



## Southern California Association of Marine Invertebrate Taxonomists

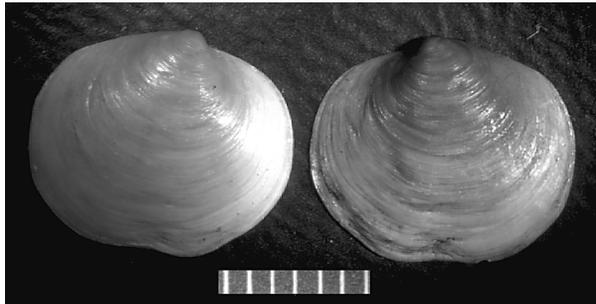
3720 Stephen White Drive  
San Pedro, California 90731

November, 1999

### SCAMIT Newsletter

Vol. 18, No. 7

<b>SUBJECT:</b>	B'98 Problem Polychaetes
<b>GUEST SPEAKER:</b>	none
<b>DATE:</b>	13 December 1999
<b>TIME:</b>	9:30 a.m. to 3:30 p. m.
<b>LOCATION:</b>	Natural History Museum of Los Angeles County Worm Lab



*Diplodonta orbella* (A.A. Gould 1851)  
Station 2423, Mission Bay, 7/24/98, 3.4 m  
Photo by K. Barwick 11/18/99  
Scale bar = mm

Our next meetings will continue the theme of B'98 problem animal identification. In some cases reanalysis QC materials will also be discussed. There will a problem polychaete meeting on Monday, December 13<sup>th</sup>, at the worm lab of the Los Angeles County Natural History Museum, and we hope to have a guest speaker in attendance. Consideration of B'98 problem animals will continue at meetings in January: a non-polychaete meeting on Monday 10 January in San Diego at the CSDMWWD lab, and a polychaete meeting on Tuesday 18 January at the Worm Lab of the Natural History Museum (Monday is the Martin Luther King Day holiday). The SCAMIT Christmas Party will be held on Saturday the 11<sup>th</sup> of December at the Cabrillo Marine Aquarium in San Pedro. Members and their guests should arrive around 6pm.

## WE LOSE BIG

The month of October was particularly bad for students of the arthropods. On 16 October Dr. Arthur G. Humes died of a heart attack, and on 27 October Dr. Austin B. Williams lost his fight with liver cancer. Both of these men, giants in the fields of crustacean taxonomy and biology, will be missed often and sincerely. I never had the chance to meet Dr. Humes, but from all accounts he was as fine a man as he was a taxonomist. One of the contributors to the CrustL list server (many have written in giving observations and expressing regrets on the loss of both these workers) pointed out that he was the author of roughly 5% of the known species of copepods! He was also a terrific editor, and I was privileged to have him serve in that capacity on a paper I had in the last issue of *Journal of Crustacean Biology*. He was scheduled to step down completely at the end of the volume, but didn't quite make it that long.

I was able to meet Austin Williams at the 1992 J. L. Barnard Memorial gathering at the Smithsonian, where I was representing SCAMIT. He was an extremely affable individual who was easy to talk to about anything that came up. There is a picture of he and I from that gathering which I will continue to treasure. He read and graciously commented on the presentation on thalassinid shrimp I gave to SCAMIT in 1992, but the opportunity to work with him never quite materialized. His contributions to carcinology were many, valuable, of broad application, and continued until shortly before his death. There may yet be co-authored papers waiting in the wings for posthumous publication. Fortunately his on-going fight with terminal illness was known enough in advance that the summer meetings of the Crustacean Society could be dedicated to him in 1998. He received an advance impression of how much he was admired and respected by colleagues.

As the taxonomic community continues to age, the number of noteworthy departures will continue to rise. It will be my sad duty to note them in the Newsletter. Drs. Ju-Shey Ho, Tom Duncan, and Mas Dojiri have put down thoughts and reminiscences of Dr. Humes below. Notes on Dr. Williams will be in the next NL. Those seeking further information on their life, work, and demise should watch the CrustL server, and the pages of *Crustaceana*, the *Journal of Crustacean Biology*, and *Proceedings of the Biological Society of Washington* for obituaries and commentary. - Don Cadien (CSDLAC)

### In Memoriam Arthur Grover Humes 22 January 1916 - 16 October 1999

Arthur G. Humes died 16 October 1999 on his way to work at the Marine Biological Laboratory in Woods Hole, Massachusetts. He had devoted his professional life to research on copepods, particularly copepods symbiotic with marine invertebrates.

Born on 22 January 1916 in Seekonk, Massachusetts, Arthur G. Humes graduated with a B.A. in 1937 from Brown University. Arthur originally considered a career as a parasitologist and entered Louisiana State University, earning his M.S. in Zoology in 1939. He entered the doctoral program of the eminent parasitologist H. J. Van Cleave at the University of Illinois and completed an extensive study of the parasitic ribbon worms *Carcinonemertes*. Arthur experienced his first close encounter with symbiotic copepods while collecting parasitic nemertean from the gills and egg masses of various crabs. He was awarded his Ph.D. in 1941. In that year he published his first paper on copepods, about a new species of harpacticoid copepod, *Cancrincola plumipes*, recovered from the gill chamber of a marsh crab that he had collected while studying the parasitic ribbon worms of crabs at Louisiana State University's Marine Laboratory located at Grand Isle, Louisiana.



Upon graduation, Arthur took a teaching position with the Department of Biology at the University of Buffalo in the upstate New York. However, with the outbreak of the World War II, he was drafted in 1942 to serve in the United States Navy and worked at its medical unit in charge of malaria control. There he had an opportunity to apply his knowledge of parasitology during his military service as a Lieutenant Commander stationed in the South Pacific. Toward the end of World War II in 1945, with the northward movement of the frontlines from the South Pacific to Saipan, Iwo Jima, and Okinawa, the military life in Kalimantan (Borneo) became relatively relaxed. Thus, Arthur found a little time to resume his life-long hobby of beach combing for invertebrates, and was able to collect copepods associated with crabs and mud shrimps at Tarakan on the northeast coast of Kalimantan, Indonesia. This collecting experience in Indonesia further stimulated Arthur's interest in copepods, and throughout his life he made frequent trips to the tropics to collect symbiotic copepods.

Arthur received his honorable discharge from the U.S.N.R. in 1946 and returned to the U. S. to teach at University of Connecticut for a year before taking a teaching position in 1947 at Boston University. He was affiliated with this institution till his retirement in 1981. In 1970 Arthur was asked to become Director of the Boston University Marine Program, newly established at the Marine Biological Laboratory in Woods Hole, Massachusetts, the center of marine biology of North America. Accepting the position would require Arthur to move from Boston, and to assume administrative responsibility with which he was not especially comfortable. He did accept the directorship and made the Boston University Marine Program one of the finest marine programs in the world. In 1981, Arthur retired from the program, but continued work at the Marine Biological Laboratory. He soon agreed to a different set of responsibilities for the newly established The Crustacean Society,

as editor of the Journal of Crustacean Biology. He produced the first issue of the journal in 1981. Under his guidance it has become the leading international journal of crustacean research with exacting standards of quality for published manuscripts. He was to retire from the editorship at the end of 1999. Knowing his firm intent to retire, The Crustacean Society secretly planned in 1998 to publish a special issue of the Journal in 2000 to honor Arthur's great service and contribution to the Society.

In June 1954, Arthur took his first sabbatical leave, supported by a fellowship from the John Simon Guggenheim Memorial Foundation. He traveled to the French-speaking West African countries of Senegal, Sierra Leone, Ivory Coast, Nigeria, and Congo where he collected copepods associated with various marine invertebrates. Before returning to Boston in June 1955, Arthur made a decision of significance to his research career. With the remaining funds from his fellowship he decided to fly across Africa to Station Océanographique de Nosy Bé on a tiny island off the northeastern shore of Madagascar, the large island off the east coast of Africa. At Nosy Bé he found a great diversity of marine invertebrates and their symbiotic copepods. So rewarding were his collecting efforts that he returned to Nosy Bé three times in the 60's to collect copepods: in 1960 during an expedition sponsored by the Academy of Natural Sciences of Philadelphia; in 1963-64 as a leader of the U. S. Program of Biology under the auspice of the International Indian Ocean Expedition; and in 1967 through a grant from the U. S. National Science Foundation. In 1993 Arthur published a catalogue containing 244 species of copepods that he had described and collected from Nosy Bé. But, that is not all, he had not yet touched on the many collections of notodelphyids and ascidicolids that were obtained from the tunicates. His collecting effort was not confined to Nosy Bé, Madagascar. With continuous support from the U. S. National Science Foundation, he went to collect in 1969



at Eniwetok Atoll of Marshall Islands, in 1971 at New Caledonia, and in 1975 during the *Alpha Helix* East Asia Bioluminescence Expedition to Moluccas.

In the 50's Arthur completed his studies of copepods collected during his sabbatical leave to West Africa. During the 60's he published mostly on the copepods collected from West Indies and Nosy Bé. In the 70's there was a gradual shift in his studies from the Caribbean Sea and western Indian Ocean to the copepods living in association with various invertebrates occurring in Eniwetok Island, Mollucas, and New Caledonia. Arthur began in the 80's to publish his works on the copepods collected in the water around deep-sea hydrothermal vents, which had been discovered in the late 70's, as well as the copepods associated with vent animals.

Arthur's greatest contribution to copepodology is his discovery and description of many symbiotic copepods which occur in association with a diversity of marine animals, ranging from primitive sponges to more specialized marine mammals. In his half century (1941-1999) of work, he published more than 250 papers and monographs on the symbiotic copepods, described no less than 650 new species and created more than 140 new genera and 16 new families. An exact number of species and genera of copepods new to science cannot be determined at this time because there are manuscripts by Arthur either in press or submitted for publication. In the history of copepodology, no copepod taxonomist has been as productive.

More than a wonderfully effective taxonomist, Arthur was a distinguished teacher as well as an excellent editor and director of scientific programs. In 1983 he served as President of the American Microscopical Society; in 1990 he was elected President of the World Association of Copepodologists. He is a Fellow of the American Academy of Arts and Sciences and a Research Associate at the

Museum of Comparative Zoology of Harvard University. In 1982, William Jaspersohn, a popular writer of a series of photodocumentary books, selected Arthur among the many eminent marine biologists in Woods Hole to be the model of his new book "A Day in the Life of a Marine Biologist". The book describes Arthur's day, work in his office and laboratory, plus a field trip with students in his class in marine invertebrate zoology. It is a book very pleasantly read, about a kind and considerate gentleman who also is an excellent biologist and scholar.

Arthur is well known among his associates, colleagues, and students as a kind and considerate gentleman. This courteous nature of Arthur is also revealed in his works on the symbiotic copepods. From time to time he would produce review articles or monographs for a group of copepods or a group of hosts with all of the reported copepod associates, in order to facilitate an easy way for the interested biologists to follow. Some notable examples of such works are in his reviews of the lichomolgid-complex, xarifid copepods, poecilostomatoids associated with soft corals, copepods of holothurians, and copepods associated with sea anemones.

In his more than half-a-century affiliation with Boston University, the hardworking Arthur enthusiastically directed many of his students along the path of parasitology, copepodology, and marine invertebrate zoology that he had gingerly paved. Aside from being the teacher, mentor, and director of his students, Arthur served also the role of guardian to them. Every day at work, he would have in his office a tea time in the morning and a coffee break in the afternoon for his students to get together to relax, joke around, and talk about anything. Five of his former students followed his footsteps in copepodology, they are Roger F. Cressey, Masahiro Dojiri, Ju-shey Ho, John P. Murnane, and David C. Rosenfield. Arthur will be greatly missed by his friends and colleagues around the world in addition to his



former students.

- Ju-shey Ho (CSULB)[prepared with help from Frank D. Ferrari, NMNH-SI](Originally printed in *Monoculus*: reprinted here by permission of the author)

### **Arthur G. Humes (1916 -1999)**

Arthur Grover Humes, world-renowned zoologist, Professor Emeritus of Biology at Boston University, retired founding director of the Boston University Marine Program at the Marine Biological Laboratory in Woods Hole, Massachusetts, and retired founding editor of the *Journal of Crustacean Biology* died on Saturday, 16 October at his home in Falmouth, Massachusetts.

The son of Edwin Judson and Agnes (Gillis) Humes, Arthur was born on 22 January 1916 in Seekonk, Massachusetts. His interest in the sea and its organisms was piqued at an early age by summers at Falmouth Heights, where his family built and maintained a home from 1926 to the late 1930's. He earned degrees from Brown University (A.B., 1937), Louisiana State University (M.S., 1939), and the University of Illinois (Ph.D., 1941).

After holding teaching positions at the Universities of Buffalo and Connecticut and serving during World War II as a Lieutenant in the US Naval Reserve, he began an association with Boston University in 1947 that included his rise from assistant to full professor of biology. In 1970 he participated in the fruition of several years of labor when the Boston University Marine Program began in Woods Hole, and he commenced 11 years of service as its first director. He retired from active teaching and administration as Professor Emeritus of Biology in 1981.

Arthur was a member of the editorial board of *Crustaceana*, an international journal of crustacean research from 1960 - 1992. In 1980 he was selected to be the editor of the *Journal of Crustacean Biology*, the new journal of the Crustacean Society. More than any other

individual, he was responsible for this publication becoming widely recognized as the preeminent international journal in its field. He continued to edit this journal from his lab at the MBL until 1999. In addition, he was the coeditor of Volumes 9 & 10 of *Microscopic Anatomy of Invertebrates* and an editorial advisor to the *Journal of Natural History* from 1990 until his death.

Arthur joined the Scientific Advisory Board of the Sea Education Association in 1975 and quickly assumed this board's chairmanship and was elected to membership in the SEA Corporation. For the next 18 years he provided a focus on scientific and academic rigor that has been a major factor in this program's academic credibility. In 1993 he resigned from the Corporation and the Academic Review Board of SEA.

Arthur served as the Chairman of the Board of Trustees of Falmouth Academy from 1979 to 1984. His steadfast leadership during the early, difficult years of this institution was critical to its success and has been recognized by his election to the Academy's "Tower Club," its highest level of recognition for outstanding service.

For more than 60 years, he maintained an extremely active research program which focused primarily on the taxonomy, systematics, and biogeography of copepod crustaceans, particularly those associated with other marine organisms or hydrothermal vents and cold seeps. To date, he has described and established 18 new families, over 135 new genera, and over 700 new species of copepods in 252 separate publications. He has personally described more species of copepods than anyone else in history. At the time of his death, the descriptions of a number of new species of copepods were in press or in various stages of preparation. Twenty-three different



species of animals have been named in his honor by other taxonomists, and in the pursuit of his research, he visited over 25 different countries, primarily in the tropics.

His scholarship and leadership were widely recognized by various organizations. He was a life member of the Corporation of the Marine Biological Laboratory, a Fellow of the American Academy of Arts and Sciences, a Fellow of the American Association for the Advancement of Science, President of the American Microscopical Society, and President of the World Association of Copepodologists. He was also a member of Phi Beta Kappa, Sigma Xi, the American Society of Zoologists, the American Society of Parasitologists, and the Crustacean Society. In January, 2000, unbeknownst to him, Arthur was to have been presented with the Crustacean Society's "Award for Research Excellence," which the society's Board of Governors is in the process of renaming the "Arthur G. Humes Award for Research Excellence," in recognition of his contributions.

He is survived by two brothers in Massachusetts, Edwin of Norfolk and Judson of Melrose, and a number of nieces and nephews. There will be a service in Arthur's memory at 11 AM on Saturday, November 20, 1999 at St. Barnabas Memorial Church, 91 Main Street, Falmouth, Massachusetts. His life will be celebrated during a reception at 12:30 PM in the Meigs Room of the Swope Center, 5 North Street, Woods Hole, Massachusetts. Individuals who are unable to attend the latter event are encouraged to forward reminiscences of Arthur to the Boston University Marine Program at the address below, so that they may be included in the celebration.

Donations in his memory can be made to "The Arthur G. Humes Fund," Boston University Marine Program, Marine Biological Laboratory, 7 MBL Street, Woods Hole, MA 02543.

- Dr. Tom Duncan (WHOI)

### MY REMEMBRANCE OF DR. ARTHUR G. HUMES

When I remember Dr. Humes, I recall two different people: one was an incredibly intelligent scientist and naturalist, whose attention to detail, organizational abilities, research drive, meticulousness, and breadth of knowledge are unmatched by anyone I have ever encountered. For example, I remember being invited to Dr. Carl Berg's house in Woods Hole to view the original video tapes of the Galapagos Rift deep-sea hydrothermal vents that Dr. Ballard had discovered. The dandelion, spaghetti-like animals, and huge tube worms were all new to science. No one even knew what higher level taxa they belonged to. So, all the invertebrate zoologists were invited there to help identify these unique animals. I remember Dr. Humes whispering to me that the dandelions were probably siphonophores, the spaghetti was probably a hemichordate, and the tube worms were vestimentiferans. Then, he launched into a detailed historical account of vestimentiferans and their probable taxonomic relationships. It was truly an amazing display of knowledge. Needless to say, he was correct on all counts, but no one had bothered to ask him his opinion and he never offered it out loud. That day, I was the lone recipient of his knowledge. That was vintage Dr. Humes. However, I do not want to dwell on this side of Dr. Humes. I'm sure that everyone who ever knew him knows of his scientific abilities. But, what I remember fondly about Dr. Humes was the person that he was: kind, gentle, considerate, and funny.

When I first met him in August of 1977, I was an upstart Ph.D. graduate student standing at the Greyhound bus terminal in Woods Hole. I was fresh out of southern California, wearing my Hawaiian aloha shirt and flip-flop sandals; I looked more like someone in search of a beach volleyball game, rather than a high-caliber Ph.D. program. I don't know what his first impression of me was. But, my first



impression of him was that he was very distinguished looking, very quiet, a bit cold, and unapproachable. I was wrong about the “cold” and “unapproachable”. In a short time, Dr. Humes, Tom Duncan, and I became very close friends, sharing what best friends share: food, whiskey, wine, conversation, jokes, and fun.

I remember how frugal he was as director of the Boston University Marine Program. No marine invertebrate zoology teaching fellow will ever forget having to account of each and every BUMP bucket after a field trip. I also remember him at the MBL lunchtime seminars eating his sandwich, then folding the wax paper into a neat, perfect square. I always wondered if he did this because he was frugal and wanted to save the paper for another sandwich or because he was so meticulous that he folded, instead of crumbled, his trash.

Once when I was invited to dinner at his home in Falmouth, I noticed that he did not throw his garbage in the garbage can, but that he placed it in his freezer. Upon asking him why he put his garbage in the freezer, he replied matter-of-factly “So it won’t stink up the house”. He was right: he had absolutely no odors in his home. I tried doing this myself; unfortunately, in order to do this procedure correctly, one must remember to take the garbage out of the freezer and throw it away on trash day. I’m sure Dr. Humes never forgot this part. I always did, so my roommates and I had a pile of garbage in our freezer.

I remember how punctual Dr. Humes was. Some of the graduate students and I would joke that we could set our watches to his arrival at work every morning. Before he retired, he would pull into his parking space at the MBL near the Lillie Building about 7:00 AM. After he retired, he pulled in at about 7:15 AM. He never varied his routine by more than a few minutes.

Most of all, I remember blow-out dinners at his house, Tom’s house, and my house, where we would sit around before dinner and drink whiskey, wine, or beer, eat some munchies, and laugh and laugh. This was followed by more food and drinks. Then, we would sit and talk for hours. He had such a great sense of humor and was the greatest conversationalist I have ever met. He had seemingly endless stories to tell of his field-collecting adventures and all of them were fascinating.

Dr. Humes was my teacher, my coauthor, my mentor, and my quasi-father. But, most of all he was my friend. He helped mold me into the scientist and person that I am today. As such, I will carry a part of him wherever I go. But, I would have liked to see him one last time, ...to have a drink with him one last time, ...to laugh with him one last time, ...and to thank him for what he has given to me one last time. I will miss my friend.- Mas Dojiri (CLAEMD)

#### NEW LITERATURE

The millennium edition of the ICZN code, whose provisions take effect on January 1, 2000, is now out and available (International Commission on Zoological Nomenclature, 1999). The major changes from the preceding edition are listed in the Introduction, along with a presentation of the genesis of the changes, and a mention of proposals which were not incorporated into this code revision. A number of more radical suggestions to restructure the code, including discarding the principle of priority, were not accepted. A more detailed look at the code will be presented in the future, after enough time has passed to digest the changes and understand how they affect its application.

A monographic revision of the genus *Pandalus* has just appeared (Komai, 1999). Two nomenclatural positions adopted in it affect taxonomy of eastern Pacific taxa. First is the validity of *Pandalopsis*. Hendrickx recently treated it as a synonym of *Pandalus*, based on cladistic analyses performed by others



(Hendrickx, 1995); reporting *Pandalus amplus* rather than *Pandalopsis amplus* in the eastern Pacific. Komai revisits this and finds that although the *Pandalopsis* clade is surrounded by the *Pandalus* clade, it is none-the-less morphologically distinct. He advocates retention of the taxon at full generic rank, maintaining that it is monophyletic where *Pandalus* is polyphyletic.

He also disagrees with Wicksten's synonymy of *Pandalus gurneyi* and *Pandalus danae* (Wicksten, 1991). He feels that the specimens, rather than forming a cline with gradual change from north to south in a single population, represent two distinct populations with a limited region of overlap. He views *P. danae* as the more northern species, ranging into Alaska; and *P. gurneyi* as the southern species. The ranges of the two overlap in southern and central California. He provides a key to the genus which allows separation of the two forms, and re-diagnoses and re-figures both. According to Komai there are several characters which separate the two morphologically, the most easily observed being the number of ventral rostral teeth - 6 or less in *P. danae*, 8 or more in *P. gurneyi*. Examination of CSDLAC vouchers with these characters in mind yields only specimens of *P. gurneyi*. This may not hold true for other agencies and other collections, but your vouchers should be re-identified with this paper in hand. Interestingly, Komai points out differences in live coloration and color patterning of the two species, using Wicksten's descriptions.

Anomuran crabs form a small part of the catch in our monitoring trawls and benthic infaunal grab samples. They are however, a very diverse group. This is amply demonstrated by the listing of 207 species which occur in the Eastern Tropical Pacific (Hendrickx & Harvey, 1999). A number of the species listed are only encountered in intertidal or subtidal rocky habitats which are not covered by most agencies. There are, however, a number of

species listed which we do take, at least occasionally. This list provides a convenient and comprehensive source for distributional and nomenclatural changes in the group replacing earlier and more scattered literature records.

Broadening concern for impacts of trawl fishing have prompted a flurry of papers concerning the subject in the last few years. A recent contribution is from Freese et al (1999) on impacts observed directly from a submersible in the Eastern Gulf of Alaska. They monitored the effects of a commercial rockfish trawl, normally fished over a boulder, cobble, pebble ground. Many of the large invertebrates on this bottom are sessile cnidarians or sponges. These form secondary structure and provide habitat for associated smaller motile invertebrates. Damage to them would have potential impacts on the food web, and constitution of the smaller invertebrate community. The authors report observation of movement of boulders and damage or removal of larger sessile epibenthic organisms in a single trawl pass. Damage to or changes in density of motile invertebrates was not observed, but such organisms are not easily evaluated from a submersible, and such damage may have gone undetected. A subsequent survey in the area will address longer term effects.

Of equal concern is the impact of introduced artificial substrate on the marine environment. Does it actually expand the available habitat and increase the carrying capacity of coastal waters, or does it merely attract and concentrate organisms from adjacent habitat, reducing their productivity while appearing to enhance the ecosystem? Page et al (1999) address this issue with regard to crabs of potential commercial importance. They examined occurrence and abundance of a number of larger crabs around an oil platform in the Santa Barbara Channel. They found that the crab species studied showed differing responses to the platform depending on



species. *Cancer antennarius* appeared to recruit to the mussel masses on the platform legs as larvae, then remain as resident adults. *Cancer anthonyi*, in contrast, seemed to be attracted to the structure from adjacent areas, and did not recruit directly into the habitat. *Cancer productus* and *Loxorhynchus grandis* appeared to be merely visiting transients, with no long-term relationship to the structure. Their results point out the dangers of generalizing responses of groups of related organisms. The three species of *Cancer* considered each had its own response to the presence of the platform. An analysis based on *Cancer* spp. would have provided no useful information. Score one for careful taxonomy.

#### OLD LITERATURE

Much of our recent indecision and confusion regarding the identity of the amphipods *Garosyrrhoë bigarra* and *G. disjuncta* would have been avoided if we had not missed Barnard & Thomas 1989. This paper, while indicating in the title that it deals with Caribbean species, also has bearing on eastern Pacific amphipod taxonomy. In it the authors place *G. disjuncta* in the synonymy of *G. bigarra*, and state that the differences between the two are due to sexual dimorphism; *G. disjuncta* being the female and *G. bigarra* the male of a single species. *Garosyrrhoë bigarra* has a transisthmial distribution, occurring both in the Caribbean and in the temperate and tropical Eastern Pacific.

We have recently discussed the amphipod genus *Cerapus*, and the status of west coast species. Description of a new genus by Lowry and Berents to accommodate some of the species currently in *Cerapus* was discussed as an upcoming event. Well, their publication actually came out several years back (Lowry & Berents 1996). They describe two new genera related to *Cerapus*, *Bathypoma* and *Notopoma*. Both these new genera have the expanded antennal basis forming a pseudo-operculum to close the anterior of the tube seen in our

common California “*Cerapus*”. No mention is made, however, of the subrostral tooth, and complex frontal structure characteristic of our local species. It is not yet clear whether either of these new taxa can be stretched to accept the local animal as a member. For now it continues to be *Cerapus* sp. A SCAMIT. The authors also point out the constituents of the *Erichthonius* group are currently allocated to different families, with several genera being “non-aligned”. This points out the continuing difficulty in family definition in these corophioid taxa and calls for, at a minimum, a reexamination of the composition of the currently recognized families Ischyroceridae and Corophiidae.

Although 2 years isn’t very “old” in the context of literature, J. D. Thomas’ monographic revision of the Anamixidae (Thomas, 1996) is another one that slipped by while we were looking elsewhere. The California amphipod fauna supports but one anamixid, *Anamixis pacifica* (Barnard 1955). Two taxa were described in that paper, *Anamixis linsleyi*, and *Leucothoides pacifica*. It was later discovered that the two were just different life stages of the same species. Since *pacifica* had page priority in the paper, the resulting taxon became *Anamixis pacifica*. Thomas’ paper provides much additional information on the family as a whole, and provides a comparison between the Californian species and others in the genus worldwide. Anamixids are generally symbiotically linked with invertebrate substrates, and as such, may be introduced along with their substrate to areas outside their normal range. We may eventually find more of the species described in this monograph are present in the area as either temporary or permanent introductions in the fouling community. The key and illustrations from the paper are present on Jim Thomas’ web site, and can be downloaded from there as a PDF file.



B'98 samples from the Northern Channel Islands have exposed us to animals we don't normally see in our monitoring. Among these are small apseudid tanaids. Menzies covered them well at the specific level in his monograph on the group in our area (Menzies, 1953). A host of changes have taken place since 1953 in generic and higher rank apseudid taxa. These are summarized by Gutu (1996), who provides a list of the taxa, and a key to families and genera worldwide.

Dr. Mihai Băcescu of Roumania was another major crustacean worker lost to us this year. Among his publications are two major contributions I have finally obtained, the Cumacea sections of the Crustaceorum Catalogus (Băcescu 1988 & 1992). For crustacean workers these compendia, which list taxa, authorship, type localities, and distribution (with citations of virtually all records in the literature of every species) form an irreplaceable resource. Other sections dealing with tanaids (by Sieg) and caprellids (by McCain & Steinberg) are also available. Unfortunately, neither of the Băcescu volumes provides a bibliography to assist with finding the records listed in the Catalogus, although each entry does bear an abbreviated citation listing. Unidentified species reported in the literature are included, but not provisional names per SCAMIT usages. Their inclusion appears to be for distributional completeness, and perhaps a sign that additional unnamed species are present in the reported area. Secondary distillations of the included information which provide lists of taxa reported by geographic area or bathymetry are also absent.

### MORE ON MYTILUS

Member Dr. Jim Carlton sent the following comments in regard to mention in the last NL of concerns with identification of the *Mytilus* species found in our shallow water samples.

“Re: “*Mytilus californianus* can be separated from the other two based on its surface ribbing”. Actually, I would not rely on surface sculpture all of the time, as this can vary with age and habitat. Better perhaps is to use internal muscle scars (see Light's Manual, 3rd ed., 1975, p. 553, plate 125, figs. 5B vs. fig. 7).

Re: *Mytilus trossulus* vs. *M. galloprovincialis*: Two thoughts here: First, *M. trossulus* is rare-to-nonexistent generally in southern California, and thus of the tross-gallo-edulis guild, gallo should be the mussel one generally collects in southern California. This isn't to say that one should identify a species by geography, but this is simply a “heads up” — that is, if *M. trossulus* \*does\* occur in southern California today, this is important news. See the paper by Jon Geller in the June 1999 issue of Conservation Biology (J. B. Geller, 1999. Decline of a native mussel masked by sibling species invasion. CB 13(3): 661-664) documenting the decline of *M. trossulus* in southern California, most likely at the “hands” of the *M. gallo* invasion. Second, as far as I know, there are no reliable external or internal morphocharacters that will distinguish *trossulus* from *galloprovincialis* from *edulis*: they are now defined as genospecies, not morphospecies. Without genetic confirmation, one cannot know, unfortunately and frustratingly, which mussel one has in hand.”

### 25 OCTOBER MEETING MINUTES

The meeting was held in the Worm Lab at the Los Angeles County Natural History Museum. Before starting the business meeting, we viewed a video tape entitled “Life in the Deep” brought in by Leslie Harris. She purchased it at the Monterey Bay Aquarium while there the previous week. The video had some excellent footage of animals that live in the depths of Monterey Canyon. We saw animals from the mid-water habitat (the largest habitat on earth), the canyon walls, and the sea floor. Watching these beautiful and amazing life forms in their natural habitats was a nice way to start out.



Since we were in the Ichthyology Laboratory to watch the video, Jeff Siegel, who works in the lab, was nice enough to give us a tour of their collection. Their collection houses approximately 5 million specimens, many from Central and South America and Pakistan. The Allan Hancock Foundation Collection, primarily containing fishes of the temperate and tropical Eastern Pacific, is also housed at the museum. One of the collection strong points is mid-water fishes. They are a busy laboratory with 100-150 loans/year, 100 visiting researchers/year, and numerous tour groups. In addition to complete specimens, the fish lab collection contains about 7,000 skeletons, and consequently attracts anthropologists and paleontologists who need to identify fish from bones or otoliths alone. Jeff also told us that their lab possesses the world's finest otolith collection with approximately 8,000-8,500 specimens.

We then returned to the Worm Lab and proceeded with the business portion of the meeting. President Ron Velarde announced the next few meetings. He also announced that SCCWRP has approved the identifications of the Bight'98 special taxonomic groups; Larry Lovell will be identifying the lumbrinerids and the euclymenid maldanids, and John Ljubenkov will be identifying the cerianthids and the Edwardsiidae. Regarding the Bight'98 re-identifications, Ron announced that the numerous laboratories involved are in various stages of distribution.

A reminder (obtained from Annelida, <http://www.bio.net/hypermail/ANNELIDA/9912/>) for the 7<sup>th</sup> International Polychaete Conference registration was circulated. The closing date for registration is November 1, 1999. One can register by e-mail at: [elins@ni.is](mailto:elins@ni.is). There is also a registration form available at the conference website which is: <http://www.ni.is/7IPCI>. The conference dates are 2-6 July, 2001, and it is being held in Reykjavik, Iceland.

Next Vice-President Leslie Harris reported on her trip to the Monterey area in late October. She spent some time at Moss Landing Marine Labs looking at holdfast fauna with Mike Foster. She also stopped at MBARI (Monterey Bay Aquarium Research Institute). While there, Craig Smith, from the University of Hawaii, happened to walk into the lab and an interesting chain of events evolved. Craig Smith conducts research on the animal communities that live on benthic whale skeletons. When whales die, they sink to the ocean floor where they decay. After scavengers have reduced or removed most of the tissue a bacterial mass engulfs the skeleton. Animals then colonize this unusual habitat where metabolic pathways are similar to those of hydrothermal vent organisms. Craig has investigated skeletons at various geographical locations and estimates there is one whale skeleton every 200 km on the ocean floor. Faunal density estimates on the skeletons are 140 species per square meter. He has discovered that most of the species are unique to whale skeletons and are not found in other habitats. It was fortuitous that Leslie met him at MBARI, because not only did he give her some polychaete specimens to examine, but he will be depositing more polychaetes in the LA County Museum collections in the future.

We were all fortunate to be able to look at one of Craig's polychaete specimens at the meeting. It was unlike anything we had seen before, with some characteristics of phyllodocids, but probably in a new family. (This specimen had very small head appendages, 2 small palps and 2 small filiform antennae. The setae were beautiful and unique; being composite and chambered). Leslie described how these worms attach themselves to the skeleton and hang down in the water column. No one knows yet how these worms feed or what they eat. We hope to be able to look at more of these "whale skeleton worms" in the future.



Leslie circulated some books she had purchased at the Monterey Bay Aquarium: *The Ambonese Curiosity Cabinet*: George Everhardus Rumphius by E.M. Beekman, *The Deep Sea* by Bruce Robison and Judith Connor, *Deep-Ocean Journeys: Discovering New Life at the Bottom of the Sea* by Cindy Lee Van Dover, and *Mysteries of the Deep: Exploring Life in the Deep Sea* by Christina Joie Slager.

To start off the Bight'98 discussion, Rick Rowe passed around a list of his Bight'98 polychaete voucher specimens as of October 22, 1999. He next told us about a specimen of *Armandia* he found that doesn't fit the description of *Armandia brevis*. The specimen was collected from San Miguel Island (Station 2476) on August 11, 1998 from a depth of 11 meters. Rick's specimen had 39 setigers (*A. brevis* has 29/30 setigers), branchiae from setigers 2 to 39, and lateral eyespots on setigers 5 to 35/36 (*A. brevis* has eyespots to setiger 20). Leslie brought out a Master's thesis on *A. brevis* by Sharon Hampton from Sonoma State University (Hampton 1997). There was no mention of specimens with variant characteristics like Rick's specimen. We referred to this specimen as *Armandia* sp SD 1.

We next viewed a specimen of *Nephtys* brought in by Rick Rowe. It was collected from Anacapa Island (Station 2476) on August 4, 1998 from a depth of 21 meters. It was a small specimen which keyed out to *N. parva*.

A *Lacydonia* from Ron Velarde was up next for examination. It was collected from San Miguel Island (Station 2480) on July 21, 1998 from a depth of 106 meters. We compared it to *L. hamptoni* Blake, 1994 described in the MMS Atlas. Ron's specimen had some different characters, most obvious were the large, dark eyes. Another difference was that *L. hamptoni* occurs in deep water (985-1990 meters). We referred to Ron's specimen as *Lacydonia* sp SD 1.

Concurrently with the examination of the previous specimens, attendees were treated to Leslie's slide show of living polychaetes (and some nudibranchs) from the British Virgin Islands. She had set up an automated slide show on her laptop computer for us to enjoy while we waited to view specimens at the microscope.

After lunch the discussion turned to *Dipolydora*. We talked about the character differences between *Dipolydora bidentata* and *D. sp SD 1*. The main difference is where the branchiae start. This led to a discussion about how we identify *D. bidentata*. Most of us have been identifying *D. bidentata* using the setiger where branchiae start (setiger 8) and the morphology of the modified spines on setiger 5. Other characters defining *D. bidentata* are present in the posterior of the worm (needle packets and unidentate hooks) which we rarely get in the sample. Some people commented that they have never seen the needle packets or unidentate hooks on specimens they identified as *D. bidentata*. For incomplete specimens of *Dipolydora*, the only character separating *D. bidentata* and *D. sp SD 1* is where the branchiae start. The question arose whether this is a good character to separate species or if it is within the range of variation for this species. We agreed to closely examine our complete specimens of *D. bidentata* and look specifically for the needle packets and unidentate hooks in the posterior. There's a possibility that what we've been calling *D. bidentata* is really a different species. This will again be a topic at a future SCAMIT meeting.

Next Cheryl Brantley brought forth a cirratulid collected off the Palos Verdes shelf (Station 0D) on July 8, 1998 from a depth of 30 meters. The anterior end looked similar to *Chaetozone bansei*, but on closer examination, it turned out to be a *Cirriformia*. A species identity could not be determined, so we left the identification at *Cirriformia* sp.



Tony Phillips introduced a specimen of *Bispira* collected off Ventura at B'98 Station 2400. We stained the worm with methyl green and saw the W-shaped stain on the collar which is characteristic of specimens of *Bispira*. The specimen was compared to several provisional species erected by Kirk Fitzhugh and Leslie Harris (see SCAMIT Newsletter, Vol. 12, No. 3 for descriptions of provisional species), but did not match any of them. The specimen had some characters of *Bispira* sp 2 and some characters of *Bispira* sp 4. It was decided to leave the identification of the specimen at *Bispira* sp.

The next worms up for examination and discussion were specimens of *Pholoe* brought by Ron Velarde. He had found these in Channel Island samples as well as ITP (International Treatment Plant) samples. They differed from our common *P. glabra* in having about 50 segments (*P. glabra* has about 30 segments) and having a long facial tubercle which was quite obvious (*P. glabra* has a short facial tubercle). Tony Phillips remembered that he had seen specimens like these in Santa Monica Bay. If anyone encounters one of these *Pholoe*, please bring it to a SCAMIT meeting and give it to Ron. We compared Ron's specimens to *Pholoe courtneyae* Blake, new species, described in the MMS Atlas. *P. courtneyae* was different though, in that it had no eyes, as well as other differing characters.

The last polychaete we looked at that afternoon was an *Eteone pigmentata* brought in by Ron. It was collected from Santa Rosa Island (Station 2492) at a depth of 71 meters.

Secretary Megan Lilly has been enjoying the assistance of others in minutes-taking during the polychaete focussed meetings. Normally this has been done by Kathy Langan-Cranford. Recently she was unable to attend several meetings, and would like to thank Cheryl Brantley and Dot Norris for taking the meeting minutes in her absence. Cheryl took the minutes for the June 21<sup>st</sup> meeting, and Dot lent

her hand for the September 27<sup>th</sup> meeting. The entire membership should echo these thanks and extend them to Kathy and Megan as well, for keeping good track (and minutes) of the often chaotic proceedings at the meetings. Since so few of the members can actually attend these gatherings it is important to make the content of the discussions and the resolution of problems addressed, available via the newsletter to members not in attendance and any others who find us on the web.

### 15 NOVEMBER MEETING MINUTES

The first order of the day was to present Don Cadien with a gift from the taxonomists of the City of San Diego Marine Lab. Over the years Don has been an untiring friend and mentor and in gratitude we purchased as a gift for Don, A Field Guide to Marine Molluscs of Galapagos. It is a special edition as the inside cover is personally signed by all of us. Thanks again Don for all that you do, not only for those of us here at CSD but also for SCAMIT! - M. Lilly, Secretary. [My thanks to all concerned, especially for the thoughts expressed inside the cover - D. Cadien, Editor]

Kelvin Barwick (CSDMWWD) made a request for reconsideration of the Newsletter format. He finds the Newsletter's two column format is difficult to read on a computer screen and that a single column format would be easier, at least for this use. However, it was felt by many that most members download the Newsletter and print it for reading and for archiving. We feel that the two column format is more attractive and practical for the paper version. So, we will potentially be seeking the opinion of the electronic subscribers as to which format they would prefer. Regardless of the outcome, the original paper version of the Newsletter will remain in two column format. However, the version that is posted on the web may have a new look soon if that's what the members request.



Don reminded us of the upcoming SCUM (Southern California Unified Malacologists) meeting at UCSD in January. It is an excellent opportunity to meet fellow malacologists and hear what is the latest research.

With the business meeting complete we began consideration of problem Crustacea, starting with Cumacea. *Lamprops* sp SD1 was collected at a Channel Islands station by Dean Pasko (CSDMWWD). The two female specimens had telsons with 5 terminal spines (two very short and three long—median one being slightly longer), and no lateral spines. The telson was short, approx. 2/3 the length of uropod peduncle, and the carapace was smooth, without ridges or sulci. Comparisons of the specimens with the CSDMWWD voucher of *Lamprops carinata* proved them to be the same. However, some discussion ensued about the presence of “real” *L. carinata* here in the SCB, since *L. carinata* is described from Vancouver Island, British Columbia, Canada. Don Cadien (CSDLAC) said that he would request specimens of *L. carinata* from the Puget Sound area to compare with local specimens. Next, a specimen of *Lamprops* sp D SCAMIT was also reviewed and the id was confirmed by Don and Tony Phillips (CLAEMD).

The next animal to be examined was a *Cumella* sp. A small specimen was collected from the Channel Islands, originally identified as *Cumella* sp by Dean, it was then reviewed by Don and Tony. Don believed the specimen to represent a new species...at least new to SCAMIT. The specimen had very short uropods, which included the very short, blunt, rounded, and bare rami. The uropod peduncle had a mid-dorsal crest and the carapace was hirsute (i.e., few long setae).

Amphipods were considered next. It was determined that *Paradexamine* sp SD1 is synonymous with *Atylus* sp 1 of Phillips and *Paradexamine* sp 1 of Phillips. This small introduced species has been taken sporadically

over the past 7-10 years from various locations in southern California. It remains unclear if it is an undescribed species, or one of the numerous members of the genus described from elsewhere in the world.

Next, a small pleustid from the Channel Islands (same station as the *Cumella* sp), collected by Dean, was examined and found to be *Chromopleustes oculatus* (Holmes) and not *Parapleustes oculatus* Holmes of Barnard and Given (1960). The latter was recognized as differing from Holmes' species and given the provisional name *Chromopleustes* sp 1 by Bousfield & Hendrycks (1995).

A *Nasageneia quinsana* (Barnard 1964) from Redondo Beach was brought in by Carol Paquette. Her identification was reviewed and found to be correct. Carol passed out a key she had made for the eusirid genera *Pontogeneia* and *Tethygeneia*. The key was modified to include *Nasageneia quinsana*.

The species *Aoroides secundus* (Aoridae) was discussed. Dean found an *Aoroides* specimen without a terminal process on the peduncle of uropod 2 that keyed to the Hawaiian species *A. secundus*, in Mission Bay. Don mentioned that MBC used to see a similar species which was designated *Aoroides* sp A of MBC. Don recalled that there were some differences in the gnathopod structure between *Aoroides* sp A of MBC and *A. secundus*. Dean will attempt to compare his Mission Bay specimen to the description of *A. secundus* and create a voucher sheet.

Caprellids were next in line. Carol Paquette brought a caprellid from the Long Beach power generating station closely matching *Caprella californica* except for the absence of a ventral spine between gnathopod 2 insertion points. The specimen had an extremely acute head spine, no lateral spines on the pereon and no spine between the insertions of gnathopod 2. Several keys were used to attempt to identify



the specimen - including the comprehensive keys to Japanese *Caprella* provided in Arimoto (1976), but to no avail. It was left at *Caprella* sp F of Paquette.

Moving along to Leptostraca, several specimens of *Nebalia* sp were brought by Carol. The specimens were collected from Long Beach harbor intertidal and subtidal stations which were full of detritus. The specimens seemed to be part of the *Nebalia pugetensis* species complex, but they were distinguished by a broad, flat rostrum (very spatulate) and a very short ocular scale above the eye which extended 1/2 to 2/3 the length of the ocular peduncle (i.e., not reaching the eye proper). Specimens of *Nebalia pugetensis* complex typically have an elongate, tapering rostrum, which is much more triangular and dorsally arched in cross-section, and an ocular scale that extends the length of the eye peduncle to the eye proper. Carol volunteered to produce a SCAMIT voucher sheet on the animal.

Tanaids were briefly reviewed during the examination of *Synaptotanaïs notabilis* recorded by CSD in the Bight'98 samples from San Diego and Mission Bay. We confirmed that these specimens were indeed *S. notabilis* and different from what Tony and Carol have been calling *Zeuxo normani*.

Greg Williams and Janelle West from PERL (Pacific Estuarine Research Lab) brought specimens of *Peneus californiensis* (shrimp) for confirmation. Their ID was confirmed by Don.

They also brought a *Corophium* sp (corophioid amphipod) which was identified as *Monocorophium uenoi* by Carol.

Next, a *Tethygeneia opata* (eusirid amphipod) was identified using Carol's key passed out earlier in the meeting. This estuarine species is seldom seen outside bays, but is listed in Ed. 3. It is easily separable from all other pontogeneoids found locally by the long

triangular ventral lobe of the second gnathopod carpus. And finally, an *Oxyurostylis pacifica* (Cumacea) was identified by Dean. He had recently compared a number of specimens of this taxon, and found it variable in the texture of the carapace. The examined specimens did not conform to the type description in that respect, and would have been suspect if Dean had not recently documented the variability.

At this point the molluscs demanded the floor and staged a bloodless coup. Megan Lilly (CSDMWW) had been working on B'98 Station 2423 taken in Mission Bay (3.4 m) which was full of unusual molluscs. First up was a clam which turned out to be none other than *Diplodonta orbellus*, identified by Don Cadien. The animal was large (13 mm) for us and had nestled against a hard object and was slightly "tweaked".

Juvenile clams were up next. There were two *Kellia suborbicularis*, and a small and strange looking Lyonsiidae (could get no further with the ID). Based on the strength of the radial incised lines on the valves this could represent a juvenile *Entodesma* rather than *Lyonsia*. Our current SCAMIT practice is not to identify specimens below 6mm to genus, so we left this one alone. Kelvin stated that he had perhaps made some headway in definitively separating small lyonsiids to at least genus, but his results are still preliminary. He will keep us informed.

Several small gastropods were examined next. A very small *Lithopoma undosum* was identified by Don. This species has been transferred from *Lithopoma* to *Megastraea* in Turgeon et al (1998). The "stumper of the day" were two columbellids which were left at Columbellidae for the time being as they were not recognized by any of the members present. They seemed to be *Mitrella* or *Astyris*, but had shell patterns strongly reminiscent of an *Anachis* species from the Gulf of California.



Also examined at the meeting were specimens of *Haminaea*. These animals were juveniles and so we bleached out the gizzard plates to be sure we weren't confusing them with small *Bulla*. They were identified by Don to be *Haminaea virescens*. Other interesting (at least to those of us who normally work on off-shore material) animals which were in this sample but which were not taken to the meeting were a juvenile *Lepidozona* left at species due to its small size, a specimen of *Tectura depicta* (an eelgrass limpet) and a few *Teinostoma supravallatum* (a vitrinellid gastropod).

Greg Williams and Janelle West (PERL) had brought molluscs as well as crustaceans to the meeting. They had a small *Saxidomus nuttalli* which as a juvenile looks very different from the adult. They also had specimens of *Cumingia californica* and *Leporimetis obesa*, species not normally seen by the SCAMIT members due to their shallow water bay and/or estuary occurrence. All in all, quite a few animals were identified during the course of the day and it was a successful, if slightly hectic, meeting.

#### UPCOMING MEETING

The 72nd annual WEFTEC Conference and Exposition will be held in New Orleans, Louisiana from October 9-13, 2000. For any and all interested in wastewater treatment and water quality this is the one not to miss. More information can be found at:

<http://www.wef.org>

#### STATEMENT OF POSITION

The following concerns year of publication usage in SCAMIT Ed. 4 for taxa described by Philip Pearsall Carpenter.

While examining the second edition of the AFS Common and Scientific Names of Aquatic Invertebrates from the United States and Canada: Mollusks (Turgeon et al 1998) it

became apparent that there were many differences of opinion concerning the correct year of publication for Carpenter taxa. The Edition 2 list was modified to reflect usages in the volumes of the Taxonomic Atlas of the Santa Maria Basin and Western Santa Barbara Channel, and these changes were implemented in Edition 3. The AFS list was being compared with Edition 3 when it became clear something was amiss. Carpenter published a host of papers in the period 1864 to 1866, and just which are adequate to establish a given taxon is a matter of academic debate. Most of the taxa names were introduced in 1864 with brief indications rather than diagnoses. Fuller treatments of most species, including diagnoses, were given later in 1864 and in 1865 and 1866. This original literature is very hard to come by, but fortunately a compendium reprint of most of the originals [including the B.A.A.S. report] was published by the Smithsonian Institution in 1872. I have a copy of that document, so have been able to check both the original B.A.A.S. usage, and the subsequent diagnoses myself. I also have a copy of Palmer (1958) which covers establishment and use of Carpenter's names, and provides photographs of the extant types. In all cases that I have checked Palmer's reported date against the reprinted texts, they have been in perfect agreement. I view her report as thus being quite authoritative and error-free.

The AFS list, in its introduction, states that particular care was taken with the nomenclature of the second edition, including authorship and date of publication. That this was undertaken with some thoroughness is indicated by the notes on changes from first edition usage, but a number of patent errors still slipped through. A list of publications was given (indicated by asterisk in the bibliography) from which new information on taxon authorship was obtained. None of these apply directly to P. P. Carpenter, and Palmer's monographic treatment is not referenced. I have been impressed with the level and



thoroughness of review of the Mollusks Edition 1 nomenclature evident in Mollusks Edition 2. I am, however, disturbed that no mention is made of Palmer as a resource for Carpenter nomenclatural issues in Edition 2. As a result I find I cannot accept the changes proposed by Turgeon et al on faith, as I would like to do.

To avoid endless wrangling with these dates, I propose to adopt the date indicated by Palmer (which generally also conforms to the usage in the Atlas series) for Carpenter dates in Ed. 4 of the SCAMIT list. In specific instances where the date of publication issue is directly referenced and explicitly laid out, changes from Palmer would be made. Lacking such definite indications, no revisionary date changes would be accepted, including those listed in the AFS Mollusk second edition.

Other viewpoints should be brought forward, so that all sides of this issue may be reviewed prior to production of Edition 4. Your contribution to this discussion is solicited. The SCAMIT Newsletter seems the perfect place for such an exchange of opinion (and, hopefully, fact). Please send comments on this issue to me at [dcadien@lacsdsd.org](mailto:dcadien@lacsdsd.org) or via snail mail to D. Cadien, Marine Biology Lab - JWPCP, 24501 S. Figueroa St., Carson, CA., 90745.

#### END NOTE

The unknown Arcidae that graced the cover of our September Newsletter has since been identified by Paul Scott. The animal is a juvenile *Anadara multicostata* (G. B. Sowerby I 1833).

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