image and the animals were then shown to the group as a whole and a discussion ensued as to whether it was possible to separate juvenile *Lyonsia* from juvenile *Entodesma*. The following decision was reached after much discussion: Where the two animals can co-occur, animals less than 6 mm should be recorded as Lyonsiidae. There are areas where the occurrence of *Entodesma* is extremely unlikely, as in San Diego Bay stations which are composed of soft mud. Large numbers of *Lyonsia californica* are found in these stations and range from as small as 3 mm, but are all identified to *L. californica* due to location sampled.

Don Cadien then introduced us to his latest "find" - Thyasiridae sp LA 1. At present only a single specimen has been taken in coarse sediments off the west end of San Miguel Id. at 95m. It is inflated, taller than long, with only incremental sculpture, and has a very slight fold, and thus will key to genus *Thyasira*. It looks very much like an *Adontorhina cyclia*, but is more inflated (ala A. sphaericosa, but not quite as much). Unfortunately the hinge precludes it belonging to that genus: no pustules, or for that matter, teeth. There is a pseudotooth in the left valve, and a small knob in the right valve which fits into a dorsal excavation on the pseudotooth. Ligament seems fully internal. No pallial sinus, and the pallial line is broad and ragged. Adductor scars are fairly elongate, the anterior one with a semi-detached dorsal member which is separated from the main body by a thin shelly ridge. Anterior adductor scars well impressed, posterior scars less so. Shell height is 3.2mm, shell length is 3.0mm, shell width is 2.0mm. Conversations with Paul Scott at the Santa Barbara Museum of Natural History seem to indicated that this is a new species of *Thyasira*, and there are several in offshore areas of the southern California Bight. We are currently referring to this item as Thyasiridae sp LA1. Anyone else seen it? If you're not paying close attention this guy can be viewed as a tweeked *Parvilucina tenuisculpta* juvenile with particularly reduced sculpture, but only from the outside. Once inside the differences become glaring.

Two small opisthobranchs from San Diego Bay were brought forth for further ID. One was identified as *Aplysiopsis enteromorphae*. This species, even small preserved specimens such as the one reviewed, can be identified by the pattern of conservative black pigment on the head, back and sides of the body. It was known previously as *A. smithi*, but the current name is *A. enteromorphae* (Cockerell and Eliot 1905). It will be an addition to the next edition of the SCAMIT List. The second animal was a juvenile aeolid and left at Aeolidioida. Even if the radula was successfully removed from the tiny animal it is likely that the radular formula would not match that for the adult of whatever species it belongs to. Consequently the tiny juvenile was left at much higher level.

Echinoderms were up next. Don passed around his strange *Astropecten ornatissimus*, which proudly and oddly bore spines on the distal superomarginal plates. A count of 3 paxillae rows between superomarginal plates (characteristic of *A. ornatissimus*) was confirmed. We shall be on the look out for this animal. Those who had not yet seen both species of *Dendraster* were rewarded for their attendance. The two species, *D. terminalis* and *D. excentricus* were shown in comparison and the differences between the two were apparent. The City of San Diego's Ocean Monitoring Program encounters (to date) only *D. terminalis*, although there are healthy populations of *D. excentricus* in the area, they just seem to be missed by our program.

A few odds and ends molluscs brought by Megan Lilly (CSDMWWD) were examined and identified by Don Cadien and Tony Phillips. Among them was a very small *Crossata californica* which was not recognized by Megan due to its juvenile state.

In the afternoon crustaceans were the focus. We continued our examination of crabs in the two local species of *Deilocerus* started at the last meeting. In the past the separation of the two has continued along the lines suggested by Rathbun in her original description of *D. decorus*: placement of the first lateral spine either closer to the orbital tooth (*D. planus*) or closer to the second lateral spine (*D. decorus*). This distinction is clear in most specimens, but in very small individuals the first spine may look nearly equidistant. Examining one lot where both species were represented it was possible to find the following additional characters: 1.) more prominent transverse sulcus across the top of the carapace anteriorly in *D. decorus* [courtesy of Dave Montagne]; 2.) in males, the lateral granule fields of the second abdominal segment are resolved into oblique rows of granules (one on each side) in *D. decorus*, rather than into more circular granular pads (in *D. planus*); and 3.) in females, the anterior lateral portion of the carapace bears a field of pustules on each side in *D. decorus* which is absent in *D. planus*. In previous samples the two species have not co-occurred. In the Northern Channel Islands samples for B'98, the combination of low supply of fine particles and strong currents blur the bathymetric distinctions seen previously. The inshore *D. planus* and the offshore *D. decorus* both coexist at mid depths. You should assume your sample contains both until you have carefully examined all the specimens, and can demonstrate that it does not. Some *D. sp* juvenile records are probably inevitable as the genus is very distinctive, and can be identified down to tiny individuals which do not yet bear any of the distinguishing specific characters.

We spent some time discussing Dean Pasko's *Photis* key, and examined a few specimens, but we will continue the discussion later, when more samples have been analyzed by more people. One of the species examined was *Photis elephantis*. Don Cadien provided Dean with a collection of these tiny animals from the Gulf of California, where they are extremely common. We next reviewed two bodotriid cumaceans, *Glyphocuma* sp A and *Glyphocuma* sp LA1. At present only the female of the later species is known. Only one character serves to distinguish *Glyphocuma* sp A from it's allopatric congener *G.* sp LA1 - that of the dorsal crest dentition in the female. In this character *G.* sp LA1 is very atypical of the genus, having only a single very poorly expressed tooth at the beginning of the dorsal crest just behind the ocular lobe in the only available specimen.

Three additional characters true of both sexes serve to separate of *G.* sp A from *G.* sp LA1. In *G.* sp A (these statements are not true of *G.* sp LA1): the anterior ventral portion of the carapace is serrate or denticulate; the 'tooth' defining the ventral edge of the antennal sinus is tipped by a strong spine-like denticle larger than the denticles below it on the anteroventral margin; and the anteroventral margin of the basis of the 3rd maxilliped bears a series of strong spines (or stout setae according to Les Watling's classification), largest anteriorly and declining evenly in size posteriorly (these are interspersed with plumose setae, and require moderately close examination).

The main new item seen did not actually come from B'98 samples. While searching for more specimens of the janirid genus *Caecianiropsis* to compare with existing specimens of *C.* sp LA1 and *C.* sp LA2, I came across a vial of material forwarded from Tony Chess (now retired, formerly of U.S. Fish & Wildlife service). He had collected it as part of a fish

food-habit study at Isthmus Cove on Catalina Island. He had tentatively identified the tiny animals as *Caecianiropsis ? psammophila*, and passed them on to your editor for examination.

On mounting the animals for examination under the compound scope it became apparent that most of the 25+ specimens were not complete, and that either the antennae, the uropods, or both were missing. Careful selection found a number of animals with intact appendages. The most striking thing about these small blind isopods is the nature of the uropodal peduncle; it is as long as, and half as broad as the pleotelson, and bears small separated rami - the inner ramus is terminal, and the outer ramus is lateral, and about 25% of its length back from the end of the peduncle. More importantly, however, the animal has an antennal scale. This is lacking in janirids, but is present in microparasellids.

The Microparasellidae is a family of interstitial isopods found in fresh or anchihaline groundwaters, in brackish and fully marine beach sands, and in off-shore gravels. It consists of four genera: *Microparasellus*, *Angeliera*, *Microcharon*, and *Paracharon*. None of these were previously known from the Eastern Pacific. The family has a Tethyan distribution, with known members occurring in areas that were coastal in the Oligocene (Stock 1977). They are all quite similar in general aspect; elongate, tiny, blind - and also in behavior. They are generally characterized as adherant and thigmotactic, clinging tightly to the grains amongst which they live. According to Stock (1985) they cannot swim, and are k-strategists, with small and infrequent broods. While separated from the Janiridae, the microparasellids are janiroids of uncertain affinities (Wilson 1987). The microparasellid genera can be separated from genera of janirids using the key provided by Wilson & Wägele (1994).

The genus *Microcharon*, to which our form belongs, contains 65 taxa, 2 of which are nomina nuda, 8 of which are at subspecific level, and two of which remain unnamed. The current species is very similar to a species from the Caribbean, *Microcharon sabulum* Kensley 1984. After examining and discussing this animal, we adjourned the meeting with plenty of material left over for further discussions later.

CALIFORNIA *CERAPUS*

Several years ago, Jim Thomas accompanied Jerry Barnard at the last amphipod workshop SCAMIT held. During that visit we attempted to examine our local species of the amphipod genus *Cerapus*, represented by two undescribed species. These had been referred to as *Cerapus tubularis* of Say, an east coast species, by Barnard in 1962. Most local records of the animal went by that name, without critical reexamination. The genus came under review, however, and the type species was redescribed based on neotype material (the original type material being lost) by Lowry and Berents in 1989. At that time Jim Thomas was coordinating with Jim Lowry in Australia on a cooperative re-do of the genus worldwide. Material of two local species was given to him for inclusion. These materials have yet to be published on, although a number of other publications deal with the review and reworking of the genus (Lowry 1981, 1985; Thomas & Heard 1979). Well, we got one of the species in Bight'98 samples from Santa Monica Bay, and need to proceed. In the 3rd Edition of the SCAMIT Taxonomic Listing we retain this species as a part of *Cerapus tubularis* CMPLX. I will now remove it from that mixture of species, and define it as *Cerapus* sp A SCAMIT (Voucher Sheet in preparation). We will not need to retain the CMPLX in the next version, since the second known undescribed species has not been taken

in sampling which would be included in the list. There may be yet more species to come, but the most common form (by far) is the one referred to here as *Cerapus* sp A.

Most specimens have come from shallow water sampling at 20-40 ft. off exposed or semi-exposed sandy beaches in southern California. Although they are tubicolous, they are also quite mobile, and accumulate around surface structure like worm tubes on current swept shallow bottoms. It is probable that they can move themselves during low current periods as has been observed by Barnard et al (1991), with *Cerapus* species in Florida, but under normal strong current conditions they probably are moved against their will and without control into current vortices behind protruding structures, where the drop in current velocity allows them to grab hold again. Off Huntington Beach clusters of these animals have been seen in situ on *Diopatra* tubes on fine sand bottoms. The tube is distinctive in the field, and in benthic samples; a relatively short (approx. 5-6x diameter) straight tube open at both ends. It is flexible, but quite robust and durable. The color is light to dark brown, or black, with a tendency to banding. It is constructed using only fine particles, if any, so that there is no shell component to the tube. Such tubes should be investigated while sorting, since the animal can be completely withdrawn, and doesn't necessarily leave it during handling. - Don Cadien (CSDLAC)

My Life as a Biologist

Donald J. Reish

Chapter 14: I accept a position at Long Beach State

In the mid-1950s University of Hawaii received a grant from AEC to determine what plants and animals were present on Eniwetok Atoll, Marshall Islands, the site of the A and H bomb tests. Dr. Robert Hiatt was the director of the project and he had offered me a graduate assistantship for my doctors years earlier. I was asked to collect and identify the polychaetes and leave a voucher specimen of each species for the museum at Eniwetok. (Years later Alan Miller had used these species to verify his species in connection with his ecological studies.). Yale Dawson and John Garth also participated in the study. I made 2 trips of one month each in 1956 and 1957. This opportunity introduced me to another strikingly different environment much like the Arctic experience had done earlier. I also collected polychaetes at Bikini and Majuro Atolls. The beauty of the coral reefs is unsurpassed, especially in the lagoon. You can see so much more there and you do not have to worry about the surf. I have since seen coral reefs from other areas but none of them compare with the lagoons in the Marshall Islands. My study resulted in 2 papers in Pacific Science including 5 new species (2 nereids, 2 sabellids, 1 serpulid).

On my first day at Eniwetok they flew me around the atoll. The first bomb crater I saw was caused by an A bomb; the second one by an H bomb which completely destroyed a coral rock island of about 1 square mile in size. It wasn't until the second year that I saw a conventional bomb crater from WWII; I then could appreciate the magnitude of the impact of atomic bombs. [I have since visited the 2 bomb sites in Japan.]

Here is another example of a seemingly small thing becoming important in determining my future direction. In April 1956, shortly after my daughter Lisa was born, John Mohr and I went to Cincinnati to attend a week long fresh water pollution meeting. They found time for me to speak, giving the last paper on the last day. I met, among others, C. M. Tarzwell, who arranged the meeting, and B. Anderson who did the first toxicity studies with *Daphnia* in the 1920s. Tarzy worked for the U.S. Public Health Service (no EPA then). He later came to visit me while I was still at USC. I introduced him to LA-LB Harbors and discussed the possibility of setting up a marine

pollution lab in southern California. A few years later he became the Director of the EPA lab in Rhode Island and he offered me a job. My roots were now deep in southern California, and I didn't take it. Still later, he funded a grant with me to culture polychaetes. Many of my students benefitted from this grant. He also had me write the annelid section of Standard Methods. It pays to go to scientific meetings.

After my return from the 2nd trip to the Marshall Islands, I decided not to apply for an additional US Public Health Grant. After 9 years of research at USC, I wanted to teach. Positions in academic institutions were not abundant in 1958. I applied at UCLA, Cal State Northridge (just starting), and San Jose State without success. In January 1958 Jerry Barnard was on the Velero IV and Dale Arvey, an ornithologist from Long Beach State, was also aboard. He told Jerry that a position was opening up at Long Beach State. Jerry had applied there a year earlier, but President Pete (Peterson) informed him that they did not welcome anyone who wished to do research. However, another thing occurred which affected my life in addition to Jerry's trip on the Velero IV that January 1958; the Russians had successfully launched Sputnik. Research was no longer a dirty word at the State Colleges of California.

I applied for a position at Long Beach State in February 1958. I went to the campus for an interview and that day they happened to be laying the concrete in the basement of PH2 (the science building) where my worm culture lab exists today. I had not received any news by June, and finally I called Dale Arvey (the Chair) as to my status. They had not granted tenure to a person in science education because he did not get his doctors; Dale asked if I would like to teach science to elementary teachers and supervise student teachers in science. [Remember I had taught high school biology]. Since I didn't have a position for the fall, I said that I would be glad to! I was given 1 year credit as a high school teacher but none for 6 years of post-doctoral research. My first semester in the fall of 1958 I taught science to elementary teachers at night and 3 General Biology labs during the day. I ran into Dick Lincoln and after looking at each other for some time, we realized that we were at Oregon State at the same time. I taught science to elementary teachers for several years. I continued my student teaching supervision until 5 years after my retirement.

Next: I establish a research program at Long Beach State.

ASCIDIOLOGICAL ADVENTURES

by Gretchen Lambert

We're loving Seattle... when we're there! "Retirement" is busier than ever. We moved from Fullerton in June and spent the summer getting organized, which included creating a small lab space for me in our garage where I keep my dissecting scope set up for ascidian identifications. In August we started surveying a few local marinas, then in Sept. were part of the big Puget Sound Expedition organized by Claudia Mills, Andy Cohen and Helen Berry and sponsored mostly by the Washington State Dept. of Natural Resources. About 14 of us, specialists in various marine taxa, surveyed the major marinas from Olympia to the Canadian border (including the San Juan Islands) for introduced species. There were many! In terms of biomass, the ascidians "won"! Charley and I recorded 5 introduced ascidian species, many of which were present in huge numbers. Three are new records for the state: *Ciona savignyi*, *Molgula manhattensis*, and *Styela clava*. *Botrylloides violaceus* was present in the "70's (Jim Carlton's records) but was unidentified at that time. It is even more widespread now. *Botryllus schlosseri* was recorded from a San Juan Island oyster farm in the early '80s. Claudia presented all of this data in January at

the National Conference on Marine Bioinvasions at MIT. If you would like to receive a copy of the full report, the necessary information is on Claudia's website:

http://weber.u.washington.edu/~cemills/PSX.html

In October we put on our second ascidian workshop of the year (similar to the one we did in May at Cal State Fullerton for SCAMIT), this time for NAMIT, at a small marine station in Poulsbo, Washington, a short ferry ride across Puget Sound from Seattle. Participants came from Olympia, Tacoma, Seattle, and even Vancouver Island! Charley and I provided a number of live local species both indigenous and introduced. We spent the month of November in Honolulu. I was awarded a small grant to identify tunicates for the Bishop Museum, and Charley worked on fertilization research with *Ascidia* (=*Phallusia*) *nigra* and *A. sydneiensis* at the University of Hawaii's Kewalo Lab. In addition to working through the Bishop collection, I prepared a permanent voucher collection of freshly prepared specimens for the museum. We held yet another ascidian workshop at the Kewalo Lab for a number of students and others doing field work who wanted to know the local ascidian species. Charley and I provided about 20 live species for the participants to observe. Now we're in Guam for six weeks, for me to do the same thing for the University of Guam! My work is part of a Sea Grant study on introduced species, but because there are no publications on the ascidians of Guam it will of necessity be a kind of baseline study. No one here knows the ascidian fauna, so there is a great deal of interest in what we are collecting. Charley is continuing his fertilization research while I am busy with taxonomy. As of this writing I have identified 26 species, with many more to go. These species will be preserved as a permanent voucher collection for the marine lab. The results will be published, along with color underwater photos, in the Univ. of Guam's journal Micronesica. Since there is so much interest, Charley and I plan to do an ascidian workshop before we leave. It's great to be travelling around the world doing ascidian taxonomy, and getting paid for it!

Best wishes from Gretchen and Charley Lambert

GOT JOB?

The following announcement of a position opening was initially located at TAXACOM (TAXACOM@cmsa.Berkeley.EDU) and is being reprinted from that source. There is still time to submit your resumé should you wish to.

THE ACADEMY OF NATURAL SCIENCES, PHILADELPHIA

JOB TITLE: Collection Manager

CLOSING DATE: June 1, 1999

GROUP: Biodiversity

DEPARTMENT: Malacology

ANNOUNCEMENT: No. 700

The Academy of Natural Sciences seeks a manager for the oldest and second largest collection of mollusks in the United States. The collection includes 12-14 million specimens in 400,000 dry and 40,000 ethanol preserved lots, and a small but rapidly growing frozen tissue collection. About forty percent of the collection is computerized; with current NSF funding, computerization will be completed in about three years. The collection manager for malacology also oversees the collection of non-entomological recent invertebrates.

DUTIES

Responsibility for all aspects of curation of collection, including processing and cataloging incoming material, data entry, maintenance of systematic order, identification of specimens, routine care and conservation, and tracking statistics on collection use and growth. Interaction with national and international

scientific community, including management of specimen loans, responding to inquiries, hosting visitors and maximizing utilization of the collections. Supervision of three curatorial assistants and several volunteers. Working with department's information manager to ensure integrity of database and efficiency of data-entry procedures. Participation in public education, museum programs and other Academy service. Participation in fieldwork to collect mollusks and associated fauna and flora.

QUALIFICATIONS

Education: College degree in biology or geology; Master's degree preferred. Experience: minimum 2 years working with museum collections; knowledge of molluscan taxonomy and world geography; familiarity with computers and database programs; field experience collecting mollusks.

TRAWL INTERCALIBRATION

For an announcement on this summer's trawl intercalibration exercise please see the flyer on the SCAMIT website.

APPLICATIONS should include a cover letter, a resume, and contact information for three references and should be sent to me at the address in the footer of this message. I will be happy to answer inquiries about the position, however, I will be in field in Jamaica from April 22 to May 12.

The Academy of Natural Sciences is an Equal Opportunity/Affirmative Action Employer.

Gary Rosenberg, Ph.D. - rosenberg@acnatsci.org

Malacology & Invertebrate Paleontology, gopher://erato.acnatsci.org

Academy of Natural Sciences, http://www.acnatsci.org

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SCAMIT TREASURY SUMMARY

1998-99

During the past fiscal year, April 1998 through March 1999, expenses totaled $4,491.60. The major expenses covered publishing costs for producing the newsletter, $2,451.84, (including printing, postage, and supplies), for online publishing, $369.40, and for producing and distributing the 3rd Edition of the Taxonomic Listing, $1119.69. Publication Grant #98-1 was awarded to Ann Dalkey for her *Lepidepecreum serraculum* description, SCAMIT Contribution #13, $460.00. Grants and workshops will continue to be funded from the money collected for creating the Taxonomic Listing for SCCWRP during the 1994-95 fiscal year.

The erection of two general membership categories, hard-copy and e-mail, resulted in increased income from the hard-copy members and decreased costs for the e-mail members. At the end of the fiscal year, 48 of 100 members were e-mail members. At this level of e-mail membership, SCAMIT will gain at least $316 in postage savings annually (calculated at $0.55/newsletter) plus additional savings incurred through printing paper costs. When only printing and postage costs are compared from this year ($1842.02) to last year ($1854.37), it appears that net savings were not incurred with implementation of the e-mail membership category. However, the size of the newsletters varies by edition making comparisons of this sort difficult to make unless actual page counts are made. Since your Treasurer is not inclined to make such a comparison, at least you can be assured that the officers are attempting to streamline costs while continuing to provide more than one option for receiving the newsletter.

The following is a summary of the expenses and income:

EXPENSES

Newsletter	$2,451.84
Online publishing	369.40
Publications (Taxonomic Listing Ed 3)	1,119.69
Grant	460.00
Miscellaneous	90.67
Total	**$4,491.60**

INCOME

Dues	$1,650.00
Interest	239.96
T-Shirts and miscellaneous	65.00
Donations	20.00
Total	**$1,974.96**

ACCOUNT BALANCES (March 31, 1999)

Checking	$ 701.34
Savings	$12,423.23
TOTAL	**$13,124.57**

Please visit the SCAMIT Website at: http://www.scamit.org

SCAMIT OFFICERS:

If you need any other information concerning SCAMIT please feel free to contact any of the officers e-mail address

President	Ron Velarde	(619)692-4903	rgv@mwharbor.sannet.gov
Vice-President	Leslie Harris	(213)763-3234	lhharris@bcf.usc.edu
Secretary	Megan Lilly	(619)692-4901	msl@mwharbor.sannet.gov
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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 - 15 ..... $ 20.00/vol.

Single back issues are also available at cost.