PUBLICATION OF THE CONCHOLOGY GROUP
of the
OUTDOOR NATURE CLUB, Houston, Texas

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THE SEPTEMBER MEETING OF THE CONCHOLOGY GROUP will be held Friday the 18th, at 7:30 P.M., at the United Gas Co. auditorium, 5813 Palms Center. Mrs. B. H. Bridges will be the guest speaker.

CONCHOLOGY GROUP DUES ARE DUE!! If you haven't already done so, please give your dollar to Mrs. Norma Oates at the Sept. meeting, or mail to her at 5908 Charlotte, Houston 5. An active 1954-65 club year is planned...don't miss out on the fun!

AN OFFICIAL PUBLICATION FOR THE CONCHOLOGY GROUP was unanimously approved at the Aug. meeting, at which time Liz Eubanks was elected editor for the 1964-65 year. Two major problems need to be solved before the mechanics of this paper are smooth-working and your Editorial Staff hopes that no member who has suggestions or solutions to offer will be too shy to speak up at the meeting or call the Editor.

There exists the problem of GETTING ACCESS TO A MIMEOGRAPH MACHINE on which to run the cut stencils (with the understanding, of course, that the Conchology Group will furnish paper and ink); several good members are willing to do the work of running the machine.

THIS NEW-BORN PUBLICATION NEEDS AN APPROPRIATE NAME, which will be chosen by secret ballot at the September meeting. All suggested names will be listed on the slate; so if you have one to offer but cannot attend this meeting, please call it in to Liz Eubanks so it can be entered. Of course, only names not in use by other publications will be considered.

SEND ALL MATERIAL FOR PUBLICATION TO THE EDITOR. Good articles, short items, news, hints, and shelling experiences will always be needed and make good reading material. Letters to the Editor, including those containing constructive criticism, will always be welcome; and whenever possible, they will be printed in this paper. Those wishing to swap material with other collectors are invited to put a notice in the "Exchange" section. A "Questions from the Readers" column is planned; so please send in any you would like to have answered in print. If the Editorial Staff is unable to answer them, the questions will be printed anyway, in hopes that a reader may be able to furnish the answers. Active participation by all the readers will add a great deal of interest. Call the reporters anytime and give them your news about the hobby.

WATER LIFE WITH THE SAN JACINTO GIRL SCOUTS By Mrs. T. L. Kister

Take a group of active, friendly girls between the ages of 13 and 16, blue sky, San Luis Pass Beach; mix with a bonfire and hot dogs; and you have a good beginning for an interest in shell life. In May of this year, the San Jacinto Council of Girl Scouts asked and Tom and I to conduct a workshop for about 20 girls

interested in the Water Life Badge. Nearly 30 girls signed up for the course, and of course it was impossible to turn anyone away that had even the slightest interest in shells. Mary Sutow helped tremendously with a talk on conservation and edible water life; and Buzzy Sutow had an exhibit on the Ecology of Mollusks which he had entered previously in the Houston Science Fair for students of junior and senior high school level. Needless to say, the girls were fascinated by all this display of knowledge and were more than anxious to start their own hunting. On a warm July evening, several car loads took off for Galveston. The avid shellers were rewarded with 25 different species. The tides were not just right; and darkness came much too soon; but this did not deter their enthusiasm or their appetites. Besides the outdoor excursion, the girls were treated with a visit to the B. H. Bridges' home to see their outstanding display of shell art. In addition to the above, Tom and I made instructions, literature, and shell exhibits available to them. The adults, as well as the girls, had fun.

Miss Flower Follett spent part of her memorable vacation this summer at Los Mochis, Mexico, on the Gulf of California, where she enjoyed some beach shelling. Many different species were found; but Miss Follett is a new-comer to this hobby and doesn't have them all identified yet. We hope she'll borrow or buy the wonderful book, "Shells of Tropical West America" by Dr. A. Myra Keen, to help her with the naming of her ocean gems. We further hope she'll bring her finds to the October meeting, which is a workshop, so we can all get a chance to see them.

Sunday, Sept. 6, the Eubanks family obtained only one shell from one dredge load taken in Galveston Bay, at a depth of 9 feet on a mud bottom. The shell was a living Glycymeris pectinata Gmelin.

Subject to a vote of approval by the Conchology Group membership, the following policy for this publication is submitted:

1. The Editor will be elected annually at the same time as the group officers.
2. The Editor will appoint volunteers to take the positions of Associate Editor, Professional Consultant, Reporters (as many as are needed), and Circulation for the club year.
3. Ten issues will be published each year, on a monthly basis, beginning wihh August and ending with May. If at all possible, they will be mailed approximately one week before the monthly meeting of the group.
4. The number of pages will vary, at the descretion of the Editorial Staff, according to the material on hand; but the average of 4 pages is expected at this time.
5. No free advertising will be printed.
6. One FREE copy only will be sent to interested, prospective subscribers; to receive this publication regularly, one must be either a PAID-TO-DATE MEMBER of the Conchology Group, or a PAID SUBSCRIBER (see #7).
7. Non-members of the Outdoor Nature Club Conchology Group may subscribe to this publication with a letter requesting it and a payment of $2.00 per year. All subscribers are urged to correspond and contribute material for publication.
8. The Editor (or Associate Editor, when in charge) is responsible for the quality of the publication; and therefore must have authority to decide what is or is not to be printed, and to make minor corrections and/or changes in material sent in for publication.
9. The Editorial Staff is not responsible for the validity of articles sent in by collectors; for both beginners and advanced collectors do sometimes make incorrect identifications of shells.
10. Those contributing material for publication are asked to use the proper (Latin) names of the species in their reports or articles; common names alone without the scientific names will not be printed.

11. The entire Editorial Staff will at all times endeavor to maintain and increase the scientific merit of this publication, and will try to have material in each issue that will be of interest to the beginner, local, world-wide, and more advanced amateur collector.

Your Editor and family spent a few days in August shelling on the southern end of Padre Island, Texas. We found the jetty quite rich in marine life, including red and black sea urchins, starfish, Isognomon alatus (small ones), Brachidontes exustus, Arca imbricata, a lovely cluster of pink living coral and Thais haemastoma floridana (which were quite unlike the local ones; these were smaller, with a heavier shell, less orange inside the aperture; this form appears to me to be the same as those found in the Florida Keys). In the bay at low tide, we took living Busycon contrarium, Neritina virginea, Anachis avara, Littorina ziczac, Mercenaria campechiensis, Chione cancellata, Bulla striata, and Nassarius vibex. We collected several other species in dead condition. We met Mrs. Allen, an active member of the Port Isabel Shell Club and enjoyed talking shells with her. Nothing spectacular found this trip, but we did enjoy a shelling try in an area new to us.

Dr. W. W. Sutow spent some vacation time in California, where he did some shelling and attended the annual meeting of the Pacific Division of the American Malacological Union. He also enjoyed meeting and visiting with Dr. A. Myra Keen, one of the most well-known and respected malacologists in the United States. Your editor hopes that Dr. Sutow might find time to write some of his experiences of shelling along the Pacific coast and attending this meeting.

A SHELL COLLECTOR'S VACATION IN THE FLORIDA KEYS by Liz Eubanks

Though we have had many successful shelling expeditions around the beautiful little islands that trail from the southern tip of Florida, this June vacation spent there seemed extra special. This time, instead of a quick overnight trip from Jacksonville, Florida, we had to drive some 1600 miles from Pasadena, Tex., to reach our destination; and this was no small effort, since we were pulling our boat. It seemed that wonderful to once again be shelling in crystal clear water. In the Florida Keys, an area much like the West Indies, shellers find beachcombing most unproductive, and must go out into the water where the elusive Mollusks live to obtain worthwhile specimens. Fortunately, in most places, the water is no deeper than 1 to 5 feet, even far offshore. The coral flats and reefs come near the water's surface, and some are exposed at low tide. Because of having a new motor on the boat, we could do no dredging, but utilized our craft to good advantage to gain access to the offshore areas where shelling is more productive because only a few shellers go there. One hour before until (sometimes after) 4 hours past low tide each day found us in the water armed with our glass-bottomed buckets. We were constantly on the alert to avoid tangling with sharks and barracuda, which, unfortunately, do at times come into the shallow areas. We also had to watch our steps to prevent bodily contact with the abundant long-spined black sea urchins. Ed collected a huge West Indian starfish (with a diameter well over a foot) and a 9" smaller one, which was somewhat, but not quite so inflated. We collected a few Florida slate-pencil Sea Urchins. We preserved all these Echinoderms by injecting formaldehyde into them with a hypodermic needle and allowing them to dry thoroughly in the shade; this prevents the loss of spines. We should add a book on Echinoderms to our library to make possible the identification of these lovely and interesting sea creatures. From one reef, we took living Thais deltoidea, T. haemastoma floridana, Leucozonia nassa, Diodora listeri, Cantharus tinctus, Barbatia cancellaria, and one Cypraea cervus. I might add here that all were adult specimens; for our conservation beliefs do not permit us to take juveniles (unless for specific study); nor do we take large numbers of any species. On a sand bottom at the base of this reef, we

found dead one colorful Papyridea soleniformis, huge Arcopagia fausta, and one Cymatium caribbaeum; also we here collected living Anadara nobilis, Glycymeris pectinata, Lucina pensylvanica, and Codakia orbicularis. By turning rocks by the hundreds (and always replacing them afterwards) and other submerged objects, we collected live Chlamys sentis in many beautiful color varieties, Lima lima, and L. pellucida. Self-cemented to many of these rocks, looking like only hard bumps covered with algae and marine growths, were Chama macerophylla in yellow and purple, C. congregata, and Pseudochama radians. Only when they were carefully cleaned did any resemble the highly colored foliated "jewel boxes" pictured in shell books; and many have badly eroded foliations; perfect specimens are hard to find. By fanning the sand in about 2' of water, live Prunum virginianum and a few Prunum guttatum were obtained; like most other Marginellidae, they live under the surface of the sand, and have long siphons which they extend above to detect possible food. Ed went out to the deeper area and collected live Cyphoma gibbosum from the sea fans and sea plumes, where in June & September, 1963, he had taken living Cyphoma mcgintyi. Pteria colymbus lived attached to the base of some of the sea fans, where Coralliophila caribaea live as well, sometimes embedded. We were by no means ready to leave this area yet; but 4 large sharks which came in too close for comfort, changed our minds for us. Usually Strombus gigas, adults that is, live in water from 12 to 20 feet deep in the Keys; but this year we found some near a coral flat in water of wading depth; two of the specimens were quite unusual. One, with a full adult flaring lip, was only 6 inches long (yes, it was a male, but all are not this small). The other had a lip that flared completely across, above, and was partially cemented to the spire of the shell. My first joyous thought was, "A S. goliath far out of range." I calmed down quickly when I noted that the other shell features were strictly S. gigas. On another coral flat, Ed found a lovely large Cymatium femorale alive...a first for us; this species is seldom found in summer months. Favorites of mine are the Coralliophila; so you can imagine my joy in finding 3 species alive on one coral flat: C. mansfieldi, C. abbreviata, and the very rare C. deburghiae (the most valuable shell I've ever collected in shallow water) with perfect spines and very few marine encrustations to remove. On the sand and grass flats, we collected several Fasciolaria tulipa, Pleuroploca gigantea, Strombus raninus, Vasum muricatum, Astraea phoebia, A. tecta americana, various Cerithium, Tegula fasciata, Conus jaspideus, and C. spurius atlanticus. From exposed rocks we took a few Tectarius muricatus, Nerita tessellata, N. versicolor, N. fulgurans, and N. peloronta (these VERY scarce in areas accessable by auto, due to overcollecting by souvenir hunting tourists and shellers). In past collecting trips we have collected many species not mentioned here. We enjoyed every precious minute of our vacation in the Florida Keys, a shell collector's paradise.

NOTES CONCERNING TEXAS BEACH SHELLS by Helmer Ode and Mrs. A. Speers

In the last ten years, a number of highly interesting studies concerning the macro-invertebrate fauna of Texas coastal waters have been published. In spite of this interest, the Texas beaches are still among the least explored in the U.S.A.; and our knowledge of shells which can be collected there is incomplete. In this column, we plan to discuss the marine shells of the beaches and coastal bays of Texas. In each forthcoming issue, species of several unrelated families will be reviewed briefly; and some additional information concerning offshore species and Pleistocene occurrences will be given. Since the appearance of Pulley's valuable check list of Texas marine shells (11), many additional species have been reported; and the range of several species have been extended. His list and various others contain well over 300 specific names; and it is quite possible that the total number of species which can be collected on Texas beaches exceeds 400. Whether all those species still live along the Texas coast is a problem which cannot be solved on paper. The

nomenclature employed in the well known book by Abbott (1) will be followed. No attempt to present a synonymy will be made; and the reader should remember to correct for synonyms with respect to given references. For each species listed, reference to figures, previous references of Texas occurrence, and locality will be made. To conserve space, REFERENCES WILL BE MADE BY NUMBER: AND BOOK LIST WILL NOT BE REPEATED: BUT ADDITIONAL REFERENCES WILL BE LISTED AS WE GO ALONG. We also shall not repeat the older information contained in Pulley's checklist or that contained in tabular form in a list by Parker (20 and another by Ladd (15). WE HOPE THAT INTERESTED SHELL COLLECTORS WILL SEND IN ADDITIONAL DATA AND CORRECTIONS; SO THAT AT SUITABLE INTERVALS, THE LIST CAN BE BROUGHT UP TO DATE. On Page 4, we list books and monographs, in which many (but by no means all) Texas beach shells are figured, together with a number of papers on the Texas marine fauns, which every beachcomber should read.

BOOKS & MONOGRAPHS

1. Abbott, R. T. (1955), American Seashells, D. VanNostrand Co., Inc., 541 p.
2. McLean, R. A. (1951), Scientific Survey of Puerto Rico and the Virgin Islands, 17, Part I. "The Pelecypods or Bivalve Mollusks of Puerto Rico and the Virgin Islands", New York Academy of Science, 183 p.
3. Warmke, G. L. & Abbott, R. T. (1961) Caribbean Seashells, Livingston Publ. Co., Narberth, Penn., 346 p.
4. Perry, L. M. & Schwengel, J. S. (1955) Marine Shells of the Western Gulf of Florida, Paleontological Research Inst., Ithaca, N. Y., 318 p.
5. Morris, P. A. (1956) A Field Guide to the Shells of the Atlantic and Gulf Coasts, Houghton Mufflin Co., Boston, 236 p.
6. Smith, M. (1951) East Coast Marine Shells, Edward Bros., Inc., 314 p.
7. Olsson, A. A. & Harbison, A. (1953) Pliocene Mollusks of Southern Florida, Monograph 8, The Academy of Natural Science of Philadelphia, 138 p.
8. Abbott, R. T. (1958) The Marine Mollusks of Grand Cayman Island, British West Indies, Monograph 11, The Academy of Natural Science of Philadelphia, 138 p.
9. Richards, H. G. (1962) Studies on the Marine Pleistocene, Part I and II, Trans. Amer. Phil. Soc. New Series, Vol. 5, para 3, 141 p.
10. Olsson, A. A. & McGinty, T. L. (1958) Recent Marine Mollusks from the Caribbean Coast of Panama, Bulletin of Amer. Paleont., 39, No. 177, Paleon. Research Inst., N. Y.
11. Johnson, C. W. (1934) List of Marine Mollusca of the Atlantic Coast from Labrador to Texas, Proceedings of the Boston Soc. of Natl. Hist., Vol. 40, No. 1, 204 p.
21. Clench, et al (1942 to date) Johnsonia, monographs of the marine mollusks of the Western Atlantic, Vol. I thru IV, Dept. of Mollusks, Museum of Comparative Zoology, Harvard University, Cambridge, Mass.
22. Dall, W. H. (1889) A Preliminary Catalog of Shell-Bearing Mollusks & Brachiopods of the Southeastern Coast of the United States, Smithsonian Inst., U. S. National Museum Bulletin No. 37, 221 p.

ARTICLES CONCERNING TEXAS FAUNA

11. Pulley, T. E. (1952) Illustrated Checklist of Marine Mollusks, Texas Journal of Science, 4, 167-199.
12. Hulings, N. C. (1953) An Investigation of the Benthic Invertebrate Fauna from the Shallow Waters of the Texas Coast. Masters thesis, T. C. U.
13. Parker, R. H. (1954) Macro Invertebrate Assemblages of Central Texas Coastal Bays and Laguna Madre. Bulletin of Amer. Assoc. Petr. Geol., Vol. 43, 2100-2166.

15. Ladd, H. (1951) Brackish Water and Marine Assemblages of the Texas Coast. Publ. Inst. Marine Science, 2, (1), 125-163.
16. Whitten, H. L., Rosene, H. F., & Hedgpeth, J. W. (1950) The Invertebrate Fauna of Tex. Coast Jetties; A Preliminary Survey. Publ. Inst. Mar. Sci., 1, (2), 52-87.
17. Parker, R. H. (1960) Ecology and Distributional Patterns of Marine Macro-Invertebrates, Northern Gulf of Mexico, in Recent Sediments, Northwest Gulf of Mexico. Am. Ass. Petr. Geol., Tulsa, 302-337.
18. Parker, K. H. & Curray, J. R. (1956) Fauna and Bathymetry of Banks of Continental Shelf, Northwest Gulf of Mexico. Bull. Am. Ass. Petr. Geol., 40, 2428-2439.
19. Rice, W. H. (1960), A Preliminary Checklist of the Mollusca of Texas, Inst. of Marine Science, Port Aransas, Tex.
20. Parker, R. H. (1955) Changes in the Invertebrate Fauna, Apparently Attributable to Salinity Changes in the Bays of Central Tex., Journal Paleontology, 29, 193-211.

(this balance of page left blank for easy addition of future references)

CONCHOLOGIST

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NOTES AND NEWS

The Conchology Group will meet Thursday, October 15, at 7:30 P.M., in the Lecture Room of the Planetarium. This will not be a business meeting. Dr. Paul L. McGee, from the Museum of Natural History, will conduct a workshop.

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This time last month we had no reliable method available for printing this publication; but Mr. Ernie Libby came to our rescue and arranged to have it printed every month. We of the Conchology Group want Mr. Libby to know that his kind help is deeply APPRECIATED.

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Dr. W. W. Sutow gave this publication its very appropriate name, "Conchologist."

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The program at the September meeting contained something of interest for everyone. Mrs. Barnette gave the first of a series of instructive talks which should be a great help to beginners in learning how to identify their shells. Mrs. B. H. Bridges displayed many of her beautiful shell-art creations, and related some experiences she had while collecting shells on islands in the Pacific.

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Mr. and Mrs. I. K. Sheffield have returned from their travels; and though unable to attend the September meeting, they generously sent extra shells they had collected to be given to all members who wanted them.

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A. M. U. MEETING - PACIFIC DIVISION By W. W. Sutow, M. D.

In June we realized one of our ambitions, to attend a meeting of the Pacific Division of the American Malacological Union. This year, the 17th, the members met at Asilomar near Carmel and Monterey. The place was ideal...set among the white sand dunes and dark green trees...within easy walking distance of the sparkling blue Pacific.

As one drove past the nearby deserted Cannery Row over the hills of Pacific Grove to this spot, one sensed ghosts. Somehow, thoughts of Ed Ricketts, who penned "Between the Tides", occurred. This was the country that belonged to him, to 'Doc' as Steinbeck immortalized him; and somehow it seemed right that this meeting could be held here, where we could almost feel the presence of this scientist.

Dr. Myra Keen of Stanford University presided with about 60 people attending the first session. Adjacent to the lecture room were several exhibits: The Family Mitridae, by Mrs. Jean Cate; Fresh Water Shells from Argentine Mesopotomia, by Dr. Elsa Gonzalez; Dye Shells (Murex), by Dr. Keen; The Findings of the San Juan Expedition to Gulf of Tehuantepec, by Dr. Donald R. Shashy. As handouts, Dr. Keen gave away 'overprints' of "Seashells of Tropical West America." A real treat, fine specimens of Tegula montereyi was donated by Captain R. D. Risser for those who wanted them.

There were 21 papers on the program. Of these, 7 were detailed reports of basic scientific studies; another 8 papers could be classified as non-technical, but were presented by professional malacologists. Three reports emphasized aspects of commercial fishery, and 3 were non-technical presentations by non-professional participants. The meetings began at 9 A.M. on June 18, and lasted through Saturday night, June 20. On Sunday, a final half day was devoted to a guided tour of Hopkins Marine Station and a field trip.

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SHELLING BY MOONLIGHT by Patsy Kister, Age 13

On September 19, the Beaumont Shell Club group met at the far end of the beach past the garbage dump on Bolivar Peninsula for late evening shelling. When the Sutow's, Heinke's, and Kisters' arrived, the sun was shining and the weather was beautiful. On the beach were found only dead specimens which included Anadara brasiliana, Dosinia discus, Spirula spirula, Strombus alatus, and Oliva sayana. After searching the beach, we waded to the sand flats. The low tide made it possible for the collectors to go out to the fifth and sixth sandbars. Thin, pencil-like trails were discovered, and their creators found to be Terebra dislocata. Olivella mutica were found alive, and we watched them make small paths in the sand. Under small mounds of sand, we discovered Polinices duplicatus. Night came, and a bonfire was built on the beach. Hot dogs and sand were the main dishes on the menu. Silver moonlight flooded the open, flat beach. Again the collectors, armed with flashlights, made their way to the sand bars. This time it was harder to see the small shells, but we were able to find small Dentalium texasianum and Nassarius vibex to add to our collection. Our shelling ended much too soon, but we looked forward to a delightful ride across the channel on the Boliver Ferry.

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MOLLUSKS IN THE JOURNALS by W. W. Sutow, M. D.

C. A. Hall, Jr. (Shallow-water marine climates and molluscan provinces, Ecology, 45:226, Spring, 1964) discusses the boundaries of distributional zones of marine molluscs by a study of the relations between duration of marine water temperature or climate and molluscan provinces. The critical factor that determines the limits of marine climates is believed to be the number of consecutive days of a given temperature required for reproduction and early growth. The zoogeographic provinces have been mapped out on the basis of observed distribution of molluscan genera. Six zones are mentioned: inner tropical, outer tropical, warm temperate, mild temperate, cool temperate, cool temperate, and cold. The Texas gulf coast (Caribbean province) has been placed in the inner tropical zone, which is latitudinally comparable to the tip of Lower California and the Ryukyu Islands. The "tropical" genera studied included some 42 species of marine molluscs.

Popular articles on shells and related subjects appear from time to time in various publications. Here are a few items of that nature, some old, some recent:

1. R.T.Abbott: In Search of the Golden Cowrie, Natural History, 60:104, March, 1951. (Fijian adventure in quest of the conchological treasure plus a lot of shell- and native-lore.)
2. R. Platt: Shells Take you Over World Horizons, National Geographic Magazine, 96:33, July, 1949. (Still one of the best magazine articles to appear. This is a MUST for the beginner.)
3. The Fun of Shell Collecting, Sunset, p. 56-63, July, 1962. (Descriptions and photographs of Pacific Coast molluscan fauna plus chit-chat and hints generally.)
4. H. B. Moore: X-Rays Reveal the Inner Beauty of Shells, National Geographic Magazine, 107:427, March, 1955. (Fine reproductions of X-ray photographs of seashells.)
5. The Shell Game, Sports Illustrated, p. 32-34, March 5, 1956. (Wonder how many remember these two pages of rare world shells in color.)

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Editor's Note: This column will be a regular feature of this paper.

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NOTES CONCERNING TEXAS BEACH SHELLS by Helmer Ode and Mrs. Anne B. Speers

References: (an addition to those references listed in 1:1,9/64,p.4)

23. Moore, D. (1958),"Additions to Texas Marine Mollusca,"Nautilus 71:4, p.124-128.
24. Richards, H. G. (1939),"Marine Pleistocene of Texas,"Bull.Geol.Soc.Am., 50, 1885-98.
25. DuBar, J. R., & Clopine, G. (1961),"Late Pleistocene Deposits in the Vicinity of Houston, Texas, A Preliminary Investigation." Trans. Gulf Coast Ass. Geol.Soc., Vol.II, 83-108. (Most of the molluscan data in this paper appear to be based on: Deussen, A. (1924),"Geology of the Coastal Plain of Texas, West of the Brazos River." U.S.G.S. Prof. Paper 126, 139p.) Not included in our listing is the following paper which contains an enumeration of Galveston well material with many interesting species (obsolete nomenclature):
Singley, J. A. (1893),"Preliminary Report on the Artesian Wells of the Gulf Coastal Slope." Geol. Survey of Texas, 4th Annual Report 1892, P. 85-119.

FAMILY: SEMELIDAE

Several members of this family are common on Texas beaches.
Three genera in Texas: Semele; Abra; Cumingia.

Semele proficua Poulteney 1767. Beach specimens are usually old and worn; fresh valves having a yellowish color occasionally at Sargent. Live specimens recorded in: 11 (Aransas Bay), 14,20. Also at Port Aransas (coll.Speers). Classified in 14 with "open bays" and "inlet influence" environment.
Figures: 1, 2, 3, 4, 5, 6, 11. Previous references: 11, 14, 19, 20.
Localities: Dead shells common on most Texas outer beaches.

Semele purpurescens Gmelin 1792. This species is far less common on the beach than the previous one. Beach shells usually are old and worn. Fresh valves characterized by vivid reddish streaks are rarely at Sargent (coll. Dexter). Fresh appearing material south of Mansfield Cut on Padre Island (coll.Speers). Classified in 17 with intermediate shelf assemblage.
Figures: 1, 2, 3, 4, 5, 6, 11, 17. Previous References: 11, 12, 14, 17, 19, 20.
Localities: Galveston, Indianola, Sargent, St. Joseph Island, Port Aransas (all Coll.Ode), Port Mansfield, Port Aransas (coll.Speers).

Semele bellastriata Conrad 1837. This species is readily identified by its radial threads. Rare beach specimens are old and worn, and still rarer alive. Port Aransas, April, 1964, dredged (juvenile), (coll.Speers); July, 1963, Aransas Bay (coll.Speers).
Figures: 1, 2, 3, 4, 6. Previous References: 12 (offshore).
Localities: Galveston (fragment,coll.Ode); Mustang Island, Port Isabel (dead,coll.Ode).

Semele nuculoides Conrad 1841. This small species is rare on the beach. It differs in general characteristics so much from the previous ones, that it has been accorded special generic rank: Semelina (see 7). Some beach material looks fresh.
Figures: 3, 4. Previous References: 12 (offshore).
Localities: St.Joseph Island (fresh); Mustang Island (coll.Ode); Aransas Bay (dredged, dead, coll.Speers).

Abra aequalis Say 1822. This somewhat inconspicuous shell is one of the most abundant bivalves of Texas beaches. Live specimens have been reported from the bays and inlets (14,15,20) but are rare on the beaches and then are usually immature. Classified in 17 with "open sound cluter assemblage, where it is abundant in clay bottoms."
Figures: 1, 2, 3, 4, 5, 6, 11, 17. Previous References: 11,12,14,15,17,19,20,24,25.
Localities: Common on all Texas beaches.

Cumingia tellenoides Conrad 1831. Shells are not uncommon around Port Aransas, where live specimens have been found (Corpus Christi & Aransas Bays, coll. Speers). In the Galveston area only rarely dead specimens in empty boreholes in stones and oysters. Texas specimens have been listed as C. t. vanhyningi Rehder (see 1).
(Continued page 4)

(continued from page 3)

Figures: 4, 5, 6. Previous References: 11, 15, 19, 20.
Localities: High Island (old valves in oyster); Galveston (old valves in oyster); Indianola; St. Joseph Island (all coll.Ode); Port Aransas; Corpus Christi Bay (alive, coll. Speers).

Remarks: It is possible that Abra lioica Dall 1881, reported offshore in 17, 18, is found on the beaches. Ace to (17) it is abundant in clay inprodelta slope assemblage. Several immature specimens from Galveston resemble this species. Semele species is reported in 15, 19, 24.

PLEASE CONTACT MR. HELMER ODE, IF YOU HAVE ADDITIONAL INFORMATION ABOUT THESE SPECIES.

ESPECIALLY FOR BEGINNERS by Liz Eubanks

This will be a series of articles written by an amateur for beginning shell collectors, for the purpose of helping them get a better start so they can enjoy the hobby more.

Part I. Books, A Prerequisite for the Shell Collector

Though it is obvious, even to the novice, that shell books are necessary for identification, it is important to know which books to buy and how to use them. Beware of books and pamphlets that are not written by professionals; for many times they contain incorrect names and/or misinformation about other things such as cleaning shells, lives of mollusks, range of species, and habitat. Many pamphlets are only shell picture books which are of no use for identification unless used in conjunction with a text that has written descriptions of the shells. Books usually cover species from one area only; so never try to identify shells from a particular area using a book that describes species from a different area. The pictures might look similar to your finds, but the species are different. Once you have the proper book or books for your shells, remember that pictures are helpful, but can be misleading if they are not used as a suppliment to the written descriptions. Many separate species look quite similar in photographs or drawir and pictures do not always make the major identification points graphically clear. To be able to understand the written description, one must learn the names of the shell parts and the 'language of the hobby'. All good shell books contain this valuable information, usually on the first few pages. This language is not difficult; the names are in English, and have meanings quite appropriate for the shell parts or functions they describe. If you are not yet sure that this will be a long-time hobby, "Sea Shells of the World" and "How to Know the American Marine Shells", both paper-back books by Dr. R. T. Abbott, are suggested; they can be purchased for about one dollar each, and describe many of the more familiar species. One of the best popular books that describes many of the Texas (and U.S. Atlantic & Pacific) marine shells is "American Seashells" by Dr. Abbott. This large book (cost approximately $14.00) also contains other reliable information about collecting, the lives of various molluscan species, the mechanics of caring for a collection, and clearly interprets the language of shellers. Once you have a reliable reference for identifying your shells and have started learning the language of your hobby, you are well on the way toward becoming a 'more experienced' collector of shells, and will find that amateur conchology is even more fascinating than you had hoped.

THE GEM - by Patsy Kister

Millions of years ago, a conch shell clinging to the rocks in what is now Big Bend Park, Brewster County, was transformed. The process was a long one, but what it produced was well worth the wait. Quartz crystal formed on the shell, making it a sparkling mass. Then about 20 years ago, a prospector discovered the gem. He carried it to his house, and later Mrs. Bessie Simpson purchased it. Last month, when I went to the Houston Gem and Mineral Show, I observed this prize. This freak combination of Geology and Conchology has been on display in many cities throughout the United States, and to me it was the most beautiful shell I have ever seen.

ALL INTERESTING ARTICLES AND NEWS FOR THE "CONCHOLOGIST" WILL BE APPRECIATED.

CONCHOLOGIST

Vol. I No. 3 November, 1964

NOTES AND NEWS

The regular business meeting of the Conchology Group will be held at 7:30 P. M., Wednesday, November 18, in the Lecture Room of the Planetarium. A film about Marine life in the Bahamas will be presented courtesy of the Humble Oil Corporation.

The October workshop meeting was not only well attended, but thoroughly enjoyed by all who came. Mr. Paul L. McGee spoke briefly about shell identification; and then gave individual expert help to those who had brought problem shells. Dr. T. E. Pulley was on hand as well, kindly furnishing professional assistance; and members helped each other with shell identifications. Among the welcome visitors were avid collectors who came all the way from Lake Jackson and Galveston. We are proud to report that one of these travelers, Mrs. Mildred Tate, is now a member. This workshop was a treat.

WANTED: Shell exhibits for the December meeting of the Outdoor Nature Club. Anyone who can help with this project is asked to contact either Mrs. Norma Oates (MO 8-6140) or Mrs. W. W. Sutow (JA 8-3319) by December 1, so arrangements may be made for space.

EXCHANGES DESIRED FOR SPECIFIC UNITED STATES MARINE SHELLS
W. W. Sutow, M. D., 3854 Palm Street, Houston, Texas, 77004.

EXPEDITION MICRO, the field trip of October 10, to Galveston Island, under the direction of Mr. Helmer Ode, was a huge success. The emphasis was on mature shells of less than 1/2 inch, but of course no one passed up larger specimens. In fact, all the Mollusks collected did not even have shells; for Jan Ode, to everyone's surprise, found a live Octopus on the bay side at San Luis Pass. In all, 118 different species were found. Among the more spectacular finds were: Epitonium novangliae (dead); Amaea mitchelli (4 specimens); Tonna galea (dead, but perfect); Anachis floridana (a freak shell of a species recently appearing at Port Isabel and Port Aransas). Mr. Ode has made a complete list of all species found with interesting notes on each one. Limited space does not permit this terrific list to be printed here; but your editor will turn it over to the Group's secretary, so it will be available to any interested member. Several visitors from the Lake Jackson Conchology Club joined the shell hunt and added to the day's fun.

Most of the scientific names of shells are derived from Latin and Greek words. Here are the meanings of a few shell names:

squamosa: from the work squama, meaning a scale. Thais squamosa, a South African rock shell, has scale-like projections that cover the shell. Many shell genera have species with a name derived from squama.

parva: A Latin word meaning small. Haliotis parva is a small Abalone.

hastata: from the work hasta, meaning spear. No one can deny that Terebra hastata is spear-like.

Acanthina: from the work acantha, meaning thorn or spine. Members of the rock-shell genus Acathina have a sharp spike on the outer lip.

acicularis: from the work acicula, meaning needle. Neosimnia acicularis is Cypreea-like, except that the ends are drawn out like a needle.

magna, magnum: all meaning large. Tellina magna is a large Tellina. Trachycardium magnum is a large member of the Trachycardium genus.

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MOLLUSKS IN THE JOURNALS by W. W. Sutow, M. D.

The symmetry and aesthetic qualities of the molluscan shell have long fascinated the artist, the photographer, and the collector. In tune with the rapid pace of current scientific progress, the descriptions of forms of the marine beauties have now been fed into a computer and reduced to mathematical formulae. D. M. Raup ("Computer as aid in describing form in gastropod shells", Science, 138:150, October 12, 1962) has found such adjectives as turbiniform, naticiform, biconical, obconical, and the like, to be put forth ("The Geometry of coiling in gastropods", Proceedings of the National Academy of Sciences, 47:602, April, 1961), Raup has constructed models of shells and their growth which are defined in terms of four measurable parameters or dimensions. The first parameter is the shape of the generating curve which represents the "cross-sectional outline of the hollow tube which coils about a fixed axis as the shell grows". The second parameter is "the position of the generating curve relative to the axis of coiling;" the third, "the rate of increase of this curve in size;" and the fourth, "the curve's rate of translation along the axis." By putting data on these four parameters into the computer, a series of "ideal" gastropod forms can be constructed. The mathematical analysis of the shell form, however, is by no means a new approach. Included in D. W. Thompson's classic work (On Growth and Form, abridged edition, Cambridge, The University Press, 1961, pp. 172-193) is an interesting historical resume of past efforts along this line. Recently, C. R. Stasek ("Geometrical form and gnomonic growth in the bivalved mollusca," Journal of Morphology, 112:215, May, 1963) has investigated the complicated geometry of form in the bivalves. It is not difficult for even the mathematically naive to see how the spiral framework of Nautilus pompilius (Chambered nautilus) can be an example of a well-defined geometrical figure (Logarithimic spiral). But to envisage a related basic form beneath the ornamentation of Ecophora quadricostata will require for many of us the help of explanatory text.

Now out of print and in demand as a collector's item is The Scallop, Studies of a Shell and Its Influence on Humankind, one of the most beautiful books printed about the seashell. The book was published in 1957 in limited quantity by the Shell Transport and Trading Co. Ian Cox (editor) and eight other contributors wrote the text to this superb collection of photographs of the living scallop and of sea-shell inspired art treasures. In 1961 and 1962, full-page color reproductions of many of the striking photographs were published sporadically by Shell Oil Company as advertisements in the national slick magazines such as Harper's, Atlantic Monthly, Saturday Review, Time, Saturday Evening Post, Holiday, New Yorker, and The National Geographic Magazine. A search for them as material for the conchological scrapbook seems well worthwhile. The fortunate may even be able to locate the posters on which the same photographs were printed in greatly enlarged sizes.

ESPECIALLY FOR BEGINNERS by Liz Eubanks

Part II. Cleaning Shells - What to do About the Animal

Each collector has his own pet way of removing the animal from the shell; so the methods described here are the ones that have worked successfully for me, and are not necessarily the only ways to discharge this rather unpleasant task. The warnings given, however, are agreed upon by most collectors. The best common sense guide is to remember that shells cannot withstand sudden temperature changes, and that they are principally composed of calcium carbonate; and treat them accordingly. Always save opercula (all species do not have this part) and keep them with the proper shell.

(cont. page 3)

The animal should be removed or preserved before it begins to decay; otherwise the task is twice as difficult. Small shells (up to about 3/4") are more easily prepared for the display case by preserving the animals than by removing them. Museums and other scientific institutions usually prefer to have all shells with the animals preserved intact. Many shells such as Murex, Busycon, Thais, and bivalves, can be safely boiled to make the animal tissues firm so the whole thing can be pulled out. Shells having a heavy glaze, such as Strombus species, can be boiled perhaps, but only in a particular way; or the beautiful glaze will become checked. Oliva, Cypraea, and other shells with glassy surfaces cannot be boiled or soaked in preserving fluids without marring their lovely surfaces. NEVER "spoil out" animals by soaking in water or burying in sand. These methods cause the acids of decomposition to be in contact with the shells, the surface of which will become etched.

To Preserve the Animal in the Shell: So that the operculum will be in view, first let the animal die; living animals withdraw deeply into their shells when put into a preservative. Then put the shell in a closed container of DENATURED ALCOHOL and let it remain for a few days (longer times for larger shells). Never use formaldehyde for this purpose! It will weaken the shell; and if left in this substance over a period of time, the shell will be decomposed. Let the shells dry after removing them from the alcohol, and they should have no offensive odor.

Shells that Cannot be Boiled: Usually Oliva and Cyphoma animals can easily be pulled out of their shells after they have been killed in fresh water; because they do not have deep attachments within the shell. Cypraea present a problem, however, and after unsuccessfully trying the freezing and boiling methods (both checked the shells), as well as the method of digging the animal out "raw" (messy, Cypraea mucous won't easily wash off hands; animal did not nearly all come out), I devised a "dehydration in the refrigerator"method which has worked well for me: Let the animal die in fresh water; then, remembering that Cypraea shells will permanently water spot, dry the shell to a polish. Wrap the shell in a paper towel in such a way that the aperture has the thickest covering; and put it in the refrigerator APERTURE SIDE DOWN to stay about five days. The mucous will dry up; the animal won't decay; and the shell won't check. The animal may then be pulled out with a large heavy curved carpet needle inserted deep into the muscular area. If the animal cannot all be picked out or flushed out with water, DON'T SOAK THE SHELL IN ANYTHING. Completely drain out all the water and let the shell (after drying and polishing it) set aperture UP, and the small amount of animal material remaining will dry and usually cause little or no unpleasant odor. I also use this method for small Strombus, which are next to impossible to boil without causing checking of the glaze.

Boiling Shells: Most beginners understand this method, but a few tips might be helpful. ALWAYS start any shell in COLD water, and bring it to a boil SLOWLY; also NEVER expose a HOT shell to COLD water. Before putting shells into the boiling pan, cover the bottom of the pan with paper towels or cloth; this prevents chipping of the shell from the action of the moving water and the checking of the shell from direct contact with the heat source. Length of boiling time necessary increases with the size of the shell. If Strombus must be boiled, in addition to the above procedures, pour mineral oil into the water (enough to coat the water surface), and make sure that the water covers the shell ENTIRELY. Do not remove the shell from the water to extract the animal UNTIL the water has COOLED TO LUKEWARM; or the glaze will check. Immediately after the animal has been removed, put MINERAL OIL or VASELINE on the glazed part of the shell. If all the soft parts do not come out and will not shake out of a boiled shell (this often happens), pour Clorox into the aperture and set the shell up on its apex to soak for a few days. Be sure not to get the Clorox on the outside of the shell. After soaking, the remains will usually shake out; but if it does not, a little denatured alcohol can be poured into the aperture, and after it is dry, there will probably be no odor.

The principal value of these methods and precautions is for preserving the beauty of shells. I have yet to hear of any method that is 100% sure-fire for removing all of the animal every time. As you probably know already, a shell collector must be willing to endure a certain amount of unpleasant odors or limit his collection to dead shells from beach drift.

DO YOU HAVE A CLEANING METHOD THAT HAS BEEN SUCCESSFUL FOR YOU?? Pass it along to other collectors by sending it in for publication in the "Conchologist."

References: (an addition to references listed in 1:1, and 1:2, 9/64 and 10/64)
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27. Breuer, E. G. (1957), "An Ecological Survey of the Baffin and Alagaw Bays, Texas." Publ. Inst. Marine Science, Vol. 4, 134-155.
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FAMILY: MESODESMATIDAE

A group of shells closely allied to the Mactridae, but differing in hinge structure. In Texas one genus with (so far) one species.

Ervilla concentrica Gould 1862. This small bivalve has probably been overlooked on the beaches because of its small size and superficial likeness to juvenile Mulina. The specific identification of our beach specimens is somewhat uncertain. Collected alive at Port Isabel (coll. Speers) and dredged alive from Aransas Bay (coll. Speers). According to 14 alive in open bay environment.
Figures: 2, 3, 12 Previous references: 12 (offshore), 14 (alive).
Localities: Galveston Island (dead, coll. Ode), St. Joseph Island (dead, coll. Ode), Mustang Island (dead, coll. Ode), Port Isabel (alive, coll. Speers), Aransas Bay (alive).

FAMILY: MACTRIDAE

This large family of bivalves is represented in Texas by the genera: Mactra; Spisula; Mulinia; Labiosa. These genera are easily distinguished by their hinge structure (1, 2).

Mactra fragilis Gmelin 1792. A common shell, dead and sometimes alive in the Port Aransas area and further south. Living in Corpus Christi Bay and Aransas Bay (coll. Speers); less common at Galveston and Freeport, but also there and living on mud flats (coll. Ode)
Figures: 1, 2, 3, 4, 5, 6. Previous references: 11, 14 (alive), 15, 18, 19, 20.
Localities: Galveston, Freeport, Matagorda Beach, Palacios, Indianola, St. Joseph Island, Port Aransas, Padre Island, Port Isabel.

Spisula solidissima similis Say 1822. This species, the largest of all Texas Mactrides, lives in the mud flats of Bolivar Point and San Luis Pass (Galveston Id., Coll. Ode). Dead shells common here on the beaches. Living off St. Joseph Id., Mustang Id., Padre Id. (coll. Speers). Spisula solidissima raveneli Conrad 1831 is mentioned in (17) as being common in sand along the whole coast in inner shelf assemblage. It is probable that the figure labeled Mactra brasiliana (Syn. of M. fragilis) in (12) represents this species.
Figures: 1, 4, 5, 6, 11, 17 (raveneli). Previous references: 11, 12, 19, 20, 26.
Localities: Bolivar Penn., Galveston Id., St Joseph Id., Padre Id., Port Isabel.

Mulinia lateralis Say 1822. By far the most common shell of the Galveston beach. Rather variable in form, between flat, thin, oval shapes, and thick, inflated, and pointed specimens (var. corbuloides Deshayes). Alive on mud flats near Galveston, Port Aransas (coll. Speers). According to (17) abundant in enclosed lagoons, center lagoon, and prodelta slope assemblages. Figures prominently in "Drum" (fish)diet in Laguna Madre.
Figures: 1. 3. 4. 5. 6. 11. 17. Previous references: 11. 12. 14 (alive), 15, 17, 20, 24, 25, 27, 28.
Localities: Abundant on all Texas beaches.

Note: the family Mactridae will be continued next month.

PLEASE CONTACT MR. HELMER ODE, IF YOU HAVE ADDITIONAL INFORMATION ABOUT SPECIES DISCUSSED IN THIS FEATURE.

ALL INTERESTING ARTICLES AND NEWS WILL BE APPRECIATED.

Vol. 1, No. 4, 5, & 6 December, 1964, January & February, 1965

NOTES AND NEWS

The title "CONCHOLOGIST" is not currently being used by any publication; but Dr. W.J. Clench kindly informed your editor that it has been so used in the past. The name TEXAS CONCHOLOGIST was approved by a vote of the members at the November meeting.

JANUARY 17 - FIELD TRIP - CONCHOLOGY GROUP - OPERATION GASTROPOD
The group will meet at 9:00 A. M., Sunday, January 17, at San Luis Pass, at the west end of Galveston Island. No field trip is planned for February.

JANUARY 20 - REGULAR MEETING - CONCHOLOGY GROUP - 7:30 P. M., Wednesday, in the Lecture Room of the Planetarium. Mrs. W. Berkeley Glass, a member of our group, will relate some of her shelling experiences. Election of officers for the 1965-66 club year will be held; and it is hoped that every member will feel free to nominate officers from the floor. Such nominations do not in any way reflect unfavorably upon the slate of the nominating committee, and do give the membership a true choice of candidates. Members present will have the opportunity to present changes and/or additions to the proposed by-laws for a vote before the group by-laws are adopted. This is an important meeting.

FEBRUARY 17 - WORKSHOP MEETING - CONCHOLOGY GROUP - 7:30 P. M., Wednesday, in the Lecture Room of the Planetarium. You are invited to bring shells you wish to discuss with other collectors, and there will be a help session for those with identification problems. No business will be conducted -- just fun with the hobby.

ERROR CORRECTION: Vol. 1, No. 3, under section on shell name meanings, bottom of page 1, read word for work.

There will be only 7 issues in Volume 1 of the TEXAS CONCHOLOGIST; however, like this one, some issues will have more than the usual 4 pages. Thanks to the generosity of Mr. Ernest Libby, the printing costs do not include any labor; but the materials certainly cannot be free. The reduction in number of issues is due to limited funds; and dues/subscriptions do not cover the cost of 10 issues. Your editor feels, however, that an enthusiastic group such as ours will not let this situation remain, and will take steps to alleviate it soon.

Dr. W. W. Sutow and Mr. Ernest Libby will be in the Marshall Islands during March. Although Dr. Sutow will be busy most of the time with important research work, his spare time will be spent with Mr. Libby seeking out elusive Mollusks. Mr. Libby will no doubt put many of his prize finds on film.

The South Padre Island Shell Club will hold its Annual Shell Fair on February 27 and 28, in the Recreation Pavilion on South Padre Island. The members of the Conchology Group have been invited to attend and/or exhibit. Anyone interested in exhibiting should write at once to Mrs. Lawrence Allen, Chairman, Box 822, Port Isabel, Texas, and let her know what type of exhibit he has and the space that would be needed for it. Judging with Dr. R. T. Abbott will be Mrs. Fred Speers, a member or our group.

Miss Maudeen Marks reports that Granny Harber featured an amateur exhibit of Gulf Coast sea shells during the anniversary of his Chez Orleans Restaurant recently. Lucky diners received beautiful cultured pearls, served on the half-shells of Dosinia elegans along with their oyster dinners.

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SUTOW'S AXIOM FOR SHELLERS:

$$S = \frac{P^N(T_R + L_R)}{U}$$

Meanings of symbols:
S - Success in shelling; Pn - Prepared mind and knowledge;
T - Tide; L - Location; R - Degree of rightness
U - The unknown factor, Luck.

QUESTIONS FROM THE READERS:

From Mrs. Mildred Tate: What does one feed the marine Mollusks, Oliva and Dinocardium, that are kept in a marine aquarium?

Bivalves are filter feeders and eat tiny or microscopic organisms that they so obtain from sea water; therefore a good supply of fresh sea water is the only solution to their food problem. Oliva are carniverous and will eat marine worms, possibly other small marine animals. Most carniverous Mollusks that burrow under the sand eat other burrowing Mollusks or worms. We maintained a marine aquarium for three years and found the living Mollusks even more interesting than their shells. Liz Eubanks.

Dr. W. W. Sutow was the speaker at the November 8, meeting of the Outdoor Nature Club; his topic was "Tides, Shores, and Shells". Mr. Ernest Libby prepared and showed a film which included beautiful pictures of the rare Conus gloria maris, Cypraea aurantium, and living Strombus taurus. Dr. T. E. Pulley treated those attending to a delicious Octopus salad. Thirty three members of the Conchology Group displayed shells. A few of the outstanding shells and displays were:

A collection of Pacific coast Haliotis by W. W. Sutow; Marshall Island shells (including the very Strombus taurus he showed on film) by Mr. Libby, who has won many tri-color awards on his fine collection; the rare Pholas campechiensis (taken alive by the exhibitor) by Mrs. T. L. Kister; Haminoea elegans and Amaea mitchelli (self-collected) by Patsy Kister, age 13; "One Day's Pickings at Galveston", which included 68 different species, by Mrs. W. W. Sutow; a color series of Chlamys sentis by Mrs. Liz Eubanks; minature shells from Galveston Island (1/2" and under, self-collected by Mr. Helmer Ode; a huge Chama sarda from Sargent Beach by Mrs. Gwen Disbrow; a collection of self-collected Gastropods, including Olivella dealbata, by Mrs. Fern Heinke; self-collected shells from the Bahamas, including the rare Sthenorytis pernobilis, by Mrs. W. B. Glass; fossil shells from the Cretacious age, by Mr. Dearl Russell, who is co-author of the book, "Geology of El Rancho Cima"; fossil shells from the Miocene age (self-collected in Florida) by Mr. and Mrs. I. K. Sheffield; Display of shells they picked up on Galveston Island, on November 5, by four Girl Scouts from Troop #22.

Our thanks to Mrs. Norma Oates, exhibits chairman, and her committee for a good job well done.

REPORTED BY MRS. FERN HEINKE

Twenty seven members and one guest braved the rain and cold to take part in the December 20th field trip of the Conchology Group to Bolivar Point. The following species were taken alive under the expert guidance of Dr. W. W. Sutow, who led the trip: Atrina rigida, A. serrata, Siphonaria alternana, Dosinia discus, Spisula solidissima, Terebra cinerea, Murex fulvescens, Littorina ziczac, Thais haemastoma, Dinocardium robustum, Anadara brasiliana, Cyrtopleura costata, Solen viridis. Mr. Libby came armed with stove and pans, and volunteered to prepare clam chowder for the entire group; so Mercenaria campechiensis was the main object of the hunt; and many were taken. The chowder was delicious; the company couldn't have been better; and at last report, no one caught pneumonia from exposure.

REPORTED BY FERN HEINKE

NOTES ON PHOLAS CAMPECHIENSIS — by Dr. T. E. Pulley

Pholas campechiensis is very rarely collected alive, and it is not known exactly where its normal habitat might be. When Ruth Turner published her monograph on the Pholadidae in Johnsonia, only one tiny specimen collected alive was available in all the museums of the world; and it was taken from a piece of rotten driftwood.

The pholads are unusual bivalves, because one of the adductor muscles has migrated out of the shell to a position just dorsal to the hinge. In this exposed position, the adductor muscle is protected by several accessory plates or shell pieces. Study of these accessory plates is necessary for determining relationships of species within the family, but for Pholas campechiensis these plates are almost unknown.

The strongest part of the shell of Pholas campechiensis is the reinforced ridge which forms the hinge; and at times these pieces form the most abundant part of shell debris on Bolivar Peninsula. It is not likely that a species could be so common as dead and broken specimens, if its normal habitat is in rotten wood.

I think that it is most likely that Pholas campechiensis normally lives in deep burrows in the mud in offshore waters of the Gulf. Only after the animal has been long dead, is the bottom eroded sufficiently to let the shells escape from the burrows and be thrown on the beach. Of course, by this time, the fragile accessory plates are lost.

CONCHOLOGISTS TURNED PALEONTOLOGISTS FOR A WEEKEND - by Dearl T. Russell

On October 24-25, thirty-one Outdoor Nature Club members energetically invaded the rock outcrops of the Glen Rose formation (Cretaceous Era) in El Rancho Cima, a Boy Scout camp near San Marcos, Texas. Limestones and calcareous shales, deposited by ancient seas long since regressed southward, yielded many fossil molds of gastropods and pelecypods to the scientific searchers. Several species of echinoids (Phylum Echinodermata), including Salenia texana (Credner) and Loriolia rosana (Cooke), also fell victims to discovery by "diligent digging".

Among the larger specimens of Class Gastropods observed were Lunatia pederanalis (Roemer), Tylostoma travisensis (Whitney), and Nerinea roemeri (Whitney). It seems fitting that this genus, referred to by a dictionary definition of "conch", should be observed by such a group of conchologists, or neozoologists. It is one example of a generic name, common to both extinct and extant (living) species, that links the past to the present.

Class Pelecypoda is well represented in the rocks by Arca simondsi (Whitney), Corbis hamiltonae (Whitney), Cucullaea blancoensis (Whitney), Arctica gibbosa (Giebel), Trigonia whitneyi (Wendler), and Neithea irregularis (Bose), to mention a few. Unusual types of pelecypods called Rudistids were also observed. These unique animals, now extinct, lived in communities analogous to present day shallow water oyster banks. Linnaean classification of one of these "freak gastropod-like" pelecypods is as follows: Phylum Mollusca; Class Pelecypoda; Subclass Teleodesmacea; Order Pachyodonta; Family Rudistidae; Genus Toucasia; Species hancockensis.

It was a beautiful weekend for fossil hunting. The group did not have to worry at all about high or low tide while searching for the ancient sea dwellers, because their tide went out about 80 million years ago. The marine strata in which they are contained are now more than 1000 feet above sea level. No one even got a foot wet --- just dusty.

	LOW TIDE SCHEDULE	Reported by Dorothy Kister	
January 17	San Luis Pass	-1.1 tide	9:00 A. M.
January 31	San Luis Pass	-0.6 tide	8:45 - 9:30 A. M.
February 14	San Luis Pass	-0.9 tide	8:46 A. M.

SEA URCHINS may be successfully preserved with spines intact, if they (while still alive) are injected with formaldehyde until they are "full", and then dried in the shade.

MOLLUSKS IN THE JOURNALS by W. W. Sutow, M. D.

The May, 1964 (Vol. 23, No. 1) issue of VENUS, the publication of the Malacological Society of Japan, honors Dr. Tokubei Kuroda, world-famous malacologist and the president of the Society from 1948 through 1963. In the lead article, Dr. Kuroda, on his 77th birthday, reminisces about his 60 years' work with the mollusks. After a number of years with Dr. Hirase, another well-known malacologist, Dr. Kuroda became affiliated with the newly organized Department of Science at Kyoto University. On February 12, 1931, a fire razed the buildings and completely destroyed the molluscan study specimens which he had painstakingly accumulated and classified. He vowed then that he would no longer expend his time collecting specimens that could be burned so easily and instead devoted his time in compiling and recording data and in identifying shells for others. It was not long, however, before he became aware that he had again ammassed a collection which included his own material, the shells donated to him for identification and large gifts from devoted collectors. Although the collection now contained many rare and desirable material, Dr. Kuroda wryly comments that he finds lacking some very common Japanese species such as Patinopecten yessoensis and Lima sowerbyi. The steady recognition of new species has led to an impressive quantitative expansion of check lists of mollusks of Japanese Islands. In 1907-1908 some 976 marine species and 636 land species had been recorded. The present estimates are over 4000 marine species and 868 land species. For example, in the family Pyramidellidae, there has been an increase from 15 recognized species in 1907 to over 800 species at present. Other increases include 33 species to 105 for Olividae (Olives), 36 species to 82 for Cypraeidae (Cowries), and 6 to 55 species for Dentaliidae (Tusk shells). In the same issue of VENUS are published descriptions and figures of new molluscan species names in honor of Dr. Kuroda, such as Favortia kurodai, Murexul tokubeli, Mitropifex kurodai, Mitropifex tokubeii, Harpeola kurodai, and Pseudolatirus kurodai.

T. Habe and S. Kosuge have recently (April 2, 1964) started the publication in English (National Science Museum, Ueno Park, Tokyo, Japan) of "A List of the Indo-Pacific Molluscs Concerning to the Japanese Molluscan Fauna". In the foreword, the authors explain that some of the material had been obtained during the preparation of "Check List and Bibliography of Recent Marine Mollusca of Japan" (1952). These data have been reviewed and new information has been added. The geographic areas covered will include not only Japan but also the Phillipines, China Coast, Sakhalin, Kuriles, Siberia and the Indo-Pacific. Thus far, two parts have appeared, one on Superfamily Pleurotomarioidea and the other on Superfamily Stromboidea. Families, genera and species are identified and synonymy and distributional data are given. The species listed will be further described and figured in "Illustrated Catalogue of Japanese Shells", a publication that had been issued through Volume 2, Number 2 in previous years.

ESPECIALLY FOR BEGINNERS — by Liz Eubanks

Part III. Cleaning Shells - The Finishing Touches, After the Animal Has Been Removed

A specimen shell is not always ready for the collector's cabinet when the animal has been removed or preserved. Its natural features and/or beauty may be obscured by stains, algae, barnacles, Bryzoa, or lime encrustations which should be removed... but carefully. Never clean a shell at all, if it is to be sent to a scientific institution. The less done to a shell in preparing it for the collection, the better; do no more than is absolutely necessary for its natural features to be seen.

After washing a shell thoroughly with a brush and plain water, further action is necessary only if there are still encrustations, stains, or algae remaining. Though (fortunately) it is not always obvious, all cleaning chemicals do some damage to the shell or its color; and excessive use of these agents can cause a live-taken specimen to have the appearance of a dead shell. Bleaches and detergents remove periostracum. Since shells are composed of a kind of lime, the chemicals that soften lime encrustations work on the shells themselves in a similar manner, though usually more slowly. NEVER USE ACIDS, even dilute acids, on shells. If they survive at all, shells so treated are valueless as specimens. Remember that the purpose of cleaning a shell is to remove foreign matter, so its natural beauty and features can be seen.

Very fragile, thin shells are next to impossible to clean. They actually dissolve in Clorox and similar cleaning agents, and very little pressure from shipping off encrustations will break these shells. If you find encrusted "Pen Shell" (Pinnidae) or "Pearl Oyster" (Isognomonidae & Pteriidae), my advice is to let it live and reproduce, and try to find a cleaner one to take home for a specimen shell. Even the better specimen of the above three shell families usually need some cleaning. The only readonably safe way to clean them is to CAREFULLY (putting no pressure on the shell), with a sharp knife, flick the foreign matter off the WET SHELL while the ANIMAL IS OCCUPYING it and STILL ALIVE. Never soak any thin shell in Clorox.

Algae stains can be removed quickly (usually less than one minute) with full strength Clorox; as soon as the green fades out, wash the shell thoroughly with water. Unfortunately, many stains cannot be removed from shells. Rust and black discolorations, seen so frequently on shells from the Gulf and northern Florida, seem to be impregnated in the lime of the shell itself, so cannot be removed. Living stained shells are better left in the ocean to propagate the species.

Periostracum is the horny, hairy, leathery, or varnish-like "skin" secreted by the Mollusk, and covers the shell surface of some species. Since cleaning chemicals, including Clorox and household detergents either remove or ruin this shell part, a collector must decide whether or not he wants to retain this "skin" before he cleans a specimen. The periostracum of many species is kept intact because it is attractive, bizarre, and/or a good identification feature. The beautiful glossy finish on many species of bivalves is periostracum, and should not be removed; mussels (Mytilidae) are seldom attractive when stripped of periostracum. The natural covering of some species, however, is unattractive; and hobbiests usually only keep one specimen of each of these kinds with periostracum intact, and remove it from the others. Shells to be used for exchange are better left in their natural state, until one knows the exact desires of the collectors to receive them.

It is possible to successfully clean encrustations from most STURDY shells without using chemicals and thus removing periostracum. A small sharp-pointed knife, an ice pick, and a large, heavy carpet needle are the only tools I use; but each collector has his own favorite equipment. This operation is easier when the shell is kept wet on the outside. Put the sharp tip of the instrument under the encrustation without digging into the shell or the periostracum; and then apply pressure away from the surface, thus flicking off pieces of the unwanted material. Extreme care should be taken not to damage spines, lips, or siphonal canals. To preserve the periostracum of many species, it is necessary to apply oil or other lubricant to the surface.

If the shell is NOT FRAGILE, and the "skin" is not to be preserved, encrustations flick off easier after the shell has been soaked a SHORT WHILE (very few minutes for small sturdy species, up to about 1/2 hour for heavy shells with think encrustations) in 100% Clorox. I have found that a quick bath in pure Clorox does less damage and loosens foreign matter

better than a longer soak in dilute Clorox. Again, never use acids to remove foreign matter from shells; because they remove layers of shell as well as eat into the minute pores that all shell material has.

As a final preparation of gastropods, neatly stuff the aperture with cotton, and glue in the operculum in its natural position. Usually, collectors prefer to keep bivalves hinged together. Most species will remain in the position in which they dry; then they cannot be opened or closed again without breaking the ligament, unless they are soaked again. To brighten and preserve natural color, I use 3-in-One Oil (spray or liquid) applied with a soft brush on most shells. Shells painted with shellac are NOT specimen shells; because they are not in their natural state, having an artificial gloss.

A collector I know used a Lyropecten nodosus that defied all cleaning methods to demonstrate the "before cleaning" condition in an educational display at a shell show... she won a blue ribbon!

NOTES CONCERNING TEXAS BEACH SHELLS

by Helmer Ode and Mrs. Anne B. Speers

FAMILY: MACTRIDAE (continued from Vol. I, No. 3)

Rangia cuneata Gray 1831. Worn specimens are common on all Texas beaches, and abundant on the Sabine-Bolivar beach and at Sargent Beach. Here old shells which lived in the marshes are now washed up by the sea encroaching upon the land. It is a common Pleistocene fossil. Still living in Mud Lake near Seabrook (coll. Ode). also living at the mouth of the Nueces River at Corpus Christi Bay (coll. Speers). Dead shells common in dredged oyster shell. According to 17, common in river influenced low salinity assemblage.

Figures: 1, 6, 11, 17. Previous References: 11, 14 (alive), 15, 7, 19, 20 (alive), 24, 25, 30.

Localities: Dead shells common on all Texas beaches.

Rangia flexuosa Conrad 1839. Differs conspicuously from the former species by its hinge (1). Worn shells are quite common from San Luis Pass to Sargent Beach (coll. Ode) and on Mustang and Padre Island (coll. Speers). Presumably the species still lives at many localities, but only a few records are available (Mud Lake in 11, Galveston Bay Area). According to 17, most common in delta front assemblage and less so in river influenced low salinity assemblage.

Figures: 1, 17. Previous References: 11, 17, 19

Localities: Galveston, Freeport, Sargent, Matagorda, Mustang Is., Padre Is., Port Isabel

Labiosa plicatella Lamarck 1818. A common Texas beach shell. After a cold spell, live specimens can be found on Galveston beaches (coll. Ode), also found alive on Mustang and Padre Islands (coll. Speers). According to 17, few along whole coast in inner shelf assemblage.

Figures: 1, 3, 4, 5, 6, 11, 17. Previous References: 11, 14, 17, 19, 20, 24.

Localities: Common on all Texas outer beaches.

Labiosa lineata Say 1822. Dead shells are far less common than those of the previous species. Rarely found alive, single specimen Galveston west beach (coll. Ode); Mustang and Padre Island (coll. Speers).

Figures: 1, 3, 4, 5, 6, 11. Previous References: 11, 19, 20 (alive).

Localities: Galveston Is., St. Joseph Is., Freeport, Padre Is.

FAMILY: MODULIDAE

One genus, Modulus, with one species in Texas.

Modulus modulus Linne 1758. Dead and worn shells are rare at Galveston, but abundant at Port Aransas and farther south. Live specimens have been reported in 17 from hypersaline lagoon near inlet assemblage.

Figures: 1, 3, 4, 5, 6, 7, 11, 17, 21. Previous References: 11, 12, 14, 15, 17, 19, 20.

(contined, bottom of page 7)

In answer to our request to send interesting shell data and comments on our notes on Texas shells, we received letters from Mr. Carl Young of Corpus Christi, and Mrs. Edna Marcott of St. Petersburg, Florida. We thank them for their interest. Helmer Ode.

FROM MR. YOUNG'S LETTER: Semele bellastriata has been found alive in some numbers by members of the Coastal Bend Shell Club. Last winter after a norther, three different individuals found a total of 8 live specimens; and on 4 September, 1964, I found 4 live specimens. All were found within half a mile of the South Jetty, Port Aransas, Texas. Also on 4 September, at the same location, I collected an extremely fresh specimen of Trivia suffusa and 14 specimens of Macoma aurora which does not seem to have been reported by many people.

ODE'S COMMENTS: To my knowledge, the report concerning Trivia suffusa is the first for Texas. It is listed in Pulley's checklist as "reported by Dall". Macoma aurora may be the species which has been reported as Macoma brevifrons from Texas. Dead shells which resemble either species sometimes are found on Galveston Island.

FROM MRS. MARCOTT'S LETTER: I read with interest the comments on Cumingia tellinoides. Collecting marine boring shells from rocks and coral washed ashore and dredged in the Gulf of Mexico has been my special side interest for the past few years. Of all the work I have done on these, I have never yet found C. tellinoides in rocks or as nesters. They live in muddy grass in quiet bays; and I have dredged hundreds of them on mud flats just off the north end of Mullet Key. Their sculpture is very fine and close together, and they are seldom misshapen as is C. coarctata. C. coarctata is found boring in rocks, coral, and shells, and has sculpture that is very wide apart, usually having only 5 or 6 ridges; and these shells are often misshapen due to the boring habit. I have found C. coarctata in rocks and coral washed ashore after storms in the Gulf, and in large pieces of rocks and coral dredged from the Gulf of Mexico. According to my experience, C. tellinoides is a mud digger, not a nester.

ODE'S COMMENTS: We have carefully checked our specimens obtained from old oyster shells from Galveston Island and High Island. In both cases, the shells are old, small, and misshapen; however, there can be little doubt that they are juvenile specimens of C. tellinoides. The surface sculpture is typically that of this species with many close together and fine concentric ridges. It is difficult to say how old these shells are. It is not known whether C. tellinoides still lives in the Galveston area; and it is possible that our specimens are derived from Pleistocene deposits.

(continued from page 6)

FAMILY: NUCULIDAE

A worldwide family of small, taxodont bivalves with pearly interiors. In Texas, only one species is found on the beach.

Nucula proxima Say 1822. Only once a number of fragmentary valves, which probably belong to this species, was found in beach drift on St. Joseph Island (coll. Ode). According to 12, alive along the Texas coast.
Figures: 1, 4, 5, 6. Previous References: listed in 1 (12/offshore, alive), 17 (common along whole coast in intermediate shelf assemblage.)
Localities: St. Joseph Island
Remark: Nucula crenulata A. Adams 1856 is reported offshore in 18.

FAMILY: ACTEOCINIDAE

One genus, Cylichna, with one species on Texas beaches.
Cylichna bidentata Orbigny 1841. Not an uncommon species, often found by drying and sieving beachdrift. Taken alive at Port Aransas and Port Isabel.
Figures: 1, 3, 4, 6. Previous References: 11, 12, 14, 19.
Localities: Not uncommon along entire Texas coast on Gulf beaches.

PLEASE CONTACT MR. HELMER ODE, IF YOU HAVE ADDITIONAL INFORMATION ABOUT SPECIES DISCUSSED IN THIS FEATURE.

MEMBERS AND SUBSCRIBERS OF THE CONCHOLOGY GROUP

Since additional dues have no doubt been received since this list was compiled, please contact the editor if your name has been omitted; and it will be printed in the next issue. To save space, individuals in a family are not listed separately.

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Texas CONCHOLOGIST

VOLUME I, No. 7 March, 1965

COMING ACTIVITIES

MARCH 17, WEDNESDAY, 7:30 P.M., REGULAR MEETING in the Lecture Room of the Planetarium. Mrs. W. Berkeley Glass will relate some of her shelling experiences. Our sincere apologies to Mrs. Glass, who came prepared to give this program at the January meeting, but was prevented from doing so by an unusually long business session.

MARCH 21, FIELD TRIP. A shell count will be the order for the day, and the expedition will be led by Tom and Dorothy Kister. Meet at Bolivar Ferry Landing on the Bolivar side at 9:00 A.M. The group will shell for a while at the point, moving next to the beach at the "garbage dump", and then onward to McFaddin Beach, which is past High Island. BE SURE TO CIRCLE THIS DATE ON YOUR CALENDAR!!

NOTES & NEWS

Conchology Group officers for the 1965-66 year:

Chairman: Mr. Tom L. Kister — Corres. Secy.: Miss Catherine Corson
Vice-Chairman: Dr. W. W. Sutow — Program Chm.: Mr. Harold L. Geis
Secty.-Treasurer: Miss Flower Follett — Editor: Mrs. E. W. Eubanks

CORRECTION: In the report of the December 20, field trip, in Vol. I, No. 6, Solen viridis was reported as collected. This should have been Ensis minor.

A happy group of approximately 30 shellers met on January 17, for "Operation Gastropod" at San Luis Pass. Those who were familiar with Texas northers wore long johns, face masks, and other protective warm clothing. Many underestimated the 26 degree temperature and strong winds; among them was Mr. Cardeza, who alternated 10 minutes shelling with 15 minutes thawing in his car. Fortunately, the sun warmed the area later in the day. Ernie Libby and Fern Heinke each found an Amaea mitchelli, both of which were dead specimens, but prizes nevertheless. Dorothy Kister's find of the day was a lovely 8" Busycon contrarium. The following species were reported as taken alive: Crepidula plana; Oliva sayana; Terebra dislocata; Nassarius vibex; Polinices duplicatus; Busycon spiratum; B. contrarium; Thais haemastoma floridana; Epitonium angulatum; Anachis avara; Aequipecten irradians amplicostatus; Dinocardium robustum (Not D. r. vanhyningi); Mercenaria campechiensis; Cyrtopleura costata; Spisula solidissima similis; Mulinia lateralis; Dosinia discus; Ensis minor; Rangia cuneata. Tellidora cristata, Martesia striata, Laevicardium mortoni, Trachycardium muricatum, and Tellina radiata (one pair of valves), were reported collected dead. The collectors were well rewarded for their efforts with good shells and pleasant company. As a closing note, we quote from Mr. Cardeza's report: "Evidently the most plentiful species was Beercannus Americanus . . . all very dead. I searched for a "live" specimen, but decided I would have to buy my own! Up near Jamaica, the Gulf washed at my feet a gorgeous specimen bearing the engraved portrait of George Washington . . . a one dollar bill, in fine condition. I have named it Buckus Oceanicus; and it will be in my collection to remind me that you're bound to find something if you look hard enough. The bird-watchers might like to know that driving out the Island in the morning, a Great Blue Heron rose majestically and flapped away within a few feet of my car."

For any collector interested in the living Mollusks as well as their shells, we recommend Molluscs, An Introduction to their Form and Functions, by J. E. Morton, Paperback, $1.40.

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ESPECIALLY FOR BEGINNERS ----- -- by Liz Eubanks

Part IV. Pamper Those Shell Treasures in Your Collection.

Shells, even heavy, rugged ones, cannot receive rough treatment and survive as good specimens, retaining all their original beauty and value. To have a worthwhile collection, one must be a good curator of his prizes. I have seen shells that were many years old, yet were so lively and perfect that they might have been collected only yesterday. This youthful appearance in old age is accomplished only by careful and proper treatment by the collector.

Lips and siphonal canals of most all gastropods are the most fragile parts and need the most protection. Even in a cabinet, these parts can easily be chipped if they are resting on a hard surface; so it is best to have the shelves covered with a soft material. If a collection is housed in boxes, each shell must be wrapped separately in soft paper or other material to prevent chipping. The fragile lips of Conus can be further protected by folded paper placed in the aperture so that it protrudes slightly. Even the solid, slick surface of Cypraea can be marred by scratches, if they come in contact directly with other shells or a hard surface. Spiny shells, such as Murex and Spondylus, require extra care. I find cotton batting helpful, but be careful when removing this padding to show them; sometimes it snags on some of the spines and breakage can result. Never put fragile shells in the same container with heavy ones . . . this is usually disastrous. Breakage is not the only hazard to a shell collection , . . fading also ruins shells. Sunlight or any ultra-violet rays can remove color in just a short time. If you wish your shells to remain bright and beautiful, this is the best rule: Keep them in darkness except when showing them; and don't keep them on display for more than a few days where there is much light. Dust is another shell enemy. It has sharp edges and can scratch a shiny surface and make "old age" set in quickly. Store shells where they can be as dust free as possible; and every now and then, give them a bath and fresh oil.

For you shell-swappers, the careful packing of shells sent in the mails is a must. No exchanger likes to receive shells with chipped lips or

broken "tails". Shells sent parcel post over seas are loaded into the holds of ships and many times YOUR package will end out at the bottom of the heap. If the box is not sturdy and plenty of packing is not put in, the shells will arrive in rather sad condition. Take it from one who knows, the "fragile" stamp has absolutely no bearing on the treatment of a box.

To have a lasting, beautiful shell collection, we collectors must treat our shells as lovely, fragile treasures; for that is what they really are.

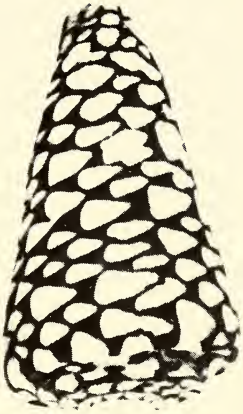
MOLLUSKS IN THE JOURNALS - by W. W. Sutow, M. D.

While the marine mollusks provide esthetic pleasure to many and serve as food and items of utility to many more, some mollusks, under certain circumstances, can be as lethal to man as the deadliest poison. It has been recognized as far back as 1705 that the genus Conus (cones) contain venomous species. In a recent investigation (A. J. Kohn, P. R. Saunders and S. Wiener: "Preliminary studies on the venom of the marine snail Conus", Annals of New York Academy of Sciences, 90:706, 1960), the materials extracted from the venom duct (tubular poison glands) of Conus textilis, Conus aulicus, Conus striatus, and Conus marmoreus were shown to be highly toxic to other mollusks, fish and mice.

The venom acted primarily on the nervous system, causing paralysis and death. The poison maintained its potency even after heating and partial digestion. It was thought that the venom was introduced into the victim by the barbed radula tooth of the mollusk and that this maneuver was actually a predatory and not simply a defensive move. A detailed description of the anatomy of Conus striatus as well as accounts of reported human fatalities from Conus stings were published some years ago by W. J. Clench and Y. Kondo ("The poison cone shell", American Journal of Tropical Medicine and Hygiene, 23:105, 1943). In addition to the four species already mentioned, the known poison cones include Conus geographus and Conus tulipa.

At least two varieties of bivalves on the U. S. Pacific Coast, the California mussel (Mytilus californianus) and the Alaska butter clam (Saxidomus giganteus), have caused epidemics of poisoning and a number of deaths among those eating the shellfish. Toxic substances have actually been isolated from the mussels and the clams (E. F. Murtha: "Pharmacological study of poison from shellfish and puffer fish", Annals of New York Academy of Sciences, 90:820, 1960). Historically, mussel and clam poisonings have been associated with "red tides" containing high concentrations of certain algae in the ocean. The dinoflagellate, Gonyaulax catenella, a motile photosynthetic organism, has been implicated as the poisonous substance. The filter-feeding mollusks are poisonous only during the "bloom seasons" of the algae, particularly during summers. At these times the mollusks trap the algae and store the toxin temporarily in high concentrations (J. M. Burke, J. Marchisotto, J. J. A. McLaughlin, and L. Provasoli: "Analysis of the toxin produced by Gonyaulax catenella in axenic cultures", Annals of New York Academy of Sciences, 90:837, 1960; E. J. Schantz: "Biochemical studies on paralytic shellfish poisons", op. cit., 90:843, 1960).

That the mollusks are capable of ingesting and concentrating toxic substances from the surroundings is indicated by the enormous amounts of water filtered by the animals. It has been calculated that a moderate-sized colony of Mytilus californianus, consisting of 1,000,000 mussels, will, during the second year, filter 22,000,000 tons of environmental water, equal to a volume one mile square by 25 feet deep. The amount of "leptojel" (colloidal and other finely particulate matter) removed has been estimated to be about 33 tons (D. L. Fox: "Perspectives in marine biochemistry", Annals of New York Academy of Sciences, 90:617, 1960).



Poisonous Cones

NOTES CONCERNING TEXAS BEACH SHELLS

by Helmer Ode and Mrs. Anne B. Speers

FAMILY: SANGUINOLARIIDAE

In Texas, two genera, one of which occurs commonly in the bays.

Sanguinolaria cruenta Solander 1786. This shell is uncommon on Texas beaches. No record of live specimens is available, but several hinged pairs have been collected. (Freeport, coll. Dexter; Mustang and Padre Island)

Figured in: 1, 2, 3, 5, 6. Previous References: 11, 19.

Localities: Freeport, Mustang Island, Padre Island.

Tagelus plebeius Solander 1786. A common bay shell along the entire Texas coast, often alive, at Bolivar, Galveston, Palacios, Port Aransas, Port Isabel.

Figured in: 1, 2, 3, 5, 6, 11, 17. Previous References: 11, 12, 14 (alive) 15, 17, 19, 20, 24.

Localities: Common along bay margin, in enclosed lagoon, or interreef assemblage (17).

Tagelus divisus Spengler 1794. A common bay dweller, often found alive in mud at Bolivar, Port Aransas, Port Isabel.

Figured in: 1, 2, 3, 5, 6, 11, 17. Previous References: 11, 12, 14, 17, 19, 20, 24.

Localities: Abundant in open sound or lagoon assemblage (17).

Remark: Asaphis deflorata Linne 1758. Listed in 19.

FAMILY: ACTEONIDAE

A family of Opisthobranch gastropods with one Texas beach species.

Acteon punctostriatus C. B. Adams 1840. Although fully grown specimens (up to 1/4") are uncommon, juvenile specimens (±1 mm.) are common on all Texas outer beaches and inlet areas. Live specimens have been recorded (14) and collected at Port Aransas and in Corpus Christi Bay (coll. Speers).

Figured in: 1, 3, 4, 6. Previous References: 11, 12, 14, 15, 19, 20.

Localities: All Texas outer beaches.

Remarks: Acteon incisus Dall 1881 has been listed by Dall (see Ref. 11). Acteon candens Rehder may possibly occur in Texas. One small shell (coll. Ode) and several (coll. Speers) from around Port Aransas could possibly be this species. The species has been listed in 19.

Aceton, new species, has been reported in 18, offshore from coral banks.

FAMILY: CANCELLARIIDAE

Only one genus with one species from Texas beaches.

Cancellaria reticulata Linne 1767. This easily recognized species is rare on Texas Gulf beaches. No records of live specimens.

Figured in: 1, 3, 4, 5, 6. Previous References: 11, 12, 19, 20.

Localities: Freeport, Sargent, St. Joseph, Mustang, and Padre Island.

Remarks: Cancellaria species listed in 25.

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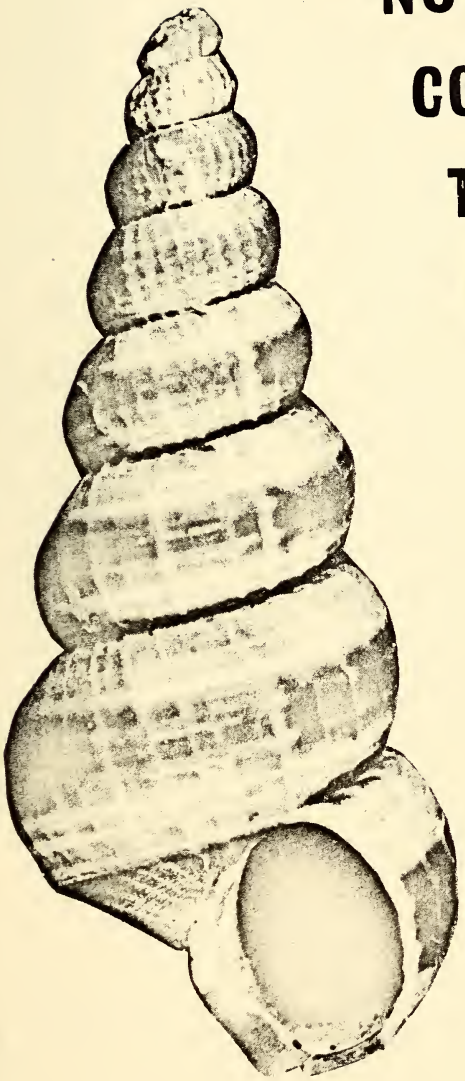

By

HELMER ODE
ANNE B. SPEERS

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(by Helmer Ode & Mrs. Anne B. Speers)

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NOTES CONCERNING TEXAS BEACH SHELLS

by Helmer Ode and Mrs. Anne B. Speers

In the last ten years, a number of highly interesting studies concerning the macro-invertebrate fauna of Texas coastal waters have been published. Inspite of this interest, the Texas beaches are still among the least explored in the U. S. A.; and our knowledge of shells which can be collected there is incomplete. In this column, we plan to discuss the marine shells of the beaches and coastal bays of Texas. In each forthcoming issue, species of several unrelated families will be reviewed briefly; and some additional information concerning offshore species and Pleistocene occurrences will be given. Since the appearance of Pulley's valuable check list of Texas marine shells (11), many additional species have been reported; and the range of several species have been extended. His list and various others contain well over 300 specific names; and it is quite possible that the total number of species which can be collected on Texas beaches exceeds 400. Whether all those species still live along the Texas coast is a problem which cannot be solved on paper. The nomenclature employed in the well known book by Abbott (1) will be followed. No attempt to present a synonymy will be made; and the reader should remember to correct for synonyms with respect to given references. For each species listed, reference to figures, previous references of Texas occurence, and locality will be made. To conserve space, REFERENCES WILL BE MADE BY NUMBER; and book list will not be repeated; but ADDITIONAL REFERENCES WILL BE LISTED AS WE GO ALONG. We also shall not repeat the older information contained in Pulley's checklist or that contained in tabular form in a list by Parker (20) and another by Ladd (15). WE HOPE THAT INTERESTED SHELL COLLECTORS WILL SEND IN ADDITIONAL DATA AND CORRECTIONS: SO THAT AT SUITABLE INTERVALS, THE LIST CAN BE BROUGHT UP TO DATE. On page 1 and 2, we list books and monographs in which many (but by no means all) Texas beach shells are figured, together with a number of papers on the Texas marine fauna, which every beachcomber should read.

Editor's Note: The above was reprinted from Vol. I, No. 1, which is now out of print, for the benefit of new members and subscribers; so that they may fully understand the regular feature written by Mr. Ode and Mrs. Speers.

CONCHOLOGIST

Volume I, No. 8 April, 1965

COMING ACTIVITIES

APRIL 28, WEDNESDAY, 7:30 P.M. Workshop in the Lecture Room of the Planetarium. Mrs. L. A.M. Barnette will exhibit shells collected last month in the Virgin Islands and Dr. W. W. Sutow and Mr. Ernie Libby will show the shells collected on their recent trip to the Marshall Islands.

NOTES & NEWS

Shell Show: Third annual Gulf Coast Shell Club of Beaumont Shell Show April 24 and 25. Saturday: Noon until 8:00 P.M. Sunday 9:00 A.M. until 6:00 P.M. The show will be held in the Auditorium of the Longfellow Elementary School, located on IH 10 Freeway between North and McFaddin. Houston visitors get off at the Calder exit. Everyone is invited to display shells or shellcraft. There is no limit, no admittance fee or show charges. Judges are Dr. T. E. Pulley and Mr. Paul McGee. Non-members cannot compete for "the shell of the show" prize. A copy of the schedule and rules, can be obtained by request from Mrs. Fern Heinke.

New Members: We are honored to have as new members Mrs. Robert S. Frazier, 3316 Tenth St., Port Arthur, Texas and Mrs. R. R. Rice (Winnie H.) Box 638, Rockport, Texas, the author of "A Preliminary Checklist of the Mollusca of Texas", Inst. Mar. Science, Port Aransas, Texas.

CORRECTION: In the report of the January 17, field trip in Vol I, No. 7, Tellina radiata was reported, as having been collected. This should have been Tellina Alternata.

At the February 17 Workshop nineteen members and two guests, Dr. and Mrs. Semon from France, were present. Dr. W. W. Sutow presided. Unidentified shells from various collections were discussed. Mr. Paul McGee identified some land snails for Mr. Anderson, and collected by Bill McClure in Uvalde County. Among them were Englandina Simglyi, Holospira Roemeri, Gropicorbis hawanensis, Helicina Leai aleciae Microceramus texana. Mrs. Everett B. Lewis brought a live Aequipecten irradians, she picked up at San Luis Pass during the January field trip. The blue "eyes" were beautifully visible. Mrs. Lewis has taken many beautiful colored pictures of the animal, which, after the meeting was transferred by Mr. McGee to one of the marine tanks of the Museum of Natural History.

Mrs. Dorothy Kister presented Dr. Pulley with a large specimen of Pholas Campachiensis for the Museum of Natural Science in Houston. The specimen was collected alive on Galveston Island.

At the March 17, regular meeting, twenty members were present, also two visitors. Mrs. W. Berkeley Glass gave a most interesting program about her shelling experiences on the Bahama Islands. Many of her shells were exhibited and she also shared some of her findings with the members.

PUBLISHED BY THE CONCHOLOGY GROUP, OUTDOOR NATURE CLUB
HOUSTON, TEXAS

SUBSCRIPTION FEE TO THE TEXAS CONCHOLOGIST IS $2.00 PER YEAR FOR NON-MEMBERS; AND OUTDOOR NATURE CLUB MEMBERS MAY SUBSCRIBE BY PAYMENT OF $1.00 ANNUAL MEMBERSHIP DUES TO THE CONCHOLOGY GROUP. Any member or subscriber may have more than one copy of the publication sent regularly by remitting $2.00 per year for each extra set desired. Back issues may be purchased for 30¢ per copy, at this time.

On the March 21 shelling trip 26 members and friends reported. The North-west wind was strong and the tide high so that the shelling on the beach was not very good. Remarkable of the stretch of beach between High Island and McFaddin Beach is the large number of Anachis Ovara Similes, a shell not often found west of Galveston.

Here also a beautiful specimen of Epitoniun Apiculatum was found (Ode'). At Bolivar Point many dead valves of Barnea Truncata were picked up, and many large and fresh specimens of Epitonium rupicolum were found at High Island. This species is here more common than anywhere else on the Texas Coast.

Report Port Isabel Shell Show: The following of our members attended this show: Mr. and Mrs. Berkeley Glass, Mr. and Mrs. B. H. Bridges, Mr. and Mrs. Tom Kister and daughter, Patsy, Mrs. W. W. Sutow, Mr. H. Elmer Ode' and son Jan, Mrs. Opal Blair Reidel, Mrs. Anne B. Speers. Awards won by our members included: Tricolor, two blue ribbons, one second place by Mrs. Bridges in the Shellcraft Division; Blue ribbon for the exhibit of several complete Pholas Campechiensis by Mrs. Kister in the Environment Division. Mrs. Opal Blair Reidel also won a ribbon, but we have not received a report from her. Mrs. W. Berkley Glass won a third place in the Educational Division. Southern hospitality was the order of the show. Two fine dinners were given where many "big shell stories" were told. Shelling in the bay and the beach was enthusiastic. Some visitors started at 5 A.M. with flashlights! However, the prize find, a hinged Panopeabitruncata was found late in the afternoon on the most crowded stretch of outer beach. The judges, Dr. R. Tucker Abbott and Dr. T. E. Pulley, looked very distinguished. Dr. Pulley wore a sporting sleeveless coat, purchased across the border and Dr. Abbott was unmistakable in his plaid jacket, red bow tie and straw hat. A trip in beach buggies was made to the Mansfield Cut, along 30 miles of the beach. Rising tides ended this trip too soon, but many live specimens were found. The Conchology group of Houston is most grateful for the many courtesies shown them by the Port Isabel Shell Club.

Unfortunately we received the invitation to attend and participate in the show March 15 of Coastal Bend Shell Club of Corpus Christi too late to include in our February issue. Please send such information two months in advance.

Are you interested in sharing expenses on a trip to New York to attend the July meeting of the American Malocological Union? If so write to Myra Taylor, 1629 West Magnolia, San Antonio, Texas 78201.

MOLLUSKS IN THE JOURNALS - by W. W. Sutow, M. D.

"Paolin" is a Chinese word that means "abalone juice". It may presage another advance in medicine along the line of penicillins and the "mycins" - that is, the control of infectious diseases by substances produced by living organisms.

In his search for effective compounds against disease-causing viruses and bacteria, C. P. Li studied first the juice of the abalone, Haliotis rufescens, and subsequently extracts from other mollusks. ("Antimicrobial effect of abalone juice". Proceedings of Society for Experimental Biology and Medicine, 103:522, 1960). He found that these extracts increased the resistance of mice to experimental poliomyelitis. The rates of paralysis and death were lower and the disease milder in mice that were treated by the molluscan extracts. Moreover, the extracts provided varying degrees of protection against infections with Staphylococcus aureus, the bacteria that causes outbreaks of serious infections in man.

Subsequent studies have shown that chemicals separated from the oyster (Ostrea virginica) and the hard-shelled clam (Venus mercenaria) also protect mice against poliomyelitis and influenza viruses as well as against many bacteria (C. P. Li: "Antimicrobial activity of certain marine fauna", Proceedings of Society for Experimental Biology and Medicine, 104:361, 1960. C. P. Li, B. Prescott, W. G. Jahnes and E. C. Martino: "Antimicrobial agents from mollusks", Transactions New York Academy of Sciences, 24:504, 1962). Of even more interest is the report that clam extracts have an inhibiting effect on experimental cancer in animals (M. R. Schmeer: "Growth-inhibiting agents from Mercenaria extracts, chemical and biological properties", Science, 144:413, 1964).

Not only mollusks but marine creatures of many types may eventually be the source of life-saving drugs. "Holothurin", a toxic substance produced by sea-cucumbers is under investigation in the treatment of experimental cancer. Extracts possessing antibiotic properties have been separated from the sponges (R. F. Nigrelli and S. Jakowska: "Effects of holothurin, a steroid saponin from the Bahamian sea cucumber (Actinopyga agassizi) on various biological systems", Annals of New York Academy of Sciences, 60:884, 1960. S. Jakowska and R. F. Nigrelli: "Antimicrobial substances from sponges", Annals of New York Academy of Sciences, 60:913, 1960). An aqueous extract from crude kelp meal also reduces the multiplication of viruses in the laboratory. (R. H. Kathan, "Kelp extracts as antiviral substances". Presented at Conference on Antiviral Substances, New York Academy of Sciences, Dec. 9-11, 1964).

Findings such as these may well increase the appearance of marine molluscan items on the family menus. As a matter of fact, Dr. Howard Rusk has commented (quoted in The Sciences, Vol. 1 No. 18, Feb. 15, 1962) that on Bimini in the Bahamas, the heavy conch diet might be a contributing factor in protection against polio. On neighboring Cassan where the dietary habits differ and conch consumption is low, polio cases were much more numerous. It is regretfully noted that lobsters, crabs and shrimps do not seem to possess the medicinally valuable principles.

Reference was made in this column previously to several articles dealing with mathematical analyses of forms of molluscan shells. A current issue of Science (Vol. 147, 12 Mar., 1965), carries a cover picture of a snail shell constructed from computer data. D. M. Raup and A. Michelson have studied the entire spectrum of possible shell forms derived from digital and analog computers ("Theoretical morphology of the coiled shell", Science, 117:1294, 1965). Such analyses provide a conceptual framework for compariosns and include fascinating forms which are theoretically possible but which do not occur in nature.

Keeping A Seawater Aquarium - by Anne B. Speers

In seven years experience in working with a seawater aquarium I have found that an amazing number of mollusks as well as starfish and sea urchins will eat canned chopped clams. I have a favorite way of handling this in a convenient way, which is a big help if you must leave your aquarium under somone else's care. To one flat cone (Tuse Monarch's) of chopped clams (they are good old quahog) I add two or three fresh oysters plus two or three fresh (or fresh frozen) shrimps, chopping themi into bits about as large as the pieces of the clams. Then I spoon this into a plastic ice cube tray - of the type that will yield one cube at a time - including the juice and freeze it. My tank contains 20 gallons and has a large volume of air going into it and contains, at times, a list of species you would not believe. Sometimes as many as 60 different species with many representatives of the small ones like Anachis, minnows etc. I find that one of these frozen cubes is sufficient per day when the tank is very full, otherwise one cube every three or four days is sufficient. Just drop it in; it floats and if there is strong air curculation, the cube will move about while it melts, scattering food nicely. The juice will feed the filter feeders. Many of the mollusks feed heavily when food is available. I have a Murex fulvescens, about three years old, collected after "Carla", who will eat four or five large Mercenarie at a "sitting". After that he will rest for several days or weeks if no more clams are available, and he gets along fine. The urchins and the sea hare are browsers and they do need algae. So these two should be provided, although the animal can survive without them for short periods. In the summer there is no problem. During winter I bring in oyster clumps with algae attached to them. Water from the bags (be sure it is not from a polluted area) is very rich in the small to almost invisible Marine organisms. A bucket of this plus some oyster clumps (provided you can still find any after our Texas oyster shell dredgers get through!) will feed everything for quite a spell. If necessary brine shrimp, raised from eggs and put into the tank freshly hatched will also serve some of the filter feeders. Crabs are good scavengers when you feed this way. But use the tiny "pea" crabs from sea whip, etc. Baby blue crabs are fun, but watch them, they are so voracious, they will eat everything in sight, and grow so fast, it is not long before you begin to wonder about your fingers. But if you have never watched a crab shed its shell, then they are fine for this because they do it often if you feed them a lot.

Solen Viridis Say In The Galveston Area - by H. Geiss

Ensis directus minor Dall is a very common clam in the low tide mud flats of Galveston Bay, and occurs, perhaps less commonly, in the low tide beach area of the neighboring Gulf. However, some of the specimens of jackknife type clams of the beach environment likely are Solen viridus Say.

About one hundred of the jackknife type clams recently collected from Galveston Island, West Bay Area, were all identified as E. Monor. Seventeen similar clams were collected at the same time from the low tide sand bars jut just outside of neighboring San Luis Pass, mainland side. All but one small specimen were Solen viridis Say., The identification was confirmed by Dr. T. E. Pulley and by Mr. Helmer Ode, and is not regarded as doubtful because the teeth of the two forms are conspicously different.

The teeth of the right valve of E. minor lie at the front end of the shell and consist of a ventrally directed thin plate and a horizontal, posteriorly directed, flattened plate. These single teeth slide between two stronger teeth and two similar horizontal plates on the left valve. The teeth of S. viridis are quite different, consisting essentially of a single anterior, ventrally directed transverse process on each valve, flattened on their mutual contact surfaces, that of the left valve lying just behind that of the right.

Palial lines roughly parallel the dorsal and ventral margins of both species and end in pointed projections, except that the anterior suture of the E. minor is a straight vertical line. The muscle scars of the E. minor are elongate, the anterior scar being quite long and sloping downward from a point just below the teeth. The muscle scars of the S. viridis are more clearly marked and smaller. The posterior scar is compact and comprises the upper palial suture projection; the anterior scar is elongate but much less so that of E. minor.

Identification of the closed shells is much less certain. The general appearances are much the same, though some "average" differences are observed in the too few specimens at hand. E. minor, for instance, is a curved, dorsally concave shell, the opened valves of which tend to "scissor" at the posterior end. The adult shell appears to be larger, three inch shells being common; and more slender, the length exceeding the height by about seven to one even in smaller shells. S. viridis has a nearly straight dorsum, though the ventral margin is greatly convex. Accordingly, the opened valves may stay in dorsal contact throughout their length, or even spread a bit posteriorly; and the length exceeds the height by only 4.5 or 5.5 to 1. The largest shell observed was two inches long.

Another apparent outline difference should be tested by observation of more shells. In both species, the front end swings forward ventrally, but the antero-ventral margin of E. minor is rather broadly rounded; that of S. viridis tends to be more angulated because of greater forward swing of the ventral outline and because of a straighter anterior margin.

Further collecting should extend knowledge of the Texas occurrence of Solen viridis Say, and establish reliable criteria for identifying the living shells. Communication on both points will be appreciated.

NOTES CONCERNING TEXAS BEACH SHELLS

by Helmer Ode and Mrs. Anne B. Speers

Fam. Tonnidae

Only one species in Texas.

Tonna galea Cinne 1785 . Broken shells and fragments occasionally on the beach. Perfect large shells very rare, live specimens are rarely taken by divers from the base of the Port Aransas jetty. This species id more common in the South.

Figured in 1, 3, 5, 6, 11, 17. Previous References: 11, 19, 20, 29 30.
Localities: All Texas beaches, but more common to the South
Remarks: A In 26 two small specimens of Oocorys spec. are are reported from a few miles north of Sebree Bank. Also Euclolium crosseaurim Monkerosato has been reported in(24) south of Texas (24° 10' N).

Fam. Cassididae .

This well known tropical family of large colorful shells has only two representatives on the Texas beaches.

Phalium granulatum Born 1778 . This is the most common helmet shell of the Texas Coast where it lives just offshore; live shells rare at Galveston but not uncommon on Mustang and Padre Isl. during minus tides. Reported alive offshore in 26 and 29.

Figured in: 1, 3, 4, 5, 6, 11, 17 Previous references: 11, 12, 16, 17, 19, 20 (alive).

Localities: All Texas beaches.

Cyproecassis Terticulus Cinne 1758. This species is very rare on Texas beaches.
Figured in: 1, 3, 5, 6 Previous references: 12 (offshore)
Localities: Matagorda Beach (coll. Dexter); St. Joseph Isl. (single fragment coll. Odé).
Remark: Scionsia Striata Camarek 1822 has been reported alive offshore in 17, 26, 29. Cassis spec reported in 24.

Fam. Cardifidae
Only a single species on Texas beaches.
Cardita floridana Conrad 1838. This highly distinctive species is rate at Galveston, but abundant, especially in spoil areas around Port Aransas and farther south. No records of live specimens.
Figured in: 1, 4, 5, 6, 11. Previous references: 11, 14, 15, 19, 20, 24.
Localities: Rare at Galveston, Sargent, Common St. Joseph, Port Isabel.
Remarks: Carditamera Avata Conrad is listed in 19.
Venericardia armilla Dall 1903 is listed in 17, (offshore) and also in 29 (offshore).

Fam. Fasciolariidae
A group of often large sized gastropods generally are found along the Texas Coast.
Pleuroploca gijantea Kiener 1840. One of the largest gastropods in the world. Live specimens up to 14 inches have been taken from jetties at Port Aransas, Port Isabel by skin divers. Smaller specimens not uncommon as crab shells in inlets occasionally small and medium sized shells living on rocks of jetties and inlet areas in southern part of Texas Coast. Reported alive offshore in 26.
Figured in: 1, 3, 4, 5, 6, 11 Previous references: 11, 19, 26, (alive offshore) 29
Localities: Bolivar Penn., Galveston Isl., Freeport, Sargent (dead), Mustang and Padre Isl.

Fasciolaria tulipa Linue 1758. This shell is rarely collected on Texas beached. A very dead specimen occasionally on Padre Beaches at Port Isable and Boca Chica. One fresh appearing specimen was collected on Sargent Beach (coll. Odé)
Figured in: 1, 3, 4, 5, 6, 11 Previous references: 11, 19, 20
Localities: Sargent, Port Isable, Boca Chica.

Fasciolaria hunteria Perry 1911. More common than the above species; live shells have been collected at Galveston after hurricane Caral, and are not too unusual in surf at Mustang and Padre Isl. More common to the South where it is found living in inlet areas. The subspecies branhamae Rehder and Abbott has not been recorded from the Texas beaches.
Figured in: 1, 4, 5, 6
Previous references: 11, 14, 16, 17, 19, 20 (alive), 21, 24(offshore) 29 (offshore).
Localities: Bolivar Pen., South west ward.
Remarks: Tn (1) is listed Leucoeonia nassa gmelin for Texas.
Fn (17) "Fasciolaria lillium Hollister is figured: This species will probably prove to be synonymous to F. hunteria.
Some deeper water species:
Fusinus couei, Petib 1853 listed in 17 (upper continental assemblage (South Texas to Mexico).
Fusinus timessus Dall in (29).
Fussinus eucosmius Dall in (29).

From Mrs. Winnie H. Rice we received some interesting information concerning new species of shells found at Port Aransas. In her letter she writes:

"Your editors may be interested in the report of a new shell from the Texas Coast, Vitrinella texana Moore, which he describes in the January issue of Natilus. In re-checking material collected in N.W. Fla., during 1960, I find the same species, so the range can be extended to Cape San Blas, Fla. Also, last September I collected a species of Macromphalina, at Port Aransas, which so far as I know has not been reported from Texas. I am looking forward with much interest to Moore's paper on the Family Vitrinellidae, Gulf of Mexico.

In the October issue of Nautilus, p. 65, is an interesting article by Dr. Abbott, on the gastropod Littorina ziczac Gmelin. A mention of this in the News-letter might reach some who do not subscribe to the magazine. Does L. ziczac Gemelin occur in Texas? These on the middle coast appear to be L. lineolata Orb."

From Mr. Cardeza we received an interesting clipping from the Fort Meyers News Press of March 7, 1965. In it is a photograph of a right handed Busycon contrarium, an extremely rare shell which according to the newspaper has only been found a few times. As far as I am aware several specimens have been taken on the beaches of South Padre Island during the last several years. In our next issue we hope to give more details concerning these remarkable shells.

Stalking the Blue Eye-ed Scallop , by Euell Gibbons is just what the sheller gourmet needs. The author tells how to clean and prepare mollusk from their Texas Coast. Published by David McKay Co. Inc., New York - $5.95.

Tree Snails - Gems of the Everglades, article and photograph by Treat Davidson, March 1965 Issue of National Geographic Magazine.

Conchology Group History - In Brief - by Tom Kister

The organizational meeting was held in May 1959; Mrs. Sheffield was elected Chairman, Helmer Ode Vice-Chairman and Mrs. McKnight Secretary-Treasurer. Among the most active members in the formative years of the group were: the L.A.M. Barnette Family, Louise Billings, Miss Anne and Mr. W. E. Dancy, the L. N. Dexters, the C. P. McKnights, Edna Minor, Norma Oates, the Helmer Odes, the I. K. Sheffields, Leota Stilwell, Dorothy Sorrells, the W. W. Sutows and M. A. Yramategui.

Dr. Pulley contributed much of his time and talent.

Until the 1962-63 year meetings were held three times annually, normally in the home of a member. Shells and shell books were studied, members participated in field trips, furnished exhibits for the Outdoor Nature Club programs and discussed various plans and projects. The year 1962 saw the start of a unique educational contribution - perhaps the only one in the United States -- Mrs. L. A. M. Barnette's shell exhibiting and teaching to school children throughout the city.

In addition to the three annual meetings, four field trips were conducted in 1963-64; and a considerable number of people became interested in the group. Several changes and new projects were approved for the 1964-65 year, such as monthly meetings, more field trips and a feasibility study of a publication and a Shell Fair.

Group activities were intensified in 1964-65. By-laws were adopted, membership tripled and TEXAS CONCHOLOGIST became a reality.

Texas CONCHOLOGIST

Volume I, Number 9 May, 1965

NOTES & NEWS

Next Conchology meeting to be held September 15, 1965, in the Lecture Room of the Planetarium will be a "Bring Your Vacation Shells" workshop.

We wish to thank the staff and all contributors for making the first year of "Texas Conchologist" a success. We will try to have Vol. 2, No. 1 Issue in the mail before the September meeting as a reminder. Please send vacation articles, news items, etc. during the summer months to make our Vol. 2 first issue a good one. Happy vacation shelling!

Dues are now payable to Miss Flower Follett, 221 Rittenhouse Rd., Houston, Texas 77022.

Mrs. Bridges has dredged material from Florida, if anyone is interested, call her at PA3-8616.

Conchologists Turn "Hams"

With the lines of "Conchologists'Bends" drifting out over the audience of the Outdoor Nature Club membership, Tuesday evening, May 11, 1965, our fellow members literally floated out onto the stage being very careful not to fall over Helmer Ode, a la Sherlock Holmes, searching for his beloved minatures. Tom Kister, looking every bit the handsome beachcomber, in his clamdiggers, Hawaiian shirt, straw hat and bare feet, read with gusto the beautiful words about shelling. Ernie Libby, complete with flippers, came out ready to "stab" any marine life with his foot long knife. Wat Sutow, trousers rolled high to avoid the crashing surf, scanned the horizon with his "cats eyes" and the aid of powerful binoculars. He avoided sunburn by wearing a three foot sombrero. Ceil Libby looked lovely in her hao muu followed by an avidly searching Leola Glass ready for anything in her wading boots and "no bend" outfit. Patsy Kister with shoes "worn to a frazzle" and blonde hair askew remained puzzled by it all. Everyone enjoyed the skit which was followed by a short film narrated by genial Ernie Libby on the modern way to shell via heliocopter.

April 28th meeting was attended by 18 members and guests. Door prizes consisting of a male and female Lambis chiragra, won by Carlos M. Cardeza, and a shell belt won by Donald Kelly, were donated by Dr. Sutow. Ernie Libby surprised us by showing a few of his slides on his recent trip to the Marshall Islands. We are looking forward to a return viewing in the very near future.

Gulf Coast Shell Club of Beaumont's shell show was a big success and well-attended by our Houston members. Wat Sutow and Ernie Libby won first place ribbons and Dorothy Kister a second place. Leola and Berkley Glass were impressed by the scientific exhibits and Mildred Tate, our Lake Jackson member, was there giving her assistance in their shell store. Anna Mae Bishop is their hard-working and enthusiastic club president and has just recently joined our group as a subscriber. Welcome, Anna Mae!

Our final meeting before summer vacation was held May 19, 1965 and was an "installation of officers" semi-business meeting. Harold Geis, our new program chairman, gave us a brief summary of "things to come" for next season. Mrs. Barnett presented a film about coral reefs in the Bahamas shown by Leonard McWhirter. This meeting was well attended.

The May Reader's Digest has an excellent article called "Jewels From The Ocean Deep".

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MOLLUSKS IN THE JOURNALS

- by W. W. Sutow, M. D.

The idea for this column materialized as the result of painful experiences in other fields of science when urgent needs to find pertinent journal references for particular subjects could not be readily satisfied. Articles related to conchology appear sporadically in a wide variety of publications. As they are spotted, it seemed worthwhile to document the reference for ready recall. Except for special items, the professional malacological journals have not been abstracted, since such journals should be fairly easily accessible to most conchology enthusiasts. Many of the articles cited in this column are available either as reprints or in original publications in the library of the columninst. They will be made available to any club member who desires to read them.

That interesting tidbits can appear in the most unexpected places is illustrated by the exchange of notes that was published in LANCET, the well-known weekly publication of the British medical profession. One of the peripatetic correspondents (LANCET, p. 877, Apr. 18, 1964) commented on a photograph that was published in THE TIMES (London) for Apr. 8, 1964, showing a new type of mooring buoy. The observer's sharp eyes focused not on the buoy but on the bow of the ocean-going tanker that was tied up there. Its name "Varicella" was plainly visible. (To the medical man, varicella is the professional term for chickenpox). The correspondent thereupon asked, "Who gave this prodigious vessel this childish and trivial name?". He further wanted to know if the sister ships were "Vaccinia" (cowpox) and "Variola" (smallpox). Some weeks later a more enlightened colleague replied to the question (LANCET, p. 1215, May 30, 1964). The first correspondent was politely informed that Shell (Oil Co.) tankers are "habitually called after mollusks and this Varicella is the name of a subgenus of this order".

In the hall of the Academy of Natural Sciences of Philadelphia, there is displayed a large, ominously beautiful specimen of Conus geographus. In August, 1964, a young man collected this mollusk and was fatally stung. The account of the tragedy appears in Frontiers, 29:88, Feb., 1965 (B. C. Mowbray: The deadly sea-snail).

Many things of conchological interest are presented in the PROCEDDINGS OF THE FIRST EUROPEAN MALACOLOGICAL CONGRESS, published by the Conchological Society of Great Britain and the Malacological Society of London (edited by L. R. Cox and J. F. Peake), London, 1965. Among them is a photograph of a living specimen of Nautilus pompilius (chambered nautilus) (A. M. Bidder, The pearly nautilus, p. 111).

Most conchologists are familiar with the July 1949 issue of the NATIONAL GEOGRAPHIC MAGAZINE that pictured shells of the world. The specimens were originally owned by Dr. Blenn R. Bales of Circleville, Ohio. The actual specimens, arranged exactly as photographed by Rutherford Platt, have been donated by Dr. Jeanne B. Schwengel to the Academy of Natural Sciences of Philadelphia where they are now on display.

NOTES CONCERNING TEXAS BEACH SHELLS

by

Helmer Ode and Mrs. B. Speers

Fam. Nassariidae

Three species of this gastropod family have so far been found on Texas beaches.

Nassarius acutus Say 1822. This is a common shell on most Texas beaches; most specimens are old and worn and many contain hermit crabs. Live specimens are not common on the outer beaches, but a few have been found at Galveston, Sargent (coll. Ode), Mustang and Padre Islands (coll. Speers). More commonly alive on the mudflats of Bolivar and San Luis Pass (coll. Ode). According to 17 common in open sound or lagoon center assemblage and pro-delta slope assemblage and inlet environment at Rockport. (live spec. dredged by Speers).
Figured in: 1, 6, 11, 14, 17
Previous references 11, 12, 14, 15, 17, 19, 20, 24, 25
Localities: Dead shells common on all Texas Gulf beaches.

Nassarius vibex Say 1822. This is a typical bay species and much less common on the Gulf beaches than the previous one. It has been found alive at many points on mud flats along the Texas coast according to 17 locally common in open sound or open lagoon assemblages. According to 14 alive in open bay margin and shallow hypersaline environment at Rockport, and also in Laguna Madre. To the south this species is easily collected alive in shallow water, inlets and open bay areas.
Figured in: 1, 3, 4, 5, 6, 11, 14, 17, 31.
Previous references: 11, 12, 14, 15, 17, 19, 20.
Localities: Point Bolivar (alive, coll. Ode), Indianola (alive, coll. Ode.) Rockport, Port Aransas, Laguna Madre, Port Isabel (all alive, coll. Spears).

Nassarius albus Say 1826. So far this species has been collected only once in Texas. According to 23 the single dead and worn shell is possibly derived from the Pleistocene. Reported offshore on calcareous banks assemblage in (18).

Figured in: 1, 3, 4, 5, 6, 31.
Previous references: 23
Localities: Sand bottom near jetty Port Aransas.

Fam. Siphonariidae

Only one species of this family of Pulmonate mollusks occurs on Texas beaches.

Siphonaria pectinata Linne 1785. This is the common "false" limpet, which occurs alive on almost all Texas jetties. Dead shells can be occassionally found in beach drift on Galveston Island, Freeport and Port Aransas. In ref. 32 an interesting study of the biology of this mollusk has been made.
Figured in: 1, 6, 11, 31
Previous references: 11, 15, 16, 19, 20.
Localities: Commonly alive on jetties along entire Texas Coast
Remarks: Williamia Krebsi Mörch 1877 has been reported offshore from coral banks in 18.

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Collecting Small Species From Beachdrift

by Helmer Ode

A rich harvest of little known species of mollusks can always be obtained from fine rubble and beachdrift, which is often washed up in great quantities on the Gulf shores of Galveston Island and other places of the Texas Coast. Experience has shown that especially the upper parts of the last high water line are richest in small species. To collect this material I always scrape the material deposited in the regular wave cusps together and take home in a plastic bag or pail. It is very important that it is washed thoroughly in fresh water to remove all traces of salt. At the same time it can be screened through a very fine sieve or strainer to get rid of the sand. Clay which is always present on Texas beaches is removed during the washing and straining. The sieved material must be absolutely dry before it can be sorted out. This sorting should be done unhurridely and requires patience, sharp eyes or a good magnifying glass or microscope. After some experimentation every one will adopt his own mathod of doing this. To handle moderately small forms like Mitrella, Odostonica and Turbonilla, I emphatically advocate the "wet finger" method. To pick up a shell one moistens a finger and presses it slightly on the shell. After some experience even fragile shells can be handles quite safely. For very small forms of bivalves the method is somewhat hazardous and it is better to use a fine water color brush.

Probythinella profera Pilsby On The Texas Coast

by Helmer Ode

Not so long ago Abbott and Ladd described from the Texas Coast a new species of an hydrobid gastropod, Littoridina sphinctostoma, which lives in brackish water of the bays. This species is often found dead in large quantities in the beach drift of San Luis Pass, Galveston, Freeport beach, Sargent and Matagorda. Recently it was reported (Nautilus, April, 1961, Vol. 74, No. 4, page 157) that this species occured alive together with Probythinella profera Pilsbry in Lake Pontchartrain. An investigation of my material shows L. sphinctostoma is quite common along the Texas Coast. A small proportion of all my material so far labeled L. sphinctostoma was clearly P. profera. The latter species was most common in the material from Matagorda Beach. In February I obtained also a few specimens from drift collected in the bay at Port Isabel. It is not impossible that further investigations will discover live specimens in the almost fresh part of the coastal bays of Texas.

In early May, Mr. and Mrs. J. M. Murray, Ruth Moorman and Norma Oates spent about ten days touring Jamaica in a rented car. Shelling stops were made along the north shore including White Bay. However, the best beaches for shells were found to be around Bloody Bay and Long Bay on the extreme western coast of the island.

We are a little late with our congratulations to Dr. Wat Sutow and Ernie Libby for their beautiful portfolio "Internal Structure of Sea Shells". As everyone knows, Ernie and Wat are responsible for the printing of our paper and the beautiful X-rays we receive from time to time as bonuses. Inquiries about their pictures may be made by contacting Ernie Libby at 4619 Holly, Bellaire, Texas, MO4-1042.

CONCHOLOGIST

olume II, No. 1 August, 1965

NOTES & NEWS

CORRECTION: We announced in the May issue that our next Conchology meeting would be held in September, but due to a conflict of dates we will meet the fourth Wednesday of each month starting August 25, 1965 in the Lecture Room of the Planetarium. The August program will be a "Bring Your Vacation Shells" workshop. Don't forget to pay your dues!

Our editor of the first volume of the Texas Conchologist, Liz Eubanks, has moved to Dallas, Texas, and the editorial duties on a pro tem basis have been undertaken by Helmer Ode, associate editor. Our sincere thanks and appreciation for the work that "Liz" has done in setting up our publication and "getting it going", are hereby expressed

Now that the summer collecting in vacation time is nearly over, your editor expects to see in manuscript form all the pleasures of shelling and accounts of all adventures. Don't "clam up", but come out of your shell and WRITE.

Two Interesting Collecting Records from Port Isabel in July, 1965 - by Mrs. Anne B. Speers

On July 9 - 11, I spent as much time as possible sloshing around the Port Isabel ea to see what I could see. Saturday morning was spent dredging in various parts of Laguna Madre, collecting specimens and records for the forthcoming Biological Survey of Padre Island, an undertaking sponsored by the Federal Park Service in connection with the Padre Island National Seashore. That evening, as the tide fell, I joined several Port Isabel shellers roaming the tide flats near the entrance to the Brownsville ship channel just back of Padre in the Laguna Madre. We were rewarded by two unusual finds. I was delighted to find a live Coralliophila (c.f) aberrans C. B. Adams, clinging to a rock I overturned. I had collected a dead shell of this species in the same locality several years ago. At that time I felt it must be a shrimp boat hitchhiker, but now the very healthy live specimen indicated this may be one more warm-water species moving into our shores. The shell superficially somewhat resembles our Cantharus cancellaria but is all white inside and out. My specimen measures 14 mm. in length and 9 mm. wide. It has a dark red-brown operculum. The animal is completely white with only two tiny black eye spots as contrast. It lived for nearly a week in a saucer of (frequently refreshed) sea water. I didn't dare put it in the acquarium as I was afraid I'd lose it. I finally dropped it into alcohol.

Some 30 minutes after this find, Mrs. Nora Hughes of Port Isabel, who had been beside me when I made my find, had an equally exciting find. (This time I stood by, and she'll never know how close she came to being a victim of accidental death. A third eller offered to assist but our better natures finally won out.) A very beautiful, large ..ve Cymatium parthenopeum. This species was live collected from the jetty at Port Aransas a year or so ago, and very fresh shells have been taken from the beach on the south tip of Padre, but as far as I know this is the first adult live speciman from that area. It was covered by a very heavy, coarse, hairy periostracum. The body of the animal was off-white with smallish dark spots covering what small area we could coax

Continued on page 6

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NOTES CONCERNING TEXAS BEACH SHELLS

by

Helmer Ode and Mrs. B. Speers

Fam. Caecidae

This is a family to which belong many small and curiously formed shells. Starting out spirally the animal loses, after some time, the coiled part of its shell and grows in a more or less straight or slightly curved tube, ornamented by grooves or ridges; it is closed off by an apical plug at one end. Recent investigations (ref. 33) have shown that the systematic position of this family probably should be changed and that it is related to the Vitrinellidae instead of the Vermetidal. On Texas beaches four species have been collected.

Meioceras nitidum Stimpson 1851. This shiny and smooth shell is quite common around Port Aransas and further south; no records of live specimens available. Only a few dead shells at Galveston and Matagorda. (coll. Ode)

Figured in: 1, 3, 4, 11, 14.
Previous references: 11, 14, 19.
Localities: Galveston, Matagorda, Indianola, St. Joseph Island, Port Aransas.

Caecum pulchellum Stimpson 1851. Dead shells are quite common in drift at Port Aransas and further south. Commonly dredged alive in inlet areas near Port Aransas and Port Isabel (coll. Speers), where it is abundant in some localities. Rarely at Galveston (coll. Ode) in beach drift. Sometimes the very small curiously helically coiled initial whorls are found. Among the material from Port Aransas a slightly different form, more strongly curved and with more ribs occurs. According to 17, common in sand in open shallow lagoon assemblage and according to 14, dead in shallow hypersaline environment.

Figured in: 1, 3, 5, 6, 11, 14, 17.
Previous references: 11, 14, 17, 19, 20
Localities: Galveston, Matagorda, Indianola, St. Joseph Island, Port Aransas, Port Isabel.

Caecum glabrum Montagu. This appears to be the only Caecum which occurs along the entire Texas Coast. Occasionally fresh looking material at Galveston and Freeport in drift (coll. Ode). At Port Aransas it is found alive in great numbers, often on clusters of oysters (coll. Speers). Also alive at Port Isabel((coll. Speers).

Figured in: 12
Previous references: 12, 19.
Localities: Galveston, Freeport, Matagorda, St. Joseph Island, Port Aransas, Port Isabel.

Caecum cooperi S. Smith 1870. Only a few dead specimens have been collected at Port Aransas and Padre Island from drift (coll. Ode) and from the Gulf beach at Port Isabel (coll. Speers).

Figured in: 1, 6, 12.
Previous references: 12, 19
Localities: Port Aransas, Padre Island, Port Isabel.
Remarks: In 15 are mentioned: Caecum spec. and Meioceras spec.

am. Spondylidae
In Texas only one genus with one species.

Spondylus americanus Hermann 1781. Beach specimens of this species usually lack the spines. Worn top valves are not uncommon from Little Shell Beach, south of Padre Island but are rare on Sargent and Matagorda Beach. Once a dead specimen was reported from the Sabine jetty (16). Reported alive offshore in 11, 18, 29 and collected by skindivers off Freeport.

Figured in: 1, 2, 5, 6.
Previous references: 11, 16, 18, 19, 29.
Localities: Sargent Beach, Matagorda Beach (coll. Ode), Mustang Island, Padre Island.
Remarks: Spondylus gussoni DaCosta 1829, which was listed by Dall (see ref. 11) is supposed to be synonymous with above species.

Fam. Limidae
On Texas beaches only a single species.

Lima pellucida C. B. Adams 1846. Dead, but fresh shells of a small white Lima, tentatively identified as this species, are rarely found at Port Aransas. Here also a few hinged pairs have been collected (one in coll. Speers).

Figured in: 2, 3.
Previous references: 18.
Localities: Sargent Beach (one fragment coll. Ode), Port Aransas (coll. Ode, Speers), Mustang Island, Padre Island, Port Isabel (coll. Speers).
Remarks: Lima tenera Sowerby 1846 has been reported offshore in 17, 18 (alive in calcareous banks assemblage). In 12 an unidentified Lima is reported.

Fam. Gastrochaenidae
A family of boring bivalves. In Texas one species.

Rocellaria hians Gmelin 1791. Dead but complete specimens are sometimes found in the Galveston area (coll. Ode) boring in old Crassostrea and Mercenaria shells. To the south the species appears to be more common. Live specimens have been collected in rocks from the jetty at Port Aransas (coll. Speers) and from rocks of the inlet area at Port Isabel (coll. Speers). Reported to be common in the Port Lavaca area but we have no specific records.

Figured in: 2, 6.
Previous records: listed in 1 and mentioned offshore in 18.
Localities: High Island, Galveston, Freeport, Matagorda, Mustang Island, Padre Island, Port Isabel.

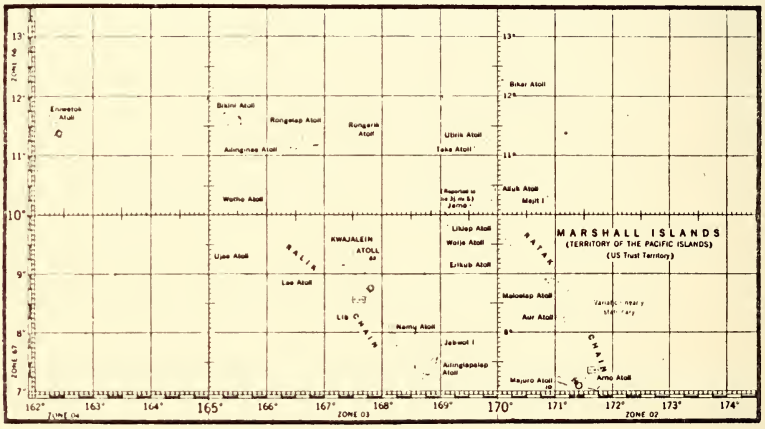
CORRALLING THE MARSHALL ISLAND MOLLUSKS

by

W. W. Sutow, M.D.,

The critters were wild and wily - and they roamed a domain more spacious than the Texas ranges. When reluctantly laid bare at intervals by the ebb tide, the reefs glistened treacherous and slippery with sharp spikes and coral crags. During these times the waves pounded with impatient fury at the edges of the reefs - the blue-black of the sea hinting at awesome depths beyond. The venomous Conus marmoreus, Conus textile, Conus striatus, and Conus geographus lurked beneath the coralline slabs, their lethal barbs coiled inside the deceptive beauty of the external shell. In the gloom of the tide pool bottoms, myriads of sinuous purple-hued arms of the brittle stars slithered around in almost constant motion. Deeper down, the moray eels peered out from dark holes, vicious teeth ready, waiting for an unwary prey - or a shell-collector's hand - to come their way. In the lagoon, mammoth sharks patrolled the depths - and even the shallows. Anchored by their own weights on the lagoon floor, Tridacna gigas, the giant killer clams, lazily screened the water for food, their sharp-edged maws wide open, the powerful adductor muscles relaxed - like an oversized Texas bear trap all set to spring. And from the sky, the bright sun poured its heat straight down, all day long, on this vast expanse of blue sea and the white fringed green-brown atolls.

This was the South Pacific. These were the Marshall Islands. Here was our hunting ground.



The Marshall Islands stretched from 160° 50' to 172° 10' east longitude and dotted the Pacific northward from 4° 30' to 14° 45' latitude. The international date line cut right through the islands so here they saw both the last of the day and the first of the new day. Twenty-nine low-lying coral atolls and five single islands slanted north northwest to south southeast in two parallel chains some 130 miles apart - the Radak Chain ("towards the dawn") and the Ralik Chain ("towards the sunset"). The atolls in each chain were separated by 50 to 130 miles of ocean. The total ocean area covered by these atolls and islands was the size of one Texas and half of another. The total land area, however, was relatively minute, adding up to a mere 44, 844 acres - about one-third the area of the smallest county in Texas.

The annual mean temperature was 81° F and throughout the year, the deviation in any one month from the average was less than 1 degree. The high of the day and the cool of the night differed by only ten or twelve degrees. The climate was wet with the relative humidity hovering around 84 per cent. From 80 to 160 inches of rain fell each year.

Garcia de Loyasa, an adventurous Spaniard, in 1526 first saw these coral atolls

different from the fringing reefs of the Carolines and the barrier reefs off Australia. Alvaro de Saavedra officially documented the discovery of the islands in 1529. The islands were "rediscovered" by the Englishmen, Gilbert and Marshall, in 1788 and Marshall's name eventually found geographical immortality.

But these and later political events - including wars and test detonations of nuclear devices - did little to disturb the tremendous variety of invertebrate fauna that populated the reefs and shores of these tropical islands. The molluscan game abounded - enticing rewards for the hunters who could venture this far.

An eager demand for and the ready availability of such unexpectedly marketable products as seashell provided a set of exploitable circumstances for someone with energy and ingenuity to convert into profit. Titikos was such an opportunist.

TITIKOS AND ~~VICTIM~~ PUPIL Photo by Sutow

This native Marshall Islander personified a living legend - a shrewd giver and taker of proven caliber. He sold shells and traded with shells. Whenever there was talk of shells - Titikos materialized. He usually had three or four shells on hand - all alike and all live collected. They would be helmet shells or young Tridacnas or perhaps Strombus taurus. If one wanted to buy, he sold. How much? One dollar each! How much for all four shells? Titikos looked you straight in the eyes. Five dollars! said he.

On another day he would show up with nice specimens of Murex ramosus. One was particularly attractive - a giant with clear pink aperture, fine lacy fronds and brown markings. How much? Titikos pointed to the zoris on your feet. Perhaps you could barter with banter. You took off only one zori - held up one finger and pointed to the Murex. Unabashed, Titikos grinned slyly and in turn he pointed first to the shell and then to the zori and held up three fingers. Here, indeed, was horse trader par excellence by any standard.

(To be continued)

MOLLUSCANA

by

W. W. Sutow, M.D.

"Snail Fever", medically known as schistosomiasis, afflicts 150,000,000 people throughout the world, including northeastern portions of South America as well as Puerto Rico and other Caribbean islands (snail fever, The Sciences, 3:1, 1964). There are three major types of Snail Fever, each caused by a specific worm (blood fluke) which hatch in polluted waters and invade the body of an intermediate host, an aquatic snail. The worms multiply and develop within the snail and finally leave the sick and dying mollusk. The "infant" worms then lurk in the water until they can find their way through the skin of man, their definitive host. Bathing, wading or laundering in infected water provide the initial contact of the fluke with the skin. The worms migrate through the blood streams and settle preferentially in several body organs. Severe symptoms are caused by the presence and movements of the flukes and ultimately from the production of eggs. The eggs are excreted by man and if the eggs find a suitable environment, they hatch and start the vicious cycle again. (E.C. Faust and P.F. Russell, Clinical Parasitology, 7th edition, Philadelphia, Lea & Febiger, 1964, pp 530-574.)

A number of mollusk species are parasitized by the flukes. The fluke that is endemic in the Orient infests snails of the genus Oncomelania. Experimentally, this fluke has been grown satisfactorily in Pomatiopsis lapidaria, a mollusk widely distributed in the United States. The fluke found in the Western Hemisphere lives for a time in the snail, Australorbis glabratus, (good illustrations of the fluke as well as the snail appear in the Life Science Library Series, Health and Disease, pp 40-41). The same fluke causes disease in Africa and there infests the Biomphalaria species of mollusks. Tropicorbis centimetralis, another snail, has been found to be naturally infected by the fluke in Brazil and Tropicorbis havanensis, a land snail present in Louisiana, has proved to be susceptible to experimental infection by the worm. The third form of schistosomiasis occurs predominantly in Africa and is caused by a fluke that infects typically the Bulinus as the intermediate host although the Planorbius species have also been implicated.

The snails involved in the schistosomiasis disease cycle are operculate and amphibious. They withstand long periods of dessication so antimolluscan chemicals have not been too effective in eradicating the snail reservoir. A pilot study has been reported concerning the use of a predator snail, Marisa cornuarietis, to feed on the eggs of Australorbis glabratus.

The construction of irrigation and drainage systems in tropical countries must take into account the public health problems of schistosomiasis. Stagnant accumulations of water may serve as breeding grounds for the carrier snails. Jobin and Ippen report (Ecological design of irrigation canals for snail control, Science, 145:1324-26, 1964) that a flow rate of 33 cm/sec at shell height must be maintained to prevent Australorbis glabratus from lodging on the canal walls.

Speers, continued from page 1

it to extend. Because darkness descended, we had little time to thoroughly examine the shell. Later we compared it with beach specimens of Cymatium parthenopeum. The periostracum was too heavy to allow shell details to show through and an incomplete varixon outer lip confused this character, but it seemed probable that parthenopeum was the species to which it belonged. If shelling with Nora always produces this sort of thing, I'm taking her along every trip from now on. She's the same lucky collector who exhibited the live Lima pellucida taken from the Brownsville channel in the last South Padre Island Shell Fair.

WHIPCORAL, A SOURCE OF UNUSUAL BEACH SHELLS

by Helmer Ode

During a most enjoyable visit to the shell fair at Port Isabel in February, the author had the occasion to do some collecting around Port Isabel. It is well known that in many respects the fauna of Padre Island is quite different from that of the Galveston-Freeport area. In the latter region whipcoral is only found rarely and then only in small quantities. It is probably transported from some distance away to the shore. However, near Port Isabel it lives close to shore and considerable quantities occasionally wash up on e beach. During life, its base is usually anchored quite firmly to some kind of substratum, which in many instances consists of old shells or rocks and pebbles to which shells can be attached. In the confused mass of coral and bryozoa quite often mollusks become entangled, but some species are specially adapted to live in close relation with the coral. Worm tubes built out of shell debris are quite common in these masses. These yield some of the forms which, because they occur in slightly deeper water, are usually not washed up on the beaches. In looking through one of these masses of coral on the beach I spotted a large specimen of Strigilla gabbi, attached to the coral and decided to take home a large quantity of it to sort out at leisure. Even after wrapping it tightly in a plastic sheet, it oozed quite a smell, which upon arrival in Houston cannot be described. After a week or so of drying in the sun, the worst was over and the final results of sorting the mass out justified all trouble. In this note only those shells will be reported which to a collector accustomed to the Galveston-Freeport area are unusual. Not discussed will be many types of organisms, especially certain bryozoa which live in deeper water and never wash up on the beach and which were attached to the coral mass. The mass had apparently been picked clean of Modiola tulipa by other collectors; however, a few Lioberus castaneous were left. There were also about twenty Neosimnia uniplicata, which had been alive at the time of collection. Remarkably a few were colored yellow with intermediate areas of purple, indicating that possibly the animals fed on both the yellow and purple variety of the coral. These species together with Anachis avara semiplicata, Anachis floridana, Anachis obesa, Mitrella lunata, Mitrella spc. ere the only species which were certainly alive when the mass washed ashore. A few ner species may have been alive.

The most common bivalve in the mass was no doubt Notocorbula operculata, a species unknown in the Galveston area. All were dead shells and only a few juvenile hinged specimens were taken. Also quite a few Chione grus - some hinged specimens - were taken. Two other species of Corbula, Corbula swiftiana, which is not uncommon along the entire Texas coast and another one, possibly Corbula barrattiana were present in considerable numbers. Quite interesting were about twenty rather fresh valves of Nucula proxima, which presumably came from the worm tubes, as most of the other smaller species mentioned in the following. Strigilla mirabilis and Quadrans lintea both were quite common. Other unusual species, seldom seen in beach drift were Gouldia cerina (about ten worn valves), Arcopsis adamsi (a single valve), one fresh valve of Pandora bushiana and several worn ones, and quite a few valves of probably young Callocardia texaniana. Very fresh and beautifully colored valves of Chioné clenchi indicate that this species lives close to where the whip coral was dislodged. Semele bellastriata was present in a few fresh single valves and quite a few older ones, and even more interesting was the presence of about ten valves of of Semele nuculoides none of which, however, looked fresh. The single valve of Ervilia concentrica looked quite fresh.

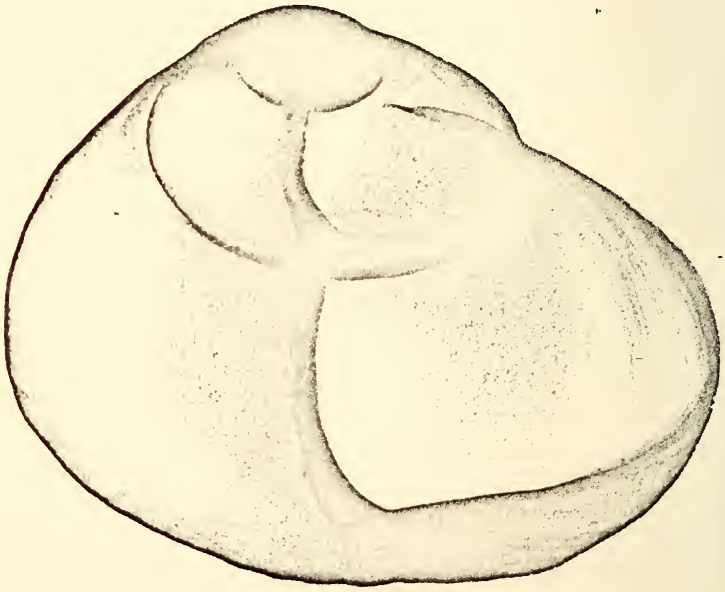
Apart from the gastropods mentioned earlier, the most interesting find was a number of esh Terebra protexta, beautifully colored and quite different from the old worn material so common at Galveston. A single specimen of Alabina cerithidioides may be men-

tioned, although this species is found, but rarely, along the entire Texas coast.

The more minute gastropods species were lacking except for a single specimen of Teinostoma spec. No Vitrinellids were obtained although some typical bay forms appeared in the material (Macoma tenta, Modulus modulus, Bittium varium) where were probably washed into the sea, their numbers were small. Surprising was the total lack of any form of the Pyramidellidae which are present in such variety and numbers in most Texas bays.

At the same time some beach drift was collected at the same locality of the beach. It is highly interesting to note that this material contained: Areopsis adamsi, Nucula proxim and Gouldia cerina (only single valves). Two other interesting forms not obtained from the coral were present in this drift; two fresh and shiny specimens of Depressiscala nautlae and a broken specimen of a fully grown Trivia suffusa.

Through trial and error the following additional cleaning methods for shells have been found: Ernie Libby used a large ear syringe (obtainable at any drug store) for removing disintegrated animals from univalves. Shells should be first soaked a couple of days to loosen the animal. The tip end of the syringe should be cut off leaving a large hole opening. Water is then forced and sucked in and out of the shell by use of the syringe. Dorothy Kister says the easiest way she has found to remove hermit crabs from univalves is to grease the lip of the shell with vaseline and when the hermit comes out to investigate his surroundings he can't crawl back in the shell because of the grease.



THE CONCHOLOGIST

Volume II, No. 2 September, 1965

NOTES & NEWS

Bring shells you want identified. September 22, regular meeting in the Lecture Room of the Planetarium. "Methods For Cleaning and Removing All Animals From Shells". Harold Geis will lead the discussion.

August 25, Workshop, - attended by 40 or 50 very enthusiastic members and guests. This was the first workshop of the season. Pat Hyatt, feature writer and Darrell Davidson, photographer for the Houston Chronicle were there to make pictures and take notes for a most interesting feature for the Sunday Chronicle, August 29th, "Think Like A Snail If You Want To Find Shells." Hope you did not miss it. Our sincere thanks to Pat Hyatt for her humorous story. Unusual deep water shells, mostly small species dredged offshore Texas, shown by Harold Geis. Mr. Geis also brought shells and starfish dredged offshore Louisiana to give to those present. Auriniopsis kieneri 10" long a very rare size, the average being 5" to 6" shown by Ernie Libby. Many Florida shells the Kister family found on their vacation to Sanibel and the Keys, shown by Tom Kister. Shells from the Bahamas shown by Maudeen Marks. Murex fulvescens found at Port Isabel by Opal Blair Riedel. Strombus alatus adult and juvenile dredged offshore Freeport, shown by Fern Heinke.

Welcome to our new subscribing members, Mr. Joseph S. D'Amico, 119 Ponsimmon Lane, Lake Jackson, Texas, Mr. Joe Varnado, 1975 Glasshouse, Beaumont, Texas and Mrs. Marion Lanahan, 5031 Darnell, Houston, Texas.

We hope all our members have seen the wonderful exhibit of shells in the lobby of the Museum of Natural Science featuring the Conus gloriamaris. This exhibit will be on display until the end of September.

Maudeen Marks back from the Bahamas and finding Strombus gigas, Strombus raninus, Strombus costatus, Casis madagascariensis, Nerita peloronta at Grand Bahama Bay before being chased ashore by huge manta rays. She enjoyed teaching Mrs. Jerry Nowak of Atlanta, Ga., about shelling and in turn was taught to skin dive and snorkel. Maudeen's shelling experiences were used in the Houston Chronicle by Society Editor, Betty Ewing, as a lead item in her society column on August 13.

Katrina Thompson "shelling" in the Tetons -- on horseback yet?

Grace and Joe Varnado from Beaumont, Texas, spending a weekend with Mildred Tate and shelling until the wee hours.

Harold Geis filling his deep freeze with dredged material and going out for more shells with his scuba equipment.

Opal Riedel moving from Dallas to Alvin to be "near the water".

Leola Glass spending more and more time at Clear Lake and trying to put all her shells in order for the forthcoming shell shows around our city.

The Felders have moved into their new home and we are wondering if they have a special room for their shells.

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HOUSTON, TEXAS

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NOTES CONCERNING TEXAS BEACH SHELLS

by

Helmer Ode and Mrs. Anne B. Speers

Fam. Solenidae

A world-wide family of mostly long and narrow bivalves, popularly known as "razor clams". In Texas, three genera, each with one species.

Ensis minor Dall 1889. This is a common clam found in bays of higher salinity (11); according to 17, common in bay margin assemblage. Alive near Rockport and in low salinity bay influence environment of Laguna Madre (14). Rarely alive on outer Gulf beaches (Galveston, Freeport, coll. Ode)

Figured in: 4, 11, 17.
Previous reports: 11, 14, 15, 17, 19, 20 (alive), 34, 44 (alive).
Localities: Alive in most Texas bays and dead shells on all outer beaches.

Solen viridis Say 1821. Recently (See Tex. Conch., Vol. 1, 8) a number of live specimens were collected at San Luis Pass, Galveston. It is not unlikely that this species has been confused with the previous one, and that it is of wider occurrence than our records indicate. According to 17, common off Western Louisiana in the Gulf and dredged offshore Texas (12). Mentioned in (35) from bird droppings!

Figured in: 1, 5, 6, 12.
Previous references: Reed in 11, 12, 17, 35.
Localities: San Luis Pass.

Solecurtus cumingianus Dunker 1861. According to 17 few along Gulf Coast in intermediate shelf environment. Dead beach specimens occasionally on Mustang and Padre Islands (coll. Ode, Speers). Worn shells common near Mansfield cut (coll. Speers).

Figured in 3, 5, 17.
Previous references: 11, 17.
Localities: Mustang Island, Padre Island, Port Isabel.

Remarks: Two other species have been mentioned in the literature:
Solecurtus sanctae marthae Orbiguy 1853. Reported offshore in sand of outer shelf assemblage in ref. 17.
Ensis directus Conrad 1843. Reported by Maury (see 11).

Sanibel Report From A Shell-Shocked Houstonian Family

by Marylou and Carlos Cardeza

The Gulf and Bay have been good to us this summer; both in jewels from the sea and in pleasant visits and healthy tan. Why couldn't the Kisters, big and little, Mrs. Wataru and Buzzy Sutow have stayed longer?

Our new part-time home here looks out over San Carlos Bay toward the Causeway, Pine Island and the Caloosahatchee River entrance to Fort Myers where Tom Edison was among the first to start it all. At the strong low tides, a series of sand bars are exposed all along the Gulf side a short drive across the Island. By turns, according to the season, many varieties of mollusks seem to march to shore and become trapped between or on the bars. Islanders and visitors alike, assume the "Sanibel stoop" looking for tracks, humps or a telltale syphon barely showing from the sand. Often an animal is completely visible, marching blithely along the sandy bottom. Out "front" we have collected STROMBUS ALATUS Gmelin, POLINICES DUPLICATUS Say, OLIVA SAYANA Ravenel, SINUM PERSPECTIVUM Say and an occasional CONUS SPURIUS ATLANTICUS Clench (not large); also MUREX FLORIFER Reeve and MUREX POMUM Gmelin.

The sand and grass shoreline of the Bay, within a quarter mile of home, has produced the larger FASCIOLARIA TULIPA in both the brown-black and red forms; and here too, in June and July, the larger 3-inch and over CONUS SPURIUS ATLANTICUS are there for him who will wade waist-deep and "fan" the surface of the bottom with swinging sneakers, then plunge down to see what rolled underfoot. Here one day what rolled turned out to be a large FASCIOLARIA TULIPA engaged in combat with a 2-1/2" FASCIOLARIA HUNTERI, with the later on the losing side, but both good specimens. Here too, the PINNA harbor many small snails and bivalves, and ARCA PONDEROSA are abundant. Along the bay shore MELONGENA CORONA compete with BUSYCON CONTRARIUM for the delectable coon oysters clustered on the mangrove roots while BUSYCON SPIRATUM seem reluctant to get closer than the short shallow-water grasses. Rare for Sanibel, I found a beautiful red animal I picked up on the run to my car from a storm and discovered I had a NATICA CANRENA Linne which I kept alive overnight in a glass battery jar and took many pictures - none of which turned out . . . . a question for the experts: Why don't the authoritative books tell you the real reason for the common name Colorful Natica? The shell is attractive, but the animal, huge in delicate shades of red, is magnificent! I'll have to take lessons in photography from Brother Libby before I catch another one.

Almost forgot the better bivalves; MACROCALLISTA NIMBOSA and TELLINA ALTERNATA in Bay sand flats but not easy to locate. TRACHYCARDIUM EGMONTIANUM a bay dweller, as is MERCENARIA CAMPECHIENSIS in quantity . . anyone for real Sanibel clam chowder? Y'all hurry over!

Members of our Conchology group are invited to exhibit in the Brazoria County Fair, Oct. 5, 6, 7, 8, 9, 1965. Judging will be according to the American Malacological rules and by qualified personnel. Club members are eligible for the Academy award for the outstanding exhibit of the Brazoria County Shell Show presented by the Academy of Natural Sciences of Philadelphia. There will be a smaller award given to the outstanding junior exhibit by the club. For rules and regulations, please contact Dorothy Kister, PA 3-2494.

Deadline for news the first of every month.

DON'T FORGET TO PAY YOUR DUES.

CORRALLING THE MARSHALL ISLAND MOLLUSKS
by- Ernie Libby

Against the deep blue of the Pacific the white caps were dancing and twinkling through the clouds far below like so many stars. For the second time my dreams were coming true. I was winging my way 5000 miles across the Pacific to Wat's favorite hunting range, the atolls of the Marshalls. Previous to my trip in 1963, although I had lived in Florida, I had only a passing interest in Conchology. However, after spending six weeks under the excellent tutorage of Dr. Sutow and trader Titikos, I had not only the desire to collect, but also to trade.

Since my responsibilities were tripled this year, I was sent out in advance to purchase the necessary supplies to be used during our three weeks stay on the island of Rongelap. All supplies must be bought in Kwajalein and carried by ship to the island in advance of the team. This year I was to supervise the chuck wagon; I was responsible for work in X-ray, as well as doing all necessary photography in documenting the condition of the patients.

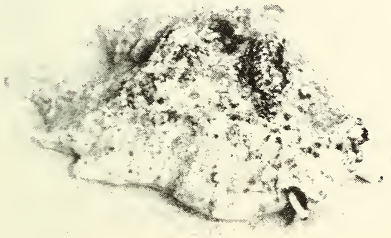
Kwajalein Island showing fill at both ends.

Hardly had the wheels touched the ground in Kwajalein before I was on my way to the commissary to get in my order for groceries. Then to the warehouse to check on the X-ray and film supplies and then - you could never guess -- out to the end of the new sandbar which they had dredged up between Kwajalein and the adjoining island making it possible to travel across the reef from island to island at low tide. Weird tales were told of finding Conus gloria-maris in the dredging, however, this has not been proven up to the present time. It was quite lonesome roaming the reef without Wat's company, but I ran into one of the Security Officers who had just become interested in shelling and decided to take him along on my next expedition. Equipped with flashlights, we started for the point at low tide, about 11 P.M. We were greatly rewarded with many turbos, Cypraea poraria, Cypraea helvola and Conus striatus. Suddenly Allan called to me and said, "What is this between the rocks, Ernie?" I passed it off with, "It looks like a piece of pink coral." He was not satisfied with this and called me back a few minutes later to show me his find. "My gosh, it's a Conus rhododendron" I gasped. Had I not shown so much enthusiasm I might now be the proud owner of a Conus rhododendron.

My work went on for the next three days but somehow or another it seemed that I was able to get a break at approximately low tide. By the time Wat arrived I had two boxes all prepared for shipment back to the States. Before taking off for Rongelap, Wat and I had the opportunity of making a few visits to the end of the island where we found the beach shelling most lucrative.

Search and rescue plane carried us to Rongelap where we were met

by outrigger canoes and paddled ashore. It seemed like being home again meeting our old friends. Titikos, my good friend Kajer, Phillip and many others. Even the kids remembered that here were the two green horns that were suckers for handing out cokes and bubble gum for crazy old sea shells. I had hardly unloaded my gear before ten Marshaleese kids were standing holding out handfuls of shells and saying "cola". This is fine at the beginning because you get Lambis chiragra, Lambis lambis, Strombus sinuatus and occasionally Cyprea mappa or Cypraea histro. However, way at the end of the line comes a little urchin holding two Cypraea caputserpentis and looks you wistfully in the eye and asks you for another of your already depleted stock of cola. How can you refuse? I believe they are all prodigies of Titikos. However, trading with him had evidently had its effect on me as I finally got the nerve to bargain by dropping the price from one cola to three bubble gum—sometimes to even one bubble gum. One native thought my name was Odè, as he would come almost every day with a collection of tiny shells



Living Strombus taurus.

Dr. Sutow dons coconut SURVIVAL belt (water, food, buoyancy)for outrigger trip across lagoon.

wrapped in a piece of gingham and tied with a sprig of coconut frond, hold it out to me and say bubble gum.

My overloaded work schedule on this survey interferedterrificallywith my shelling activities, however, usually by eight in the evenings, Wat and I would find time to go over to the chuck wagon and sort out our finds of the previous day, or bury a few more for the ants to work on beside the bunkhouse. The tides were running late in the evening, approximately 10:30 was our first low tide. After spending a few hours on the reef, we would sneak back to the chuck wagon, get a quick snack, then back to the bunk house for a couple of hours sleep; then out again to prepare breakfast for twenty-three people. This was shelling the hard way.

We had been quite hopeful of obtaining Strombus taurus on this visit as our previous acquisition had been completely depleted. We made inquiries from the natives for "auruk". No one had any. We became so desperate that we were picking up the most encrusted, dingy taurus that I have ever seen. A longhorn skull in the prairie was more highly polished than some of the samples we found, but Wat stated that these were better than none. We did not know until our return to Kwajalein that the Kwajalein conchology group had made a trading trip to Rongelap two weeks previously and had completely cornered the market. Titikos was eating well, however, I felt sorry for him and furnished him with all of the leftovers from the chuck wagon each day.

(To be continued)

MOLLUSCANA

by- W. W. Sutow, M.D.

Among the fringe benefits of browsing through science articles is the introduction to new and exotic terminology. For example, the word "teuthologist" appears in the marine biology literature - but not in the usual dictionary, even in the library edition. Actually, the word comes from a Greek root meaning "squid" and refers to the malacologist or zoologist who specializes in the study of cephalopods.

Cephalopods (Cephalopoda) form one of the major classes in the phylum Mollusca. These invertebrates were first described systematically by Aristotle in 300 B. C. (F. W. Lane: Kingdom of the Octopus, the Worlds of Science Series, Pyramid Publications, New York, 1962, 287 pp., $0.75 in Paperback Edition). They are exclusively marine inhabitants and abound in all oceans of the world. They trace their lineage back 400 million years to the nautiloids, ammonites and belemnites of the Cambrian seas.

The word "cephalopod" is derived from Greek words for "head" and "foot". It describes graphically the attachment of the appendages to the cephalad or head portion of the animal. All cephalopods except the Nautilus have 2 gills, 2 kidneys and 3 hearts. They are "blue-blooded" creatures, the blue color resulting from a copper compound in the blood.

The Class Cephalopoda is generally divided into four orders: Nautilidae, Vampyromorpha, Octopoda ("8 legs"), and Decapoda ("10 legs"). A grouping in more familiar terminology would be: Octopus (Octopoda) with some 150 species; squid (Teuthoidea) with more than 350 species; cuttlefish (Sepiidae) with over 80 species; spirula (Spirulidae); and the pearly nautilus (Nautilidae). Paleontologists and zoologists are still working on a satisfactory classification (D. T. Donovan: Cephalopod Phylogeny and Classification, Biol. Rev., 39:259-287, 1964).

Squids should be credited with the origin of jet propulsion; their locomotion in the water is carried out with amazing facility and speed. Under favorable circumstances some squids will actually take off from the water into the air, gliding 6 to 8 feet above the ocean surface for 50 and 60 yards. The chromatophores in the body enable squids to pass through astounding color phases to harmonize with the surroundings. And under stress, they can blacken the environment with sepia, the artist's India ink, in a maneuver that man has imitated with his "smoke-screens".

The genus Argonauta includes six species of the paper nautilus whose delicate wrinkled egg-cases are among the prize specimens for collectors. The "shell" is formed between the two expanded portions of the first arms on each side of the body. These expansions have been described, erroneously but poetically, as "sails". The arms have skin glands which secrete calcium carbonate. In time the case is formed and molded into the familiar corrugated parchment-thin keeled structure. The double-row of brown knobs on the sides of the case correspond to the suckers on the arms. While the female argonauts may measure up to a foot in length, the male animal completes its adult life at the insignificant size of one-half inch or less.

The tiny, lightweight Spirula spirula coiled shell, which floats ashore in the beach drift, is encased within the body of the animal during life. The Spirula is widely distributed but is rarely caught alive. The cylindrical creature, which measures less than one and a half inches in overall length, has mastered pressure dynamics to enable it to move up and down a half mile of ocean water during its daily maneuvers.

For the conchologist, the pearly nautilus (Nautilus pompilius) still remains a desirable acquisition. The perfection of its shell form has long

intrigued the mathematician, the poet and the artist. But the living animal is a chilling contrast as it wiggles its 60 to 94 arms and peers out beneath the pointed leathery hood. Chamber by chamber, some 27 to 36 when fully mature, the animal builds larger and larger accomodations for itself as it grows.

With or without shells, cephalopods are interesting mollusks which have left fascinating trails in the zoological past. From the mythical Scylla in Homer's Odyssey and the Norwegian "kraken" to Captain Nemo's realistic encounter with the giant squid, cephalopods have intrigued man's imagination. And not the least important, cephalopods constitute, in many countries, significant sea food items in man's diets.

(Additional references: R. W. Miner, Marauders of The Sea, National Geographic Magazine 68:185-207, August, 1935; G. L. Voss, Cephalopods of the Philippine Islands, U. S. National Museum Bulletin, No. 234, 180 pp., 1963; G. L. Voss, A Review of Cephalopods of the Gulf of Mexico , Bull. Mar. Sci. Gulf Carib., 6:85-178, 1956.)

COMING ACTIVITIES

The following schedule of Field Trips is announced for the Conchology Group for the coming year.

1. Sunday, October 17, 1965 - The Kickoff.

Leaders - Helmer Ode and Leola Glass.

Purpose - To acquaint newer members with the prevalent beach Molluscan fauna in this area and to give the veterans another chance to enrich their supply of Amaea mitchelli, Pholas campechiensis, Callocardia texasiana, Labiosa lineata, etc. The tide is low all day (no high) with a minimum low of 0.1 at 1517.

2. Saturday and Sunday, December 11th and 12th, 1965 - Port Aransas Expidition.
Leaders - Kisters and Heinkes.

Purpose - Our first venture to the Port Aransas - Corpus Christi Region. Excellent low tides (- 0.7) in the late mornings and allows two shelling opportunities during the 2 days, one of which will consist of a trip to St. Joseph Island.

3. January, 1966 - Operations - Surprise . Details will be announced later.

4. February or March, 1966 - Texas Clam Bake.

Leaders - Libbys and Sutows.

Purpose - Malacological Luau. Time and place to be announced later.

Wat Sutow, Field Trip Chairman.

Melba Bridges' art work may now be seen in Westbury Square.

Mitchell, one of the first investigators of the Marine Molluscs of Texas, (Amaea mitchelli) mentions that the common Thais haemostoma is edible and tastes like oyster. Who wants to investigate?

HOW TO LOOK FOR SHELLS

by- Helen Denny

The advanced conchologist who shells while beach walking considers it a waste of time unless the tide is low. The lower the tide, the better the hunt. If your local newspaper does not print the Tide Tables, write to:

The United States Dept. of Commerce
Washington 25, D. C.

You may purchase these tables for $1.00 each. Suggest you ask for the Atlantic and Pacific Coasts tide tables.

Training your eyes to hunt the treasures is very important. Many an excellent specimen is passed up because you did not recognize the markings. Learn the tracks and living habits of our mollusk friends.

Live specimens, when possible, are the best. Keep the nicest specimen, whether live or freshly dead, until you find a perfect one. Shells can be found in many ways: Seaweed beds, under rocks and trapped in tide pools after storms. When turning rocks, remember to replace them in the same position. This is very important. The bed will be destroyed unless the rock is replaced. Check old pieces of wood floating in water. (Around our area, watch out for snakes. Ed.'s note). Last year, I found an 18" Pleuroploca gigantea two feet above water, clinging to a cement piling. What he was feeding on remains a mystery as nothing was there but barnacles.

Too many species to mention live in and around sea grass. My finest Conus spurius atlanticus 3-1/2" was found alive in two feet of water. The secret is in walking slowly and shuffling your feet carefully. You can feel the shell roll.

Night collecting at low tide can be very productive. All one needs is a flashlight and a good low tide.

Visit Sanibel Island and I'll be happy to tell you about my private shelling areas.

INTRODUCING

OUR NEW EDITOR

Het schelpen zoeken aan de zee
Ziet menigeen als een corvee
Getuige echter deze clou
This is not what i's wrong with you!

Op, zoeker, op naar 't schelpen pad,
Naar des mollusken habitat.
Als hulp voor't vinden van de naam
Ontvang dit boekske van ons saam.

To search for shells along the shore
Is to most an awful chore
Most do not like it, but some do
This is not what's wrong with you.

Let's go now all to places wet
In the Molluscan habitat
And as an aid to name your shell
Accept this paper and best wishes as well.

THE CONCHOLOGIST

Volume II, Number 3 October 1965

NOTES & NEWS

October 27, regular meeting in the Lecture Room of the Planetarium. A film about the first Sealab experiment will be shown and Ernie Libby will show a grouping of his shell slides.

September 22 our regular meeting attended by thirty-two members and guests. For a door prize, Carlos Cardeza gave a Conus spurius he collected alive while in Florida. Melba Bridges was the lucky winner. The discussion on how to clean shells got under way, with many suggestions offered. Mildred Tate told us of her experience with live gastropods: two tbsps. epsom salts to one quart of water. Place gastropods in container and cover with this solution, let stand about 24 hours and the mollusks will relax and come partly out of their shells. They are then easy to remove. The very small shells may be put in a 50% alcohol, 50% water solution for a few weeks. When the animal hardens, remove and wash, put in a shady place to cure. Ernie Libby said he finds Drano is useful for removing the periostracum. One-half cup Drano to a gallon of water. This will not hurt your shells but be sure to protect your hands with gloves. To remove the crustacean from your shell use one half cup of Clorox to one half gallon of water; cover shells with this solution, let stand for awhile depending on the amount to be removed. This will soften the crustacean and it can be then scraped off. Repeat until shell is clean. This will bleach your shell, so it will have to be watched very carefully. Mrs. H. Q. Boone said there is nothing as useful as a large old-fashioned hair pin. Straighten out pin, bend a hook in one end, stick through the snail and pull. Some said they used dental tools for this purpose. Some said freeze Thais and Busycon as this will shrink the snail, let thaw and pull him out. Harold Geis did not attend our meeting but his method for cleaning gastropods is as follows: Use a strong solution of Drano and water, put a few drops of this solution in the shell with an eyedropper, let stand for a few minutes and then wash out the shell with a strong stream of water. Repeat until all the snail is out. This results in a nice sweet-smelling shell to show your "parlour guests". Place shells in a box on cotton. Larger shells can be placed in glasses with apex down. Mr. Marion Lanahan, one of our guests, told how he helped locate the sunken barge, loaded with Chlorine Gas, in the Mississippi River. He said they used sound wave equipment and located the barge in sixty feet of water and it was under three other barges. This was quite an achievement, as there were many other companies and the U.S. Navy trying to locate this very dangerous barge. Our hats are off to Mr. Lanahan.

WELCOME: Mrs. J. M. Fennessy, Mrs. H. Q. Boone from Houston.
Mr. Geo. Major, Little Rock, Ark.

Liz Eubanks back in school now after a vacation shelling, dredging and dodging sharks. She said there were more sharks in the water than shells. She has good specimens of Australian and Indo-Pacific shells and will supply a list of her duplicates to anyone interested. She needs Murex fulvescens.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odè Mrs. Anne B. Speers

Fam. Olividae

This large tropical family of gastropods has relatively few representatives on the Texas Coast. In our judgement, it appears that many previous references to Olivella from Texas are based on erroneous identifications. The common small Olivellas of Texas are not Olivella mutica, but constitute a mixture of at least two other species. In Texas two genera: Oliva and Olivella. For a discussion of the last genus, see reference 36.

Oliva sayana Ravenel 1834. This is the common olive shell of all Texas outer beaches, which are often found alive on the beach. According to 17, common along the whole Gulf coast in the inner shelf zone. Reported offshore in 29. Very young specimens are rare on the beaches but may be found in April and May.

Figured in: 1, 4, 5, 6, 11, 17, 22.
Previous references: 11, 12, 14, 15, 17, 19, 20 (alive), 24, 25, 37.
Localities: All Texas outer beaches.

Olivella dealbata Reeve 1850. This is the common small Olivella from the Galveston beaches. Especially in winter, many dead shells wash ashore along the outer beach. Fresh shells show a variable color pattern from almost pure white to an irregular mass of brown markings. The species lives in great numbers on the mud flats of Bolivar Point and San Luis Pass (coll. Odè) and appears to be somewhat less common farther south at Port Aransas and Port Isabel. The white form of this species cannot be easily differentiated from Olivella floralia Duclos 1835 and it may be that O. floralia is identical with this species (see remarks in reference 8).

Figured in: 3, 36.
Previous references: See remarks below.
Localities: Galveston, Freeport, Sargent, Matagorda, St. Joseph Island, Mustang Island, and Port Isabel.

Olivella minuta Link 1807. In contrast with the previous species, this one is uncommon at Galveston and has never been found alive on the mud flats (only dead shells on the Gulf beaches). It is more common at Port Aransas and further South, where it exceeds O. dealbata in

numbers on the outer beaches. It is probable that most previous references to O. mutica Say 1822 for Texas refer to O. minuta Link 1807. Beaause it is impossible to ascertain the precise species referred to, we shall list references to all Olivella's together in the remarks. We have not seen true O. mutica from Texas.

Figured in: 3, 36.
Previous references: See remarks.
Localities: Galveston, Freeport, Sargent, St. Joseph Island, Mustang Island and Padre Island.
Remarks: Previous references to Olivella from Texas: 11, 14, 15, 17, 19, 20, 24, 25.
Also reported: Olivella nivea Gmelin 1791 in 11, 24.
Olivella jaspidea Gmelin 1790 in 11.
Both these species are also referred to in 12, but the figures presented there probably show O. dealbata and juvenile Oliva spec.

ENERGY AND TIME SAVERS

by- Carlos Cardeza

I am lazy. The easy way is for me, and last summer's shelling inspired two gadgets to pamper the aching back. The first and simpler one is an old dinner fork secured with waterproof electrician's tape to the end of a 3-foot stick. Purpose: Walking an exposed sandbar during an annoyingly brief low tide, you spot tell-tale tracks or little mounds, or something you hope is the canal-tip of a choice snail. All this, of course, with the indispensable "choncologist's stoop"; but why bend down twenty to fifty times to see if its a surf clam or a tellin, a piece of broken shell or a hiding Strombus? Time's a-wastin' so is your horsepower, so you just stir around the spot with your probe, then either move on or swoop down for a treasure.

The second gadget is just an elaboration of the first, useful both the same way or while wading deep or from a boat: It is a little more rugged, using a 3/4-inch dowel stick of desired length (they are of hard, strong wood). At one end, gouge two grooves lengthwise of the stick and opposite each other. These grooves and a tightened adjustable hose-clamp hold the two ends of a stiff wire rectangle about 5" x 7". Into this rectangle you "sew" by hand very easily with soft copper wire a basket made of aluminum flyscreen. Don't make the "basket" a production - it need not be a masterpiece of design, but it must be well sewed after rolling its edges around the stiff frame; it should be about 6" deep. At the other end of mine, I have a U-shaped stiff wire loop similarly secured by a hose clamp, which works the same as the fork in my first brainstorm. Use the heaviest, strongest wire you can bend with hands and pliers; steel clothesline is perfect.

If you use Clorox, Drano solution, or acid at all: Photo supply stores have plastic tongs used to handle negatives or prints in nasty chemicals. Also, a supermarket produced a plastic salad fork-and-spoon hinged like a pair of scissors. Both of these make things a lot easier on your hands.

Mr. & Mrs. George Major, new subscribers from Little Rock, Ark., exhibited their fabulous shell collection at the Science and Natural History Museum in MacArthur Park, Little Rock. Each Sunday, George and Mary brought in new shells to add to their display and stayed there in order to answer any questions and just plain do some "shell talk". Their exhibit was so successful they were invited to "stay" two instead of one month.

CORRALLING THE MARSHALL ISLAND MOLLUSKS

by Wat Sutow

The Rongelap clam-bake had all the essential ingredients - Ocean atmosphere, hungry participants and plenty of clam. Earlier in the day, the young men had paddled their outriggers over the clam bed and selected the main course - a single 20-inch Tridacna gigas. Now in the late afternoon, the prize catch lay where it had been broiled WHOLE on the red-hot bed of coconut shell coals. Beneath the thin smoke and steam, the clam bubbled in its own juice. The color of the flesh and the aroma indicated that the mollusk was ready for consumption. One simply took the sharp bolo and sliced off a generous hunk. The piece was then sloshed around in the hot clam juice and eaten. The meat of this giant clam was a bit tough - but the flavor was there and a dozen people had their fill.

One reaches Rongelap Atoll by boat or by plane - an overnight ordeal by sea, an hour plus flight by air - from either Kwajalein or Eniwetok. But the exigencies of travel in the Trust Territory preclude any tourist invasion of this remote spot.

The low-lying chain of coral islands fringe a lagoon 30 by 35 miles in size. A rise of six feet in the ocean level will submerge the entire atoll. Rongelap Island is the largest land mass of the atoll and borders the South Pass. The island is one mile or so at its widest point and stretches about five miles in length. Though mosquito-free, the ubiquitous flies and rodents infest portions of the island. There are no natural fresh water sources other than rain. The native village lies along the lagoon near the wide end of the island. The surrounding coral sands and reef support a rich array of molluscan fauna.

On Rongelap Island, the major reef flat faces the open ocean. This seaward reef may be fifty yards or more wide in areas and almost the entirety of the surface emerges at good low tides. The residual tide pools of all sizes are productive hunting grounds for mollusks. Beyond a narrow reef front, which even at low tide is knee-deep in swirling waves, the jagged reef edge dips abruptly into blue-black waters of the South Pacific. The seaward beach is not very broad and contains a sparse population of living mollusks. Here, however, the hermit crabs mill around, dragging an astounding assortment of shells and the retreating waves deposit successive lines of pelagic and small stuff on the sand. There is no accessible reef flat on the lagoon side; instead, a lagoon shelf slopes steeply into the depths. No true sand-bar is found. In spite of this, by diving, mollusks that prefer the

quieter water can be collected in abundance from the lagoon floor near shore.

The tide turns with almost machine-like precision. The second the minimum low is reached, a wave creeps over the reef edge and sends a thin blanket of water over the coral flats. Another wave and another follow and quickly, the reefs are covered by an ever deepening layer of water. The rise in tide may be so rapid that in the channels between the islets one might have some frightening moments before reaching shore, unless one has timed his maneuvers with care.

For someone who does not scuba-dive or even snorkel, the hermit crabs provide a fascinating and endless source of well-preserved specimens. The crabs abound on both sides of the island but during

daylight hours the shade of the pandanus trees and their fallen leaves seem to be the preferred hiding places for these creatures. They can be flushed out and as they stampede, choice representatives of the rarer molluscan species of the area can be picked up. Unfortunately, the cowries and cones usually, and the bivalves obviously, are not satisfactory domiciles for the crabs.

To tabulate the species found at one time or another along these shores is to repeat much of the Indo-Pacific check-list. Live, fresh-dead, crab-borne, or even beach-worn, the Rongelap seashells - from the smallest Stomatellid to the giant Tridacna, from the common Nerita to the elusive Strombus taurus, from the reef-loving Drupa and Turbo to the sand-burrowing Terebra, and from the pelagic Cavolina to the pearl producing Pinctada - constitute a truly colorful variety of molluscan game for the collector.

(To be continued)

VACATION SHELLING 1965

by- James F. Bender

On March 28th our shelling friends Bob and Virgie Frazier, and ourselves, James and Myrtle Bender, left Port Arthur for a shelling trip of five weeks in Florida. The first day we drove to Port St. Joe, Florida. We shelled in the Bay of St. Joseph Monday and Tuesday, where we collected Melongenajohnstonei, Fasciolaria tulipa, Laevicardium mortoni, Trachycardium egmontianum, Aequipecten irradians concentricus, Anomalocardia cuneimeris, Anomia simplex, Busycon plagosum and many others too numerous to mention. We counted over fifty different shells that can be collected here. On Wednesday we spent traveling to Palmetto where we stayed for the next two days shelling in Tampa Bay off the Causeway on the Sky Way where we found large Busycon contrarium, Macrocallista nimbosa, Melongena corona, and other small shells. Also in the Bay along the Causeway between Brandenton and Anna Maria and the Bay side of Anna Maria where we found more large Busycon contrarium, Strombus alatus, Macrocallista nimbosa, Fasciolaria tulipa, large Fasciolaria hunteri, Mercenaria campechiensis, Oliva sayana, beautifully colored Donax variabilis.

On April 3rd we drove to Marco where we shelled the Gulf beach late that evening until dark, we went south on the beach and the Fraziers north, each couple covered about two miles of beach and found Strombus alatus, Oliva sayana and a few Busycon contrarium. The sun started setting as we turned back and before we walked a quarter of a mile it was dark. None of us had a light and it was almost impossible to tell where you were. Our cars were parked in a public park about a city block from the beach, and could not be seen from the beach, even in daylight, let alone in the dark. Fortunately we noticed the trunk of a palm tree on the beach about fifty yards from the path to the parking area and had no trouble finding the park. The Fraziers had no such mark and walked a mile passed the park and had to cut out from the beach to a road and walk back to the parking area.

The next day we hired a guide and boat and went to some islands south of Marco, but found very little in the way of live shells. We found one good Junonia here but on the return trip we stopped on an oyster reef and found F. tulipa, M. corona and nice Busycon contrarium. Bob found one large Busycon about 12 inches. That night we shelled the Gulf beach again but this time we carried lanterns and all shelled the same area. We found more Stroms.and Olives, also Murex pomum, Myrtle found a golden olive.

The next morning we left Marco for the Keys, we arrived on Big Pine Key that evening, rented a cabin and prepared to shell in earnest the next day. We shelled the lower Keys from Tuesday, April 6th, through Monday, April 12th, from Piogeon Key to Key West. Here we collected Strombus gigas, Strombus raninus, both the large and dwarf varieties, Fasciolaria tulipa, Arcas, Littorinas, Vasum muricatum, Arcopagia fausta, Codakia orbicularis and other small shells. By this time we were out of room and decided to leave the next day for home.

Fern and Julius Heinke are in Rockport fishing and when the water is too rough, roaming the beaches looking for shells. They are also setting up ov overnight trip to that area in December.

Mary Sutow returning from the coast of California without so much as a single shell.

MOLLUSCANA

by- W. W. Sutow, M. D.

Let's test our vocabulary relating to shell talk. Here is the first of two quizzes. Check the phrase that is the closest in meaning to the key word. Answers are printed on page 8.

1. sinistral
   A. right handed B. left handed C. dark colored

2. dextral
   A. left handed B. highly mobile C. right handed

3. columella
   A. hairy growth B. type of sculpture C. central axial pillar

4. suture
   A. spiral junction between whorls B. healed breaks
   C. bivalve hinge

5. periostracum
   A. outermost layer of shell B. bivalve ligament C. mollusk teeth

6. radula
   A. type of hinge B. rasping tongue C. growth line

7. umbo
   A. frond-like projection on whelks B. type of operculum
   C. "beak" of bivalves

8. lunule
   A. moon snail B. heart shaped area in front of beak C. scar of muscle attachment

9. body whorl
   A. largest and final whorl B. initial and smallest whorl
   C. one of middle whorls

10. pelecypod
    A. bivalve B. octopus C. tusk shell

11. plicae
    A. notches B. stained areas C. folds

12. varix (pl. = varices)
    A. thickened ridge B. coiled portion C. spines

13. pallial line
    A. attachment of mantle B. radial sculpture of cones C. hinge attachment

14. byssus
    A. species living in deep water B. coloration on shells
    C. thread-like strands for attachment

15. lamella (pl. = lamellae)
    A. beaded structure B. canal for siphon C. thin flat ridge

16. monoplacophora
    A. sand dollars B. chitons C. a new class of mollusks

17. resilium
A. part of bivalve hinge B. chemical used in shell formation C. internal organ

18. operculum
A. organ of digestion B. organ of reproduction C. structure used in closing aperture

19. resilifer
A. holes in abalone shell B. hinge structure of mussels C. socket of bivalve hinge

20. parietal
A. apical area B. inner lip area C. outer lip area

21. umbilicus
A. hollow at base of body whorl B. long siphon of gastropod C. flat surface of ark shell hinges

22. mantle
A. shell forming organ B. outer covering of clams C. stinging apparatus of cones

23. nacre
A. apex of shells B. mother-of-pearl C. opening in shells

24. veliger
A. floats for shells B. mud and shale borer C. free swimming larva

25. ecology
A. study of soft parts B. study of shell fish C. study of environment

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Brazoria County Fair was held October 5 through 9, 1965. One room of the Art Building was filled with shell exhibits, and mention is made of this now as last year shells occupied a very small space. The exhibits were many and filled with beautiful shells from all over the world. Dr. Tom Pulley and Dorothy Kister were invited to serve as judges along with Mrs. T. E. Mills from Lake Jackson. Outstanding work had been done by Mrs. Kathryn Kirby with her Junior Group. Life cycles of Spirula spirula, Busy con contrarium, Janthina globosa with the bubble raft and snail neatly preserved; Polinices duplicatus with a carefully handled sand collar. One display featured a proud "MITCHEL EYE" while still another held a "VOILENT SEA SNAIL." The children, ranging in age from 7 to 12, had a scientific exhibit featuring ways in which shells have been used through the ages. Mildred Tate won the Academy of Natural Sciences Award. Mrs. R. C. Rost, who has visited our group from time to time, was in charge of the show ably assisted by Mrs. Kirby.

ANSWERS TO QUIZ

1. B	6. B	11. C	16. C	21. A
2. C	7. C	12. A	17. A	22. A
3. C	8. B	13. A	18. C	23. B
4. A	9. A	14. C	19. C	24. C
5. A	10. A	15. C	20. B	25. C

CONCHOLOGIST

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NOTES & NEWS

November 24, regular meeting in the Lecture Room at the Houston Museum of Natural History. Paul McGee will dissect a mollusk. Bring shells for identification.

Thirty-five members were on hand at the October meeting held in the lecture room of the Houston Museum of Natural Science to view the film about Sealab I and see a portion of Ernie Libby's slides. Dr. Pulley has asked that we refer to our meeting place by its correct name, as the Burke Baker Planetarium is attached to the Museum, so from now on we are meeting in the same place known as the Houston Museum of Natural Science. While watching the Sealab film I wondered if, in the future, when our beaches are gone and the water around our cities and towns so polluted as to not be usable, whether or not we will be building our summer homes at the bottom of the ocean miles away from shore. The men making this first experiment stayed down 11 out of the proposed 21 days and returned to shore only when forced to do so by a hurricane. Sealab II was completed recently with Scott Carpenter staying down a full 30 days. We are anxious to see the second film and Harold Geis, our genial program chairman and scuba diver, has assured us it will be shown as soon as available. Ernie Libby gave away beautiful slides at this meeting making all of us work for them by identifying the shells. Pat Libby, Patsy Kister and Buzzy Sutow entertained the group with an original song written by Buzzy and Patsy and we will print the words to it in a forthcoming issue.

The shell trip on Oct 17, was from many points of view quite remarkable. A huge crowd, about 100 persons came shelling - gathered at 9 o'clock on Sargent Beach. The weather was excellent, the spirits high, the tide not as low as we wished, but shells were few. However, a number of shells never collected before were taken. There was a Murex fulvescens with a note inserted, "I live here"; a Macrocallista nimbosa with the statement, "I came all the way from Florida"; and a Dinocardium with the pleasant greeting, "Hi", and many more. Mildred Tate and Ernie Libby convinced all of us that Sargent is a truly remarkable spot for shelling. Several enthusiasts also visited Surfside and although the number of beach shells exceeded that at Sargent, the picking was meager. But what does not wash up today, will come up another time.

Welcome: Mrs. Elizabeth Martin, Brazoria, Tex.
Mrs. Kathryn Kirby, Lake Jackson, Tex.
Mrs. R. C. Rost, Brazoria, Tex.
Dr. Margaret Cameron, Beaumont, Tex.
Mrs. Elizabeth Bardwell, Box 461- Fulton, Tex.

December 11th and 12th - field trip. Meet at the White Marlin Marina in Port Aransas Saturday at 8:00 A.M. This is early, but the boat to St. Joseph's Island is small and can accommodate only four persons at a crossing. Fern and Jules Heinke are still in Rockport, as of this writing, and have visited with Anne Speers and they promise an exciting weekend of shelling and shell talk. A Dutch-treat dinner at White Marlin Restaurant is being considered. Sunday morning a trip to Ramson Island from Aransas Pass is planned - so it does look like an exciting weekend. Anne will be on hand to help lead our group, and for those of you who have not met her, this is an added treat. Fern has a list of motels, and may be contacted by dialing MO8-1524. Be sure to bring wind breakers and warm clothing.

We extend our deepest sympathy to Dorothy Sorrells and Ceil Libby in the recent loss of their mothers.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

Fam. Cerithiidae

This is a large family with many species in tropical waters. The animal lives by feeding on plants. In Texas, several genera: Cerithium, Bittium, Alaba and Litiopa.

Cerithium floridanum Morch 1876. Dead shells of this species have been taken at Pt. Isabel (coll. Speers), Port Aransas (coll. Ode, Speers) and along the Corpus Christi causeway to Padre Island (coll. Ode). No record of live specimens is known. A few fragments have been found at Galveston (coll. Ode)

Figured in: 1, 4, 5, 6, 7.
Previous references: 19, 23, 24, 25.
Localities: Galveston, St. Joseph Isl., Pt. Aransas, Padre Island and Pt. Isabel.

Cerithium litteratum Born 1780. Occasionally a few dead and worn specimens are found at Port Isabel (coll. Speers). No record of live specimens. Reported alive offshore on coral banks (18).

Figured in: 1, 5, 6, 31.
Previous references: 18.
Localities: Port Isabel.

Cerithium variabile C. B. Adams 1848. This is the most common cerith from Texas. It is unknown at Galveston, found rarely dead at Sargent, is more common (dead) at Matagorda and abundant from Port Aransas southward. At the last locality, live specimens are common in shallow water, often on or near oyster reefs (coll. Speers, ref. 11). According to 14 and 17, commonly alive in various types of shallow hypersaline environments.

Figured in: 1, 3, 4, 6, 11, 14, 17, 31.
Previous references: 11, 14, 15, 17, 19, 20, 24.
Localities: Sargent, Matagorda, Indianola and common in South Texas.

Bittium varium Pfeiffer 1840. This species is common in beachdrift around Pt. Aransas, where live specimens are seasonally abundant in Aransas Bay on vegetation. Somewhat less common in beachdrift on Galveston Island, but probably also living in Galveston Bay (no records). According to 14 and 17, alive in various types of environment.

Figured in: 1, 6, 11.
Previous references: 11, 12, 14, 15, 17, 19, 20, 24, 28. (alive)
Localities: Dead shells along entire Texas coast and alive in Aransas bay and at Pt. Isabel.

Molluscanna by W.W. Sutow, M.D.

Here is a quiz on adjectives used in several shell books. Many of these words come from the same roots as generic and specific names of shells, for example, Cypraea pyriformis, Conus striatus, Imbricaria conica, Cancellaria reticulata, Barnea truncata, etc. Check the meaning that applies to the keyword. Answers are given on Page 7

1. striate
   - A. striped
   - B. pointed

2. foliaceous
   - A. leaf-like
   - B. shield-like

3. lamellated
   - A. elongated
   - B. scaly

4. nodose
   - A. knobby
   - B. notched

5. biconic
   - A. oval shaped
   - B. diamond shaped

6. carinate
   - A. flattened
   - B. keeled

7. crenate
   - A. iridescent
   - B. scalloped

8. divaricate
   - A. circle-and-dot design
   - B. chevron design

9. recurved
   - A. double-lined
   - B. hooked or bent

10. serrate
    - A. saw-toothed
    - B. smooth

11. vermiculated
    - A. irregular wavy lines
    - B. banded design

12. turriform
    - A. broad and flat
    - B. whorled slender spire

13. reticulate
    - A. cylindrical
    - B. net-like

14. punctate
    - A. glossy
    - B. pitted

15. plicate
    - A. folded or twisted
    - B. very small

16. bifid
    - A. predominantly two colors
    - B. divided into two by a groove

17. concentric
    - A. dot and dash design
    - B. paralleling margin of shell

18. edentate
    - A. with teeth
    - B. without teeth

19. incised
    - A. turned inward
    - B. sharply grooved

20. fimbriate
    - A. fringed
    - B. multi-hued

21. imbricate
    - A. bristly
    - B. overlapping

22. cancellate
    - A. criss-crossed
    - B. translucent

23. truncate
    - A. bluntly cut off
    - B. with a slit

24. rugose
    - A. wrinkled
    - B. thorny

25. spinose
    - A. spiny
    - B. spineless

26. verrucose
    - A. warty
    - B. coiled

27. patellate
    - A. jagged
    - B. tent-shaped

28. pyriform
    - A. flame shaped
    - B. star shaped

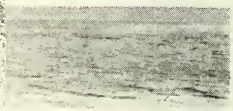
29. involute
    - A. without operculum
    - B. tightly coiled

CORRALLING THE MARSHALL ISLAND MOLLUSKS by Ernie Libby

Even on Rongelap, time ebbs and flows with the precision of the tides. I suddenly realized that we had reached the ebbtide of our visit on Rongelap and soon we would be flowing back across the beautiful coral range to so-called "civilization".

Since Wat and I knew time was swiftly running out, we decided we must make the most of our opportunities. Strombus taurus seemed to be quite hopeless. Although Wat did his best to induce Titikos to go diving for them, Titikos very wisely looked straight ahead and said nothing. Finally a face mask, donated to the cause by Wat, brought response. The Island trader took off with his outrigger and returned with specimens of Tridacana gigas and Tridacana noae which were greatfully received. Our search for Strombus taurus still seemed fruitless and Wat had to leave the next day for Kwajalein where he would continue his examinations and then take off, a week preceding me, for home.

We had to have transportation to Kwaj for Wat. "Coincidently", our feast for the villagers was planned on the day of his required departure and the crew of the search and rescue plane were invited. They had previously flown in four whole pigs, which we anticipated having roasted in an underground oven with apples in their mouths, Hawaiian style. However, the Marshallese have their own methods and the pigs were cut into small sections, wrapped in pandanus leaves and then placed in



a pit that had been filled with glowing coconut charcoal. For their contribution to the feast, the boys and men in the village had gone fishing that morning with a coconut frond seine. It was unbelievable that the fish would not go under or through it and enough was obtained to feed the two hundred with only one drag.

After gorging themselves on all the delicacies of Marshallese culinary art, the SAR crew re-polished their brass and prepared to take off with Doctors Sutow and Rawls.

I bid Wat a tearful goodbye and went to work in earnest on the Island Shylock, realizing that I had a reasonable good investment in leftover coffee and rice. I learned that the native name for Strombus taurus was "aruk", so two days before leaving the island I cornered Titikos and pointed to the lagoon, then to his outrigger and said, "Aruk".

"Eniaetok", he said shaking his head and pointing toward a small island over the horizon on the other side of the lagoon.

"You go?", I questioned.

"Boy go", he said, pointing to one of the young natives.

Hardly had the sun peeked above the horizon in a blaze of glory, than we were on our way across the lagoon to the island of my dreams. In addition to the native boy, I took along my assistant cook who is an excellent free diver.

As we rounded the point on the lee side of the island, we could see beautiful reef fish swimming through the crystal clear water ten to fifteen feet below us, among the coral heads. The boy dove overboard and within a few seconds came up clutching several Strombus taurus in his hands. The only thing that was ever

faster than my dive into the water, was the native boy emerging from the water when a shark appeared on the scene. I honestly believe that he surfaced so quickly that there was not a drop of water on him when he landed in the boat. However, when he saw that we were not frightened and the shark swam away, he rejoined us and in a short time we had beautiful specimens of Strombus taurus, Terebra maculata, Terebra crenulata, and Lambis truncata. This was one of the greatest thrills of my life to swim down and pick up living specimens of a gastropod that was believed to be extinct up to a few short years ago.

Another real thrill was to arrive back in Kwajalein in time to proudly present Wat with several specimens of Strombus taurus, only to have him gayly take off leaving me stranded on the coral reef while he winged his way to Honolulu to negotiate the trade of a golden cowrie.

The Sailing Bradfields

At the September meeting of our group, Leola and Berkeley Glass had as their guests, a couple from Australia, S. E. (Blue) Bradfield, a sailing captain for a number of years, and his wife, Dot.

On their own 30-foot ketch, D'Vara, built in their backyard, they sailed 18,000 miles from Australia to England. Their first lap of the journey was a 3,000-mile passage to New Guinea; then to the Spice Islands of Indonesia, Bali, Singapore, and Penang; from there, to the Nicobar Islands, Ceylon, the Maldives, and the Seychelles. A hazardous passage of the Red Sea brought them to the Mediterranean, and they cruised its length from Beirut to Majorca, before crossing southwest France from Sete to Bordeaux by the canals of the Midi and the Garonne. Their voyage to England took them five years and to over 160 ports and anchorages in 22 countries, and no adventure lover will fail to envy the Bradfields their experience or to admire the dedicated purpose and courage with which they found and followed their 'road to the sea'.

"Road to the Sea" is the title of S. C. (Blue) Bradfield's account of his and Dot's voyage, published in London, England, by the Temple Press Books. The proceeds from the book was one of the ways in which Dot and 'Blue' financed their trip.

A partial list of the shells they gathered alive are listed below. Many were rare.

New Guinea - Cypraea: caputserpentis and staphylaca. Nautilus pompilius.

Seychelles - Cypraea: histrio, scurva, talpa, ziczac and helvola.
Conus: ebraeus, textile, geographus and litteratus.
Harpa nobilis. Strompus lambis. Murex ramosus.

Maldive Islands - Cypraea: asellus, cassis rufa, cassis vibex, conus betulivius, Marginalis, Poraria, Argus, Mauritiana, Cassis Cornuta.

Red Sea - Conus coffea; Distorsio anus; Eburna spiratus ; Strombus tricornis; Murex: anguliferus, clavus, spinosus and tenuispina.

Mediterranean - Cypraea: lurida, spurea, burum, hesitata.
Murex brandaris; Aporrhais pes-pelicani.

Dot said that in picking up poisonous shells, such as, Textile and Geographus, a grasp of the apex, with gloves on, will be sufficient. The animal cannot reach that far.

NOTES & NEWS

Betty Allen has written from Pt. Isabel inviting our group to participate in the South Padre Island Shell Club Fair, Feb. 19 and 20, 1966, in the Civic Center on So. Padre Island. A schedule of classes and general rules was included with her letter and anyone interested may call Dorothy Kister for further details. This fair is a great deal of fun as the Padre group go "all out" to make you feel welcome and Betty assures us the entertainment for the weekend is even better than last year. (Ed's. note - Is it possible?) Make your plans now to attend.

The Gulf Coast Shell Club entertained the San Antonio Shell Club Saturday and Sunday, November 6th and 7th. The Beaumont group met the "dry land" shellers at Bolivar Ferry landing at 8:00 Saturday morning and started shelling immediately around the Fort Travis area, but left there soon after as the tide was high and low areas were filled with rain water. The jetties came under close inspection with Littorina ziczac, Thais haemastoma and Siphonaria lineolata among many finds. Mary Sutow and Dorothy Kister had their Girl Scout troop at Bolivar for the weekend and joined the group at the rocks. The Glasses and Opal Riedel, from our Houston club; Mildred Tate and Elizabeth Martin, our subscribers from Lake Jackson, were among the many looking for the ever elusive Amea mitchelli. Opal, being the lucky one at the right place and the right time, found one on the flats near the garbage dump. A shell session was held in the afternoon at the Bishops' Bali-Hai beach home and continued into the evening with a dinner at Hill's in Galveston. Shelling was continued next morning at San Luis Pass and we will have to read "Between the Tides", the Beaumont publication, to find out the results of that journey.

Mrs. L. A. M. Barnette would like to have a few more schools for her traveling shell collections and exhibits. She does a great job explaining these shells to the youngsters and anyone desiring more information about this project may call her at MO8-4200.

The late President Kennedy was a shell collector and his exhibits were kept in the White House Study.

Ceil Libby is busy filling orders for L. & S. Enterprises' Portfolio of X-rays. These are wonderful Christmas items for the conchologist who has everything.

Joe Varnado, subscriber from Beaumont, won first place in adult shell collecting and purple rosette grand prize for the best in collective hobbies at the South Texas State Fair. Vikki Bishop, Anna Mae's daughter, won first place in fosil shells and second best in collective hobbies. The Bishops are truly a collecting family, as Karen Bishop won a first place ribbon for her junior stamp collection display. Bubba Bishop won first place for his junior coin collection and special award for youngest entry in the hobby show. (7 yrs. old) Congratulations!

On Oct. 25, 1965, Buzzy Sutow, in an impressive Court of Honor ceremony received his Eagle Scout award. This is the highest award given to boy scouts and it takes several years of hard work in order to receive this medal. CONGRATULATIONS BUZZY!

Dr. Tom E. Pulley was guest speaker at the regular meeting of the Outdoor Nature Club, held Tuesday, October 12, 1965. His subject was "Wonders of the Gulf of Mexico." We are sorry if any of our members were not able to attend this meeting as it was a "treat" to see and hear about the Flower Garden Reef and Stetson formation. The Kisters set up shell displays featuring Mildred Tate's blue-ribbon winning scientific exhibit she is donating to the Brazosport Youth Museum, Lake Jackson, Tex., and Leola Glass' Indo-Pacific cowries. Common Gulf Coast shells were also on view. Incidentally, did anyone watching the pictures recognize Carlos Cardeza in one of the reels? He went along for the ride. Carlos is a retired Rear Admiral and can't keep away from the water.

For the record, the James Benders report that in regards to Anne Speers' article on the collecting of Cymatium parthenopeum, on January 24, Myrtle Bender found two live mature specimens of this Cymatium while shelling at Port Isabel on Boca Chica.

There is some uncertainty among the members of our group whether Mr. Geis or Mr. Libby's recipe for clam chowder is really "it". It is being rumored that a cooking contest will be held and that all members will constitute the jury!

Your "finds" will be a great deal easier to clean if, upon reaching home, you rinse them before starting the cleaning procedure.

Carlos and Marylou Cardeza while still in their Sanibel home sacked fifty bags of shells for a Kindergarten class in Houston. May we help next time?

Anella Dexter taking time out from sorting shells to try and save the Grand Canyon.

Volume 1, Issues 1 thru 9, of our Texas Conchologist may be had for $2.00 by contacting Mrs. Fern Heinke, 3809 Villanova, Houston, Texas 77005 Phone - MO8-1524.

ANSWERS TO QUIZ

1. A	6. B	11. A	16. B	21. B
2. A	7. B	12. B	17. B	22. A
3. B	8. B	13. B	18. B	23. A
4. A	9. B	14. B	19. B	24. A
5. B	10. A	15. A	20. A	25. A

26. A
27. B
28. A
29. B

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OCTOBER - 1965

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'CONCHOLOGIST

Volume II: Number 5 December 1965

NOTES & NEWS

NO MEETING IN DECEMBER!!!! January 26, 1966, regular meeting in the Lecture Room, Houston Museum of Natural History. This will be a workshop so bring your shells. The Cypraea family will be featured.

During the well-attended meeting on Wednesday, November 24, Paul McGee demonstrated the anatomy of bivalves by dissecting several specimens of Mercenaria campechiensis from Galveston Bay. It was a most instructive demonstration which showed clearly the various soft parts of the animals, which ended up inside the lecturer. Delicious!

WELCOME

Mrs. C. A. Riddle	Mrs. D. A. Dashiell	Mr. Paul McGee
Mrs. C. A. Clements	Mrs. W. C. Woods	Mrs. A. A. Marsh

Anne Speers reported a fabulous vacation shelling experience: Snooping the fabulous shell deposits at the Academy of Natural Science in Philadelphia and the collection at Harvard. The Purpose of her visit was to compare Texas material with the Museum collection. It is clear that for many of the smaller shells, much hard work both in the field and the museum is necessary before we know what we are collecting on the Texas coast. It is unfortunate that Texas is rather poorly represented in the big collections and thus it is no wonder that there exists only occasional references to Texas in the literature. The best way to alleviate this situation is to send, once in a while, some of our better and rarer material to the larger collections. If and when this is done, be sure complete data accompanies all material. Don't ever clean them! If collected alive, the museum would like to have it sent in alcohol. Wrap in cotton saturated with 70% alcohol and put in plastic bags, then box securely. You will get a very warm "thank you!".

Leola and Berkeley Glass shoved off from Seabrook, their home port, via the Intracoastal Canal to Rockport, Tex., for an extended playcation of shelling and fishing. They are now docked at the Rockport Municipal Boat Basin and report shelling excellent and fishing good.

Harold Geis a TV celebrity! Harold is president of the newly formed Oceanography Society and was recently interviewed on a local TV channel.

Helmer and Wiets Ode spending Christmas in Holland this year. Helmer is winding up work on his PhD.

January 15 is the date for our next shelling field trip to be led by Harold Geis. Details for this expedition will be found in the January Outdoor Nature Club's Newsletter. Members of the ONC will join us on this occasion.

RECENT FINDS:

Live specimens of Modulus modulus were collected by Harold Geis on Heald Bank. This species of which plentiful dead specimens can be collected in the bays around Port Aransas and Port Isabel, thus is not purely a bay species.

Anne Speers reported Probythinella from Port Aransas and Port Isabel and a worn, small specimen of Antigona Sp. from the beach at Port Isabel.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

Fam. Plicatulidae

Only one species of this family is found in Texas.

Plicatula gibbosa Lamarck 1801. Worn and old shells are not uncommon on Texas beaches. At Galveston, only worn specimens (coll. Ode), but further south on Padre Island, some material looks slightly fresher (coll. Speers). Pairs are occasionally found, but are usually attached to fragments of old shells and appear quite old. The species has been reported offshore in 18. According to 17, abundant on deeper banks of the calcareous banks assemblage.

Figured in: 1, 2, 3, 4, 5, 6, 11, 17.
Previous references: 11, 12 (alive offshore), 17, 18.
Localities: Galveston, Sargent, St Joseph Isl., Mustang Isl., Padre Isl. and Pt. Isabel.
Remarks: In 11 is mentioned that Plicatula spondyloidea Meuschen 1781 is listed in 13. According to 3, this is a synonym of P. gibbosa.

Fam. Pteriidae

Two uncommon Texas beach shells belong to this family, famous for its pearl producing members.

Pteria colymbus Roding 1798. Live shells are rare on Matagorda beach (coll. Dexter), but not uncommon on Mustang and Padre Isl. Often found attached to strands of Gorgonia. Common only at Port Isabel (live, coll. Speers). Reported from a buoy off Port Aransas in 11, and from offshore coral banks in 18. Also reported in 29.

Figured in: 1, 2, 3, 4, 5, 6, 11.
Previous references: 11, 14, 18, 19, 26, 29.
Localities: Matagorda Beach, St. Joseph, Mustang and Padre Islands, Port Isabel.

Pinctada radiata Leach 1814. This species is less common than the previous one. Small live specimens have been found on St. Joseph and Mustang Islands (coll. Ode, Speers) and Padre Isl. (coll. Speers).

Figured in: 1, 2, 3, 4, 5, 6, 11.
Previous references: 11, 19.
Localities: St. Joseph, Mustang and Padre Islands.

Fam. Isognomonidae

Two species belonging to the highly characteristic "tree oysters" have been found in Texas.

Isognomon alatus Gmelin 1791. Uncommon on some beaches near Point Aransas. It has been found along the Port Aransas causeway (coll. Ode) and ma ny pairs on Clines Point (Port Aransas area) (coll. Speers), where it also lives. Numerous very large specimens have been collected from the inlet area of Port Isabel (coll. Speers).
Figured in: 1, 2, 3, 5, 6 .
Previous references: 23. (alive)
Localities: Port Aransas, Port Isabel.

Isognomon bicolor C. B. Adams 1845. This is a more common species, sometimes taken alive (coll. Ode, Speers) in the Port Aransas area. Once alive on a piece of driftwood on Mustang Isl. (coll. Ode). Also alive around Pt. Isabel (coll. Speers), sometimes in large clusters. No rec ords from the Galveston area.
Figured in: 2, 7.
Previous references: None
Localities: Port Aransas, Port Isabel.
Remarks: Isognomon radiatus Anton 1839 is listed in 11 from the Rockport jetty and Port Isabel. This may be a misidentification. The same species is also reported in 19.

Fam. Pandoridae
A family to which belong a number of rather flat, remarkably shaped, pearly shells. In Texas, two species.

Pandora trilineata Say 1822. This is a not uncommon shell along most of the Texas coast. According to 17, it belongs to the open sound or lagoon center assemblage. It has been collected alive around Port Aransas and Port Isabel (coll. Speers). Dead specimens are not uncommon at San Luis Pass at Galveston and presumably the species lives there. Dead shells are also common at Sabine Pass (coll. Sutow).
Figured in: 1, 4, 5, 6, 14, 17.
Previous references: 11, 14, 15, 17, 19, 20.
Localities: Along the entire Texas coast.

Pandora bushiana Dall 1886. According to 17, common along entire coast in intermediate shelf assemblage. So far only two dead and worn specimens were collected from dredged material taken from Lydia Ann Channel (Port Aransas area) (coll. Speers) and a few specimens attached to whip coral from Port Isabel (coll. Ode).
Figured in: 1
Previous references: 17
Localities: Lydia Ann Channel, Port Aransas, Port Isabel.
Remarks: Pandora arenosa Conrad 1848. Was listed by Dall for Texas (see 11).

CATALOGUING SHELLS FOR YOUR COLLECTION

Every collector is sooner or later confronted with the problem of how to label and catalogue his shells. So far as the label is concerned, it should be kept in mind that the least important item on the label is the name. There are many species on our Texas beaches which cannot be named by the specialists with any degree of certainty. Much work will be needed before this can be done. The most important items on the label are the lot numbers, the localities and the date the lot or specimens were collected. A lot is any number of shells of the same species collected at one locality at the same date. Shells collected on the same date but a different locality or at the same locality but on different dates, should have different lot numbers. A catalogue of lot numbers with all the appropriate data such as live or dead, bottom conditions, beach drift conditions etc. constitutes the most important item in the filing system of any collection. Never, but never, mix shells which should have different lot numbers. Otherwise, one day you will discover a rare shell in such a "mixed" lot and then nobody can tell from which locality it came or when it was collected.

The Editor reminds all authors that the deadline for articles for the CONCHOLOGIST is the first of the month. WE NEED MATERIAL.

Molluscanna by W.W. Sutow, M.D.

Recently, an opportunity to review the molluscan literature of a specific country, Japan, was realized. Not only is the molluscan fauna of Japan well-documented, but these same species may extend over a wide portion of the Indo-Pacific province. Thus, the descriptions serve as useful data for the study of many shells found from Hawaii into the South and Southwest Pacific and the Great Barrier Reef areas and across the Indian Ocean to the southwestern shores of Africa. Selected references are listed below.

(1) KURODA, T.: A Catalogue of Molluscan Shells from Taiwan (Formosa), with Descriptions of New Species. Memoirs of the Faculty of Science and Agriculture. Taihoku Imperial University. Geology No. 17, Vol. 22, No. 4, Feb., 1941, 216 pages (In English).
This reviews the malacological research on the fauna of this area and presents a check-list of 1459 species. In addition, a number of new species are described. Seven plates of photographs and drawings are included.

(2) KURODA, T.: A Catalogue of Molluscan Fauna of the Okinawa Islands. Ryukyu University Publication 1960. 106 pages plus 3 plates.
A check-list of 2010 species is given in English. A number of new species is described in Japanese.

(3) KURODA, T. (editor): Illustrated Catalogue of Japanese Shells. Nov. 15, 1949 through Dec. 15, 1953. (25 issues in English).
These pamphlets are among the best sources for authoritative and scientific information (with illustrations) on Japanese fauna. Descriptions cover species from 50 families, both gastropods and pelecypods, and include shells from the South Pacific and the Philippine Islands as well as Japan.

(4) KURODA, T., and HABE, T.: Check List and Bibliography of the Recent Marine Mollusca of Japan. 1952. 210 pages. (in English).
This is a most useful inventory of shell-bearing marine mollusks from the seas of Japan proper. Listed are 1048 bivalves, 3313 gastropods and 34 tusk shell species. In addition there is a bibliography of 1604 literature references.

(5) HABE, T.: Genera of Japanese Shells. 1951-1953. In 4 volumes.
These volumes describe the pelecypods and scaphopods of Japan. The text is in Japanese but the numerous figures can be identified in English. Thus, this is a useful reference for the two classes described.

(6) HABE, T., and KOSUGE, S.: A List of the Indo-Pacific Molluscs, Concerning to the Japanese Molluscan Fauna. National Science Museum. 1964 (In English).
To date, three parts of this current series have been published, as follows: (I) Pleurotomarioidea (66 species); (II) Stromboidea (77 species); and (III) Scaphopoda (140 species). The list is intended to supplement the material that has already appeared in Illustrated Catalogue of Japanese Shells (see reference 3). The authors have indicated that descriptions as well as illustrations will be published eventually.

(7) HIRASE, S.: A Handbook of Illustrated Shells in Natural Colors from Japanese Islands and their Adjacent Territories. (Enlarged and revised by I. TAKI). 1951. 134 plates and lists.
The original and pioneer book by this famous malacologist first appeared in 1934. The revision by Taki, another noted Japanese malacologist, updated the out-of-print book and made it available to a new generation. Species, not figured elsewhere, can often be found in this book. Identifications are in English and Japanese.

(8) KIRA, T.: Shells of the Western Pacific in Color. 1962. 224 pages. English edition.
This widely popular book (Vol. I) was first published as a Japanese edition in 1954. In the first edition, illustrations and lists were included but there were no written descriptions. An enlarged version, including descriptive text, was published in 1959. The author gave full credit to the scientists whose original identifications of some of the new species were still in manuscript form. Thus, the first printed descriptions of these particular shells appeared in this book that bore Kira's name. This precipitated a very embarrassing situation because Kira, without intent, had technically usurped (according to rules of priority in scientific circles) the credit as author of previously undescribed shells.

(9) HABE, T.: Shells of the Western Pacific in Color. Volume II. 1964. English edition.
This is a supplementary volume to the book by Kira (reference 8) and describes 1465 species not discussed in the previous volume. The Japanese edition with appropriate text had appeared in 1961.

(10) VENUS. The Japanese Journal of Malacology. Now in its 23rd volume, this official organ of the Malacological Society of Japan is published monthly. It is a highly scientific journal, currently edited by Dr. I. Taki with a considerable portion of the material printed in English. Even the Japanese scientific articles usually have the descriptions and summaries appended in English.

(11) KURODA, T.: A Catalogue of Land Shells of Japan, including the Okinawa and Ogasawara Islands. 1953. 56 pages plus index. (In English and Japanese).
The original list by this famous malacologist appeared in mimeographed form and contained 841 land species. The list apparently has been republished as a booklet.

(12) OYAMA, K. (editor): The Molluscan Shells. 4 volumes. 1957-1960.
Published by the Science and Photography Club (Tokyo, Japan), each volume is a collection of black and white photographs of unusual technical quality. Intended for use in the identification of shells, the photographs beautifully and clearly emphasize the characteristic features of the species selected.

(13) HIRASE, Y.: The Illustrations of a Thousand Shells. 4 volumes. 1914, 1915, 1922.
These are color block-prints of sea shells on silk, bound accordion fashion. Of tremendous historical and artistic interest, these rare volumes are almost impossible to obtain in complete sets.

To become familiar with many of the smaller land snails of Texas, one should collect on the beach. Many land snails can be collected in great profusion on the upper tide line especially near the passes.

Oct 67 - In Shell Wonders

H E L P! H E L P! H E L P!
WHAT IS THIS CONE?

by- Mildred Tate

This is not meant to be a publication of a new species, but rather a request for knowledge of others if known to exist.

R. T. Abbott says, "This is an interesting cone, and I must say that I have no idea what it could be. It has the appearance of being a grandaddy and might possibly be related to Conus bermudensis." In a later letter he says, "I have compared it with large specimens of Conus ranunculus Huass, and am convinced that it is a grandaddy specimen of that species."

If this is true, this will be a new locality for this shell, as it has only been found and reported from Puerto Rico, south through the lesser antilles to the northern part of South America and along the west coast of Africa.

Consider the color, Conus ranunculas is grayish white with two very irregular spiral bands of chocolate brown. The color of our beautiful Texas cone is entirely different. I mention the size reluctantly as it might be considered a "Texas brag". The facts speak for themselves. Of the four specimens of this shell that I know to exist, all are of the same color with the size varying little from the live one brought in by Allen Kight, owner and captain of the "Jamie K.", of Freeport, Texas, who requested that until this shell is otherwise identified it shall be known as Conus Mildredae Tatei.

After four years of research I'm still asking - - "what is it"? Let's give it it's proper identity, for it is indeed a beautiful cone, and worthy of it's proper place in the world of Conchology.

Conus ranunculas -

? Live

CONUS

Dredged in the Gulf of Mexico, 50 miles S.E. of Freeport, Texas from a depth of 28 fms.

Length 85 mm; Circumference 135 mm.

Spire rather low, having about 9 whorls, the last one being slightly concave. Each whorl in the spire has three or four spiral threads and very fine arched growth lines. The sides of the shell are smooth and slightly convex with spiral threads showing faintly at the shoulders, becoming more pronounced on the lower third of the shell where they are very distinct. The body whorl growth lines are edged with pinkish white. Between these are microscopic axial threads giving an allover appearance of fine silk. The dark brown periostracum was rather thick covering the beautiful yellow-orange of the shell which has a number of white splotches around the middle giving the impression of a whitish band. The interior of the aperture is white with pinkish blush. The operculum is corneous.

PORTRAIT

Dr. Tom Pulley, our professional consultant, is well known to all Houston Conchologists and to many outside Texas. Everyone who has attended our meetings in the Houston Museum of Natural History knows that its director is delighted to talk "shells". Dr. Pulley is a longtime resident of Houston. He attended old Sam Houston High School, received a B.A. in biology at Rice, a M.S. in biology at the University of Houston and his PhD. in Marine Biology at Harvard. The title of his thesis was: A Zoogeographic Study Based on the Bivalves of the Gulf of Mexico (1953). Although interested in many phases of Marine Biology, he is lecturer in biology at Rice. Dr. Pulley is particularly interested in bivalves. This is apparent from several of the papers he published. In 1949, there appeared in the Texas Journal of Science, his first contribution to the Texas mollusk fauna; "Shelled Mollusks of the Texas Coast from Galveston to Port Aransas (Vol 1. (3), 62-68) and in 1952 appeared his valuable checklist: "An Illustrated Checklist of the Marine Mollusks of Texas (Vol. 4 (2), 167-199). In the course of these faunal studies, he described a new species Chione clenchi, which lives in offshore Texas waters, and of which worn shells are often found on the beaches. (See Texas Journal of Science, Vol. 4 (1), 61-62, 1952). Apart from his interest in Marine Biology, Dr. Pulley is also an authority on the culture and life of the Texas Indians and a very good folk singer.

SHELLING ON THE EAST COAST

by- Leola Glass

In May of this year, Berkeley and I were invited by friends to join them at Egg Harbor, New Jersey, where they were taking delivery of a boat, and cruise for as many days as we could spare on its homeward voyage.

We flew to Philadelphia, where our friends met us. I didn't say so, but I strongly wondered if I would have an opportunity to look for shells in that vicinity. Well, I didn't, except to pick up a worn Lunatia heros, which was new to my collection, and single valves of Mercenaria mercenaria, which I later discarded.

We worked hard for three days, equipping the boat for living aboard, cleaning cabinets, and storing many items. We dined, in the restaurants, on many choice foods from the sea.

Our first day's cruise was in the Atlantic for six hours. We docked a short time before nightfall at Cape May. I immediately asked the dock master if he knew if I could find seashells nearby. He replied that there was a canning factory around the bend. I picked up my shelling bag and walked fast around the waterfront. Such piles of shells I had never seen before! Many shells had fresh parts of animals (some not so fresh) adhering to them. None seemed perfect, but I had never seen Busycon carica and Busycon canaliculatum, and I was eager to have some. I chose a few (wishing I had more time to sort through them). I picked up three pairs, each, of Mercenaria mercenaria and six inch Spisula solidissima. I wonder if they can those four animals under the name of "clams" or "clam chowder"? I then bogged in peat at the edge of a canal, and picked up a few live Modiolus demissus; on a piling, a Littorina littorea.

The next day we cruised in the Atlantic for 10 hours. We could travel much faster than in the Intercoastal Canal. We docked at Wrightsville, N. C., near dusk, and I picked up only a Urosalpinx cinerea.

We then cruised in the Intercoastal to Norfolk, Virginia. Again, only a few minutes to look for shells around the Marina. I picked up what is probably Mya arenaria.

On the fourth day of cruising, we arrived at Moorhead City, N.C.. We stayed two and a half days, having repairs made on the boat. That was my first chance to give some thought to shelling and cleaning the shells I had. Our friends were not sympathetic to my carrying shells aboard ('tho they knew I would, when they invited me). I was very careful to conceal them and avoid any odor from them or conversation about them. Our host finally exclaimed, "I don't know how the (censored) you can keep those shells from smelling." I merely answered, "You've got to know what you're doing." I think he will invite me again. In Moorhead City I found many Nassarius obsoletus, and shells much the same as we find in our Texas bays.

Our final day of cruising was to Charleston, S. C., where Berkeley and I boarded a plane for Houston. Despite the rush and anxiety, I had added seven new species of shells to my collection.

MATHEMATICS FOR SCIENCE AND ENGINEERING by Philip L Alger based on Engineering Mathematics by Charles P. Steinmetz recently featured a large shell on its dust jacket.

A worn specimen of Rissoina striatocostata, a species not uncommon in offshore East Texas, was collected by Helmer Ode on McFaddin Beach.

A live specimen of Amaea mitchelli was collected about two years ago by Dorothy Sorrells on St. Joseph Island.

Mrs. H. Q. Boone and son Chris. have set up their salt water aquarium again and have recently added two pipe fish, found on a recent shelling trip, to their collection of silver minnows, false limpets, Thais haemostoma, baby pompano and killifish.

TEXAS CONCHOLOGIST

Volume II: Number: 6 January, 1966

NOTES & NEWS

January 26, 1966, regular meeting in the Lecture Room, Houston Museum of Natural Science. A short business meeting and then a shell "gab" session. Bring shells for identification or display.

Details on January 15th field trip will be reported in next month's issue.

Our Paper on Display . . . . . Mr. R. Lewis, 240 Caladium St., Lake Jackson, Texas, sent us a photograph of TEXAS CONCHOLOGIST on exhibit at the recent Brazoria County Fair. Mr. Lewis was the official photographer for the fair and was nice enough to furnish us a complimentary print. Our thanks go to Kathryn Kirby and Prentice Rost as well as Mr. Lewis for making this exhibit possible.

Please make the following corrections in your past issues of the Conchologist:
Vol. II, No. 4, should be dated November instead of October. Please bear with us as we forgot to change the type.
In Vol. II, No. 5, last month's issue, captions on the cones in the article by Mildred Tate were omitted. The one on the left on Page 6 is Conus ranunculas. The other three shown are the questionable cones.

Berkeley and Leola Glass off to South Padre Island in their beach wagon for a tour of that beach.

The Ike Sheffields bound for Mexico and Ike has promised an account of their shelling experiences soon.

The science news monthly, SCIENCE DIGEST, for December, 1965, has an interesting article by R. Tucker Abbott entitled "The Wonderful World of Shells".

Epitonium angulatum, sometimes found alive during the winter months on Galveston beaches, produces a purple dye. Wrap a live specimen in a piece of white cotton cloth and you will see the discoloration. Epitonium humphreysii does the same. Maudeen Marks claims this is her favorite species and when she is shelling, spends a great deal of time hunting this wendletrap.

The case of the lost porpoises! Dr. Pulley has asked that he be notified, when and if, any of us see porpoises around Bolivar ferry landing or anywhere up and down the Gulf coast. Pollution may be driving these mammals, once so plentiful, further and further away from our Gulf shores. (Ed.'s note: Many porpoises were seen in the channel between Aransas Pass and Pt. Aransas on our recent field trip.)

AHOY THERE! This is your paper! Put your ideas, thoughts, etc. in writing and send them to any member of the editorial staff before the first of each month. The more features we have, the better the paper.

Katrina Thompson and Bill Ladewig committed merger January 8th. We trust Bill is a sheller!!!

To polish shells, especially Cypraea, apply silicon and buff.

To kill the helmet conchs, ice them down, and the animals will shrink and eventually die.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode Mrs. Anne B. Speers

In the November, 1965, issue, the following genera belong with the family Cerithiidae:

Alaba incerta Orbiguy 1842. Superficially the species resembles the previous one, which may be the reason that it seldom has been reported. It lives on algae on the jetties at Pt. Aransas and Pt. Isabel (coll. Speers) and dead shells have been found on the beach at Indianola and Mustang Island, (coll. Ode).
Figured in: 3, 6.
Previous references: 19.
Localities: Indianola, Pt. Aransas, Pt. Isabel.

Litiopa melanostoma Rang 1829. This is the most common pelagic snail of Texas. Dead shells can almost always be found on any of the Texas gulf beaches. Live specimens can be collected by retrieving Sargassum weed before it reaches shore and shaking vigorously (Mustang and Padre Islands, coll. Speers). The nuclear whorls of this shell are quite remarkable and extremely young specimens do not resemble full grown specimens.
Figured in: 1, 6, 11.
Previous references: 11, 18, 19.
Localities: Common on all Texas Gulf beaches.
Remarks: Two other species have been reported: Cerithium muscarum Say 1832. in 24, 25 (Pleistocene). Cerithium eburneum Bruguiere 1792 by Singley (see ref. 11).

Fam. Glycymeridae
Only a single species of this family has been found on Texas beaches. A second species was recently dredged alive in Galveston Bay.

Glycymeris spectralis Nicol 1952. Only a few worn valves which probably belong to this species have been found on Texas beaches. The species has been reported from the region of the Carolinas (1) and Panama (10). No record of live specimens from Texas.
Figured in: 38
Previous references: None
Localities: Sargent Beach, Mustang Island, Padre Island (all coll. Ode).

Glycymeris pectinata Gmelin 1792. Recently a single live specimen was dredged from Galveston Bay near Seabrook by Mr. and Mrs. Ed. Eubanks. (See first issue of Texas Conchologist).
Figured in: 1, 2, 3.
Previous references: 13, 22.

Localities: Galveston Bay near Seabrook.
Remarks: In 6, Glycymeris undata Linne is listed for Texas and Glycymeris americana DeFrance 1829 has been reported by Reed (see ref. 11). No evidence is available for these occurences.

Fam. Pinnidae
A family of large clams attaching themselves by byssus. In Texas, three species have been found, one of which probably does not belong to the typical Texas fauna, but was accidentally introduced.

Atrina serrata Sowerby 1825. This large shell with many small scales on its surface is quite common on Texas beaches and occasionally hundreds of them wash ashore - many alive - on Galveston Island. According to 17 common in the sandier portions of the inner shelf zone between 2 - 12 fathoms.

Figured in: 1, 3, 4, 5, 6, 11, 17, 21.
Previous reference: 11, 17, 19, 20, 26.
Localities: Alive along entire Texas coast.

Atrina seminuda Lamarck 1819. This also is a common species often found alive on the beaches. At Galveston, it appears to be somewhat less common than the previous species. It has been found alive on the mudflats of Point Bolivar (coll. Ode) and around Port Isabel (coll. Speers). Collected alive from inlet areas and open bays near Port Aransas and Port Isabel (coll. Speers, ref. 14). According to 21, Atrina rigida Dillwyn 1817 is a different species. So far it has not been found in Texas.

Figured in: 1, 3, 14, 17, 21.
Previous references: 11, 12 (offshore), 14, 17, 19, 20.
Localities: Entire Texas coast.

Pinna carnea Gmelin 1791. Only once, a large live and at least twelve very small live specimens were taken near Port Aransas in a large root mass which apparently was transported to the beach by favorable wind and currents (coll. Speers).

Figured in: 1, 2, 3, 5, 6, 21.
Previous references: none
Localities: Port Aransas.
Remarks: We have listed all previous references to A. rigida under A. Seminuda. (Figured in 4 and 21).

Fam. Petricolidae
A family of boring and burrowing bivalves of which three species occur on Texas beaches.

Petricola pholadifermis Lamarck 1818. This is a common Texas beach shell found on all Gulf beaches. Listed in 17 as common in delta front assemblage. Specimens in Texas differ considerably by their smaller size and more slender shape from those living in colder waters from the North Atlantic coasts of the U.S.A. and Western Europe, where the species has been introduced (presumably with oysters). Rarely live specimens on the beaches (12).
Figured in: 1, 11, 17.
Previous references: 11, 12, 14, 15, 17, 19, 20, 22, 24.
Localities: Common on all Texas outer beaches.

Petricola lapicida Gmelin 1792. So far only rarely found in the southern part of the Texas coast; it makes burrows in rocks or shells, but a small live specimen from Pt. Isabel was collected in the byssus of live Arca imbricata (coll. Speers). Very small live specimens were also collected from the inlet area at Port Isabel and Port Aransas (coll. Speers). A larger dead specimen was collected from a bore hole in Murex fulvescens at Port Isabel (coll. Ode)
Figured in 2, 3,
Previous references: 11 (Reed)
Localities: Port Aransas, Port Isabel.

Molluscanna by W.W. Sutow, M.D.

During my recent trip to Japan and around the world, several events of conchological interest occurred. They will be chronicled in this column over the next three of four issues.

November 5, 1965

I had managed to squeeze in an overnight layover in Honolulu that gave me about 4 daylight hours there. I calculated that there was time to dash over to one of my favorite spots - the Children's Museum in the Ala Moana Park. I feasted my eyes once again on the fine display of cone shells of the world which Carl Greene had collected over the years.

My roving glance spotted a shelf of books in the Museum and it wasn't long before I had invaded the privacy of the inner office and obtained permission to browse through the literature. This casual encounter led to one of the high spots of the entire trip. Sensing my interest in shells, the lady in the office recommended that I go to the "Shell Fair" which was then open. No further urging was needed and I fought the late morning traffic to the heart of the Honolulu business district.

This "Hawaiian Shell Fair" of the Hawaiian Malacological Society was being held in one section of the first floor of the old National Dollar Store at the corner of South King and Fort Streets. I paid my 50 cents and walked through the door with 60 minutes to go until flight time. I made two rapid rounds of the exhibits and talked to the receptionist. Such a cursory survey, of course, does not do full justice to a report concerning this Fair, which impressed me with the top-notch quality of the shells exhibited and the effectiveness with which the displays were laid out. About one third of the exhibits were being shown by junior members. The program indicated that the 1965 Shell Fair had opened on October 23rd and would continue through November 6th. A nightly movie was advertised and an auction of Hawaiian and world wide marine shells was scheduled for each of two Fridays.

There were four large exhibits. The rest of the displays were arranged in uniform cases of two sizes. I was told that these cases were the property of the Hawaiian Malacological Society and were loaned to the club members. There was one row of tanks containing live mollusks.

The big prize, the Smithsonian Institution Award, went to David Lyon for an exhibit concerning "The Poisonous Cones". This was a 3-panel standup display containing descriptive material as well as picutres of a cone stinging a fish. The poison barb (dissected out) was a part of the display. The coveted award was donated by the Smithsonian Institution for the outstanding, "meaningful" display of Hawaiian marine shells which furthered the "knowledge of molluscan fauna of the Hawaiian Islands". The runner-up for the award, I was informed, was a display demonstrating the relationships between certain cowries endemic to the Hawaiian Islands and similar cowries found in other Indo-Pacific areas.

In addition to first and second prizes in the various divisions and classes, special blue ribbons had been given for the largest specimens for each of twenty-four Hawaiian Island species. The "Shell of the Show" award was won by Dale Lent for the large, fine specimen of Cymatium pyrum Linne collected in Hawaiian waters.

(My last glance back from the doorway as I rushed out was the big case in the far corner. There were six nice golden cowries sitting in that case! I made the plane with a good 10 minutes to spare, thinking all the time of how I was going to explain to Ernie Libby and Dorothy Kister my not coming away with one each of the golden treasures for them).

(To be continued)

- - - - - - - - - - - - - -

SOME IDEAS CONCERNING THE CLEANING OF SHELLS by LEOLA GLASS

First of all, I think it is important for all club members to know what a judge at Shell Fairs expects to see in the method used in cleaning a shell, what should be removed from the shell, and what should be used in polishing or buffing a shell. What looks beautiful to the owner may be unacceptable to the judge. Does the judge want to see the periostracum intact or removed? Does the judge want to see the shell polished with baby oil, 3-in-1 oil, pomade, mineral oil, vaseline, chloroform and neatsfoot oil or what? Sometime, I use Johnson's Neutral polish on smooth shells.

I transported live scallops overnight, and found them blackened the next morning. I hurridely removed the dead animals, and dipped each shell momentarily in pure clorox, and all stain was removed, and the shells looked lovely.

I have found out, by experimenting, that Epson Salts mixed with water (1 tablespoon per pint) would quickly relax starfish, chitons, and sea urchins. I then dried them for a few minutes, and, using an eye-dropper, applied formaldehyde along the arms of the starfish, on the backside; on the fleshy part of chitons, back-side; and both sides of the urchin, puncturing his flesh with a pick as I did so. I also use formaldehyde on the backside of live sand dollars to preserve the hairy covering. I haven't tried this, but I read that the animal will come out of the shell if placed in an Epson Salts solution.

NEW BOOKLIST

Some of the Japanese publications on mollusks were listed last month (Texas Conchologist, Vol. II, No. 4, December, 1965). There are several other books that should be mentioned.

(14) Encyclopaedia Zoologica Illustrated in Colours. Vol. III. Hokuryu-kan Publishing Co., Ltd., Tokyo, 1960, 200 pages plus index. This large volume deals with the Echino-dermata, Chaltognatha, Prosopygii and Mollusca of the Japanese Islands and adjacent seas. The beautiful color plates are comparable to those in other Japanese books. The text is in Japanese but scientific names are given in English. Although a number of malacologists are given credit, the late Dr. Isao Taki appears to have had the major responsibility for the section on mollusks.

(15) SHIKAMA, T. and HORIKOSHI, M.: Selected Sea-shells of the World Illustrated in Colours. Vol. I and Vol. II. Hokuryukan, Japan, 1963 and 1964, 154 and 212 pp.
Printed in Japan, these beautifully illustrated volumes deal with selected seashells of the world. The text is in Japanese but the illustrated shells are identified in English.

(16) HABE, T., and ITO, K.: Seashells of the World in Colour. Vol. I. The Northern Pacific. Hoikusha, Japan, 1965, 176 pp. This is a new series of books covering world wide seashells. The first volume deals with the molluscan fauna of the northern Pacific Ocean from Japan, northeastern Asia to Alaska and the northwestern shores of North America.

(17) NAKAYAMA, S.: A Catalogue of the Shell-bearing Mollusca of Tosa Province (Kochi Prefecture). July, 1965, 136 pp. This privately printed volume lists the shells from the area which is fabulously rich in exotic and rare deep-sea molluscan species. Both marine and land species are covered. No illustrations and no descriptive matter are included. Tabulations are in English and Japanese.

(18) YAMAGUTI PREFECTURAL YAMAGUTI MUSEUM: Catalogue of Molluscan Shells of Yamaguti Prefecture. 1956, 170 pp.
This prefecture (more commonly spelled "Yamaguchi") is situated at the southwesternmost tip of the main island of Honshu. Its shores border both the protectedInland Sea and open Japan Sea. 1009 species (both marine and land) are listed. Black and white photographs of 233 specimens are included.

CONCHOLOGY GROUP GOES TO ARANSAS

On Wednesday, December 15, 1965, Betty Ewing of the Houston Chronicle wrote a glowing account of our recent expedition to Port Aransas and as she so cleverly stated, an earth tremor was felt between Houston and St. Joseph's Island as twenty-six members from our group met for a weekend of shelling and fun. The weather looked threatening but clouds rolled lazily above keeping the sun well hidden and the temperature in the low 70's. Mrs. J. M. Fennessey, her daughters, Judy and Colleen were among the first to step off the boat on St. Joseph's Island but missed the large beautiful Amae mitchelli found by Ike Sheffield. Maudeen Marks had buckets of shells, collecting large specimens to give to the Variety Boys' Club in Houston and to friends. Phalium granulatum and Tonna galea were found in good condition by Patsy Kister and Buzzy Sutow. Jean Dashiell and Jean Riddle followed their first Olivella mutica trails and were well rewarded for their efforts. Connie Boone is an avid fisherman as well as sheller and when tired of the "bends" joined Berkeley Glass and Hubert Kister, Tom's dad, on the rocks and outfished them by catching two at a time. She has yet to say how large they were. Norma and Joe D'Amico from Lake Jackson were proud of the large keyhole limpets found on one of the bridges at Aransas Pass. They were dead but in good condition. Two Distorsio clathratas were found by Dorothy Kister and Leola Glass found Mrs. Ike Sheffield a couple of miles down the beach sitting on a log just looking at the water. The first day's shelling ended after 4 o'clock with the last boatload of tired but happy people. White Marlin Inn found the group celebrating Dorothy Kister's birthday and still talking shells.

Ransom Island is a picturesque spot in which to shell and it was the scene of our next day's activities. It is located three miles from Aransas Pass and it was formerly accessible by a narrow road. Hurricane Carla came along and now it may be reached only by a shallow draft boat. Sagging and crumbling are eight or nine abandoned houses including an American Legion Post. These buildings were constructed from concrete made from local sand and shells. Soon the cycle will be complete and these homes will once again be part of the beach. Anne Speers was the leader Sunday morning and the shelling began at 8:00. This time strainers, colanders, nets, etc., were in evidence as the tide was higher than expected and in order to reach the seaweed, wading was necessary. Seahorses were found and taken home to salt water aquariums. Wat and Mary Sutow collected live pectens for their evening meal. Anne collects miniatures and helped everyone find species new to them by straining the grasses. The weather was again in our favor for "Mr. Sun" was shining and the water was warm. Oysters were all around the island and many mussels were found living on the outside. It is always well to turn over rocks, boards, oysters and the like for one never knows what exactly will be found. Fern and Jules Heinke made the arrangements for our first weekend jaunt and we owe them a vote of thanks. Jules was unable to be with us due to a slight heart attack but is planning to rejoin us as soon as he is able. We wish to thank Anne Speers for a splendid outing and also for her parting gift to each of us, Architectonica nobilis found in September at South Padre. Anne has promised to visit with us in the near future and we are looking forward to once again shelling with her.

Relative Abundance of Shells At Galveston

by-Helmer Ode

On October 11, 1964, I brought home about half-a-gallon bag of material rich, but not uncommonly so, in small forms. The results of a preliminary search of this material merit a few remarks because they show how little is known about that part of the mollusk fauna of Texas which during many days of the year washes ashore. First let us consider the relative abundance of species. We measure the abundance of a given shell species by the percentage that the species constitutes of the total sample per unit length of the beach. If this is agreed upon one can, during days that much fine beach drift washes ashore, forget completely about shells larger than half an inch in size, because even half-a-gallon of small beach material contains the remains of thousands more individuals than a truckload of larger specimens. Thus taking the fine beachdrift as a basis for the statistical distribution of shell species, we come to some very unexpected results which can be summed up as follows: Most of the larger species of shells which after casual inspection appear to be common on the beach, are far less numerous than many of the smaller forms, which are less often mentioned in books and formal libraries. Of course, one must be careful not to extrapolate the results of a few investigations too far. Wind, season, temperature, weather, locality, currents, etc., play an important role. The results for above-mentioned sample from the Galveston side of San Luis Pass is as follows:

(1) Bivalves - Most common shell by far was Mulinia lateralis. Their number in the sample was about ten times the number of all other bivalves combined. Next in order came; Abra aequalis, Periploma angulifera, Petricola pholadiformis and Tellina iris. The latter is somewhat surprising because the species has been seldom mentioned in the past in lists. The reason is probably that its shell is mostly ground into fragments by wave action. The conspicuous Anadaras of the Texas beach were less common than above species.

(2) Gastropods - Here also the results were surprising. By far the most common species was Cyclostremella humilis Bush, a gastropod, somewhat flattish coiled shape seldom exceed 1 to 1-1/2 millimeter in diameter. Its mode of life is unknown. Very fresh specimens are glassy, but the majority of specimens are chalky white. I estimate that the half gallon sample of shell material that day contained no less than 20,000 specimens of these little shells. The sample was taken over about 10 feet of upper tide line. For the whole of Galveston beach, the reader may compute the total number of shells! Next in abundance came Epitonium (all species lumped together). These are always very abundant at Galveston ranging in size from 1/2 mm to 2 cm., but mostly minute. The following species among this material: novangliae (not common), rupicolum (a juv.), sericifilum (a single juv. one- this species is regularly found at Galveston); multistriatum (common), angulatum (common), humphreysi (not uncommon), albidum (common), tollini (abundant), apiculatum (a juv.). Next came in order: Creseis acicula, with thousands of little broken translucent shells; juv. Anachis obesa, juv. Thais haemostoma, whose small juv. shells, consisting of purely apical whorls are quite different from mature specimens; Litiopa melanostoma, whose juv. form shows a most remarkable nuclear whorl; Bittium varium, Polinices duplicata, Tectonatica pusilla, Acteon punctostriatus, and Olivella dealbata. Most of this material, especially Acteon punctostriatus is quite minute.

Texas CONCHOLOGIST

Volume II: Number 7 February - March, 1966

NOTES & NEWS

Fourth Wednesday of each month, regular meeting in the Lecture Room, Houston Museum of Natural Science. A workshop is planned for our next meeting, March 23, 1966, so bring shells for discussion, display or identification.

An election of officers for the coming year was held at our January 26 meeting and the following members were elected:

Chairman	Tom Kister
Vice Chairman	Carlos Cardeza
Sec.-Treasurer	Flower Follett
Program Chairman	Wat Sutow
Editor	Helmer Ode
Corresponding Sect.	Jeane Dashiell

Sharpstown Center has asked us for a shell exhibit May 13 and 14 and everyone is invited to help with this club project. We will not only have shells on display but scuba equipment, beachcombers' findings and anything you or the committee think will be of interest to the general public. Our display will in in the center mall in front of Foley's mall entrance. Prospective exhibitors are asked first to discuss their displays with a member of the exhibit committee in order to maintain a uniformity. Members needing help with their displays may call on any committee member listed below:

Chairman, Leola Glass.....	MO8-6830
Mary Sutow	JA8-3319
Fern Heinke	MO8-1524
Doris Odom	PR5-2546
Connie Boone	MO8-8252
Dorothy Kister	PA3-2494

Tom Kister and Harold Geis are general chairmen and with the help of Wat Sutow will pass on all exhibits before they are set up. Carlos Cardeza is our coordinator and he may be reached at JA3-8310. We will be allowed to sell shells for a small fee ($.25 and under) in order to create interest, so please go through your shells for extras and let us have them in time to bag them or place them in baskets. Again, a call to any committee member and she will be glad to pick them up for you. This is a "FIRST" for our small but growing group and we need the help of every single member in order to make this showing a success. Don't be shy, come on and join the fun. A dutch treat dinner is planned after the exhibit - time and place to be mentioned later.

Wat Sutow and Ernie Libby gave door prizes at this meeting and the prize shell, Strombus taurus, was won by Mr. Sidney Stubbs, a new member. The Strombus was given by Ernie. This was also Ernie's last meeting with us for quite some time as he is now on Saipan, and when Ken Libby finishes Bellaire High School in June, Cele, Ken and Pat will follow. We hate to say Good-bye to Ernie and so we will not for we feel certain that the polluted water from our beautiful Gulf will lure him back. We cannot thank him enough for his assistance in starting and making this publication what it is today and we just hope we can keep up the standards he has set before us. Without our art editor, this issue is without pictures but we feel certain that before long our avid skin diver, photographer, jack-of-all-trades, will be forwarding pictures of hss travels along with long epistles and we are anxiously awaiting them. Aloha Ernie, and see you in the islands?

We wish to thank the Coastal Bend Shell Club of Corpus Christi for their invitation to exhibit in their shell fair, March 5 and 6.

Mercenaria mercenaria has been collected alive in western Europe, where it was probably introduced with American oysters.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode Mrs. Anne B. Speers

Family Patricolidae (Cont. from Jan. issue)

Rupellaria typica Jonas 1844. This species has been found occasionally from Sargent to Port Isabel. It bores in rocks and shells. Live specimens from inlet areas at Port Aransas and Port Isabel (coll. Speers).

Figured in 1, 2, 3.
Previous references: 11, 19, 20.
Localities: Sargent (dead shells in soft rock), Port Aransas, Port Isabel.

Family Janthinidae

All three species of the highly characteristic purple snails (mentioned in (1), have been found alive on Texas beaches. They are usually found in the spring, but then in great numbers. Recently a fourth related species has been collected.

Janthina janthina Linne 1767. In the spring these snails sometimes wash ashore in countless numbers, but some years they are missing. Hardly ever lone specimens.

Figured in: 1, 3, 5, 6, 11, 12
Previous references: 11, 17, 19, 20.
Localities: All Texas Gulf beaches.

Janthina globosa Swainson 1822. Less common than the previous species but usually together with it. Lone specimens are sometimes found in summer and fall.

Figured in: 1, 3, 5, 6, 11.
Previous references: 11, 19, 20.
Localities: All Texas Gulf beaches.

Janthina exigua Lamarck 1916. In Texas the rarest of the purple snails. Rarely at Galveston (coll. Ode, Geis). Also known from Padre Island (coll. Speers).

Figured in: 1, 6.
Previous references: 19, 20.
Localities: Galveston, Padre Island.

Recluzia rollandiana Petit 1853 Little is known about this elusive and very rare species, also called "the brown sea snail". It is about the size of J. globosa and has the typical float attachment. Animal and shell are brown and the shell is more angulate than Janthina. It sometimes occurs with saragassum weed. A number were collected near Port Aransas in March 1953 by Burkenroad (ref. 39) and in the spring 1964 a number off Padre Island-Port Isabel area by several collectors (several specimens in coll. Speers).

Figured in: Not available
Previous references: 19, 39.
Localities: Port Aransas, Padre Island, Port Isabel.

Family Buccinidae

Of this large and widespread family of gastropods only a single genus with two species occurs is Texas.

Cantharus cancellarius Conrad 1846. In most popular standard works (1, 3) the genus Cantharus is taken to belong to the family Buccinidae. In 7 however, a different interpretation is given and the new generic name Gemophos is introduced. Until the matter is settled by the experts we shall conform to custom (see also 40). This species is common on most Texas beaches. Most beach shells are worn and old, harboring hermit crabs, but sometimes live specimens can be collected at Galveston, Freeport (coll. Ode). In June-July live specimens are quite common on Mustang Island and at Port Isabel, (coll. Speers).

Figured in : 4, 5, 6, 11, 14.
Previous references: 11 (alive), 12 (alive), 14 (alive), 15, 19, 20 (alive).
Localities: Found along entire Texas Coast.

Cantharus tinctus Conrad 1846. A much rarer species, which has been collected alive on the jetty at Port Aransas (coll. Speers). Also dead shells nearby (coll. Ode). Not seen in the Galveston area.

Figured in: 1, 3, 4, 5, 6, 14.
Previous references: 11, 14(alive), 16, 19, 20, 23.
Localities: Port Aransas, Laguna Madre.

Remarks. A number of other species have been listed by Dall for Texas, but no evidence exists that they occur in Texas waters, (see Ref. 11). We mention only Nassarina glypta Bush 1885, which is reported offshore in (18) and also in (17) as being common along whole coast in intermediate shelf assemblage.

Family Littorinidae

A worldwide family of gastropods, many of which live on the margin of the oceans in the spray and wave zone of the coast. In Texas several species, all belonging to the genus Littorina.

Littorian irrorata Say 1822. This shell is commonly found alive on grassy mudflats around the coastal bays of Texas. Dead shells are occasionally found washed up on the outer beaches. According to (17) abundant in fresh water and low salinity marsh assemblage.

Figured in: 1, 5, 6, 11, 14, 21, 22.
Previous references: 11, 14(alive), 16, 17(alive), 19, 30(alive), 24.
Localities: Galveston Bay, Matagorda Bay, Port Aransas area.

Littorina lineolata Orgiguy 1842. This species used to be known in Texas as L. ziczac Gmelin 1792. In ref. 21 and 3 linolata is considered a synonym of ziczac. There seems however to exist a consistent difference between both these forms sufficient to warrant specific distinction. Dr. H. Rehder has pronounced our Texas material to be lineolata. This species never reaches the large size reported for ziczac, is darker and has a wider apical angle than ziczac. It is abundant on all jetties along the Texas coast. According to 14 in inlet hypersaline environment of Laguna Madre and open bay and inlet influence assemblage around Rockport. For a discussion of these species see 21 and 41.

Figured in: 3, 21.
Previous references: 11, 14(alive), 15, 16, 19, 20(alive),(all under the name ziczac).
Localities: Abundantly alive along entire Texas Coast.

Littorina nebulosa Lamarck 1822. This shell used to be common at many parts of the Texas coast. It is our experience that the animal invariably lives on a substratum of wood such as old pilings. Several intense cold spells appear to have reduced the numbers of this species considerably. According to 14 in inlet hypersaline environment of Laguna Madre.

Figured in: 3, 11, 14, 21, 31.
Previous references: 11, 14(alive), 16, 19, 20.
Localities: Rollover Pass (alive, coll. Ode), Point Bolivar (alive, coll. Ode), Port Aransas (alive, ref. 11).

Littorina angulifera Lamarck 1822. This species is found occasionally at Port Isabel (both alive and dead, coll. Speers). It also may be sensitive to cold spells.

Figured in: L, 3, 5, 6, 21, 31.
Previous references: 11, 14(alive), 19.
Localities: Laguna Madre at Port Isabel.

Littorina meleagris Potier and Michaud 1838. This small species can be found alive between algae on the jetties at Port Aransas and Port Isabel, where it was discovered by A. Speers.

Figured in: 1, 3, 21, 31.
Previous references: 19.
Localities: Jetties at Port Aransas and Port Isabel.

Remarks: According to 11 three other species have been mentioned for the Texas fauna. Of these only Littorina mespillum Philippi 1847 might occur in Texas. The others, Echininus nodulosus and Tectarius muricatus are highly unlikely for Texas.

Family Bullidae,

The best known bubble shell of the Texas beaches belongs to this family. Of the genus Bulla several closely related species have been described, but it appears that these should not be differentiated to the extent which has been customary. (see remarks in 8 and 31).

Bulla striata Bruguiere 1792. This species occurrs widespread in Texas and dead shells are quite common around Port Aransas and Port Isabel. It is impossible to differentiate the Texas specimens according to the specific differences supposed to exist between B. striata, B. occidentalis and B. amygdala, and we have used the name B. striata only. Fresh shells are occasionally found on the beaches of San Luis Pass and Freeport, and according to reports the species lives there on the muxflats. Live specimens have been collected in inlet areas at Port Aransas and Port Isabel (coll. Speers).

Figured in: 1, 3, 4, 5, 6, 7, 11, 14.
Previous references: 11, 14, 15, 16, 19, 20.
Localities: Galveston, Freeport, common in South Texas.

Bulla spec. Two specimens - one complete and one broken of a very large Bulla, as yet not identified - were collected on Padre Island in Port Isabel area by collectors of that area in Oct. 1964.

Remarks. Bulla eburnea Dall 1881 has been reported dead offshore in 18.

Family Corbiculidae

In Texas two species.

Polymesoda carolinensis Bosc 1830. Dead shells uncommon in Galveston Bay (Seabrook), but common on Sargent Beach. Very worn dead shells rare on Padre Island (coll. Ode, Speers). Alive in Chocolate Bay (coll. Speers) and Lavaca Bay (ref. 11). According to 17 in river influenced low salinity assemblage, and incorrectly stated to be missing west of Matagorda Bay.

Figured in: 1, 5, 6, 11.
Previous references: 11, 17, 19, 20 (alive).
Localities: Dead shells along most of the Texas Coast.

Pseudocyrena floridana Conrad 1846. Dead shells rare in beachdrift at Galveston, but abundant at Port Aransas. Living in Corpus Christi Bay, Aransas Bay and Laguna Madre at Port Isabel.

Figured in: 1, 4, 5, 6, 11, 14, 17.
Previous references: 11, 14, 15, 17, 19 20, 28 (alive).
Localities: Common in South Texas in sand in open hypersaline shallow lagoon near inlet assemblage (17).

Additional References:

38. Nicol (1952) Reference to be given later.

39. Abbott, R. T. (1963). The Janthinid genus Recluzia in the Western Atlantic, Nautilus, Vol. 76, (4), page 151.

40. Robertson, R. (1957). A study of Cantharus multangulus (Philippi) with notes on Cantharus and Pseudoneptunea. Notulae Naturae, No. 300, 10 p. Acad. Nat. Sci. Phila.

41. Littorina ziczac (Gmelin) and L. lineolata Orbigny, Nautilus, 78, 65-66.

42. Richards, H. G. (1954). Mollusks from the Mississippi delta. Notulae Naturae No. 263 8p. Acad. Nat. Sci. Philadelphia.

43. Rehder, H. A. and Abbott, R. T. (1951). Some new and interesting mollusks from the deeper waters of the Gulf of Mexico. Rev. de la Sociedad Malacologica Vol. 8, 53-69.

44. Abbott, R. T. and Ladd, H. S. (1951). A new brackish water gastropod from Texas (Amnicolidae: Littoridina) Journ. Wash. Acad. Sci., Vol. 41, 335-338.

From Ike and Anita Sheffield, we received a letter from Mexico where they are busy shelling. It is as follows.

Guyamas - Feb. 6, 1966

Dear Friends:

Anita and I have been here at Guyamas now for three weeks and have visited all the beaches: El Cochran, El Soldada, Rocky, Colorado, San Carlos and Miramar Playas. Shelling has been good as we have had 18 minus tides in 21 days. We have not accumulated large numbers of shells, but we have concentrated on shells of high quality. Moonlight has helped as we have shelled up into the dark hours and returned 5 miles down beach to our car by moonlight. Last night, we shelled at El Soldado Beach until 7 p.m. My prize find was a large "Golden Clam." I am unable to find its name in the shell books, but it is at least three inches thick and four inches long and wide. We had taken a sandwich and fruit and when we finished shelling, we just sat on the cliff along the beach for an hour, with the moonlight on the water. The weather here is wonderful. Temperature in the mornings is around 50 degrees and it rises to 75-80F during the day with evernings at 65°. Wading in the water is comfortable. We will be moving on to Mazatlan, Sinara, Mexico, next Wednesday, February 9. After our stay hhere, we will let you know our finds there.

The following list comprises most of our finds at Guyamas:

Golden Clam	Fiscus ventricosa	Fusinus depetitthouarsi
Murex erythrostomus	Muricanthus nigritus	Oliva polpasta
Murex elenensis	Purpura patula pansa	Oliva incrasata
Oliva spreata	Conus regularis	Barbatia alternata
Agaronia testacea	Bulla punctulata	Glycymeris multicostata
Conus ximenes mahogani	Oliva spicata	Aequipecten palmeri
Pitar lupanaria	Chione gnidia	Donax carenatus
Conus princeps	Conus fergusoni	Turbo fluctuosus
Tagelus violescens	Patella mexicana	Crucibulum personatum
Turritella lentiginosa	Crucibulum scutellatum	Nerita scabricosta
Natica canoloensis	Strombus gracilior	Acmaea mitra
Acmaea pelta	Acmaea fenestrata	

Give our regards to all the gang at the next meeting!

MOLLUSCANA

by W. W. Sutow, M.D.

November 17, 1965

Conchologically, this was a most memorable day although the weather in Kyoto (Japan) was rather cool, cloudy and a bit drizzly. I spent the entire morning with Dr. Tokubei Kuroda in his study and library. After lunch, Dr. Kuroda guided me to the home of Mr. Akibumi Teramachi, the famed collector , whose name is honored on many rare Japanese shells.

Dr. Kuroda was 77 but he was as energetic, gracious and helpful as I remembered him to be when I last saw him 11 years ago. He has retired from active academic duties at Kyoto University. He was now busy writing the text for the Emperor's collection of shelled mollusks from the Sagami Bay (Tokyo area). Mrs. Kuroda had had a stroke some years back but she has regained much of her health. On the day of my visit Mrs. Kuroda was feeling particularly well.

Most of the conversation that morning centered around the famous slit-shells of Japan. Once considered extinct, now six of the eight known living species of the family Pleurotomariidae have been found in Japanese waters, four in the genus Mikadotrochus Lindholm 1927 and one each in the genera Entemnotrochus Fischer 1885 and Petrotrochus Fischer 1885 (see Shikama, T.: Selected Shells of the World, Vol. I). These are the survivors of a group of several thousand species that flourished millions of years ago. The shells have a characteristic slit which morphologically corresponds to the holes in the abalone shell. The animal possesses more primitive structures than other gastropods. The slit-shells are brought up by drag nets from the rocky bottom of the Pacific Ocean off Japan at depths of 50 to 100 meters. Mikadotrochus beryshii (Hilgendorf) 1877 was the first species found in Japan. The type specimen in Japan was destroyed by fire during the war. Mikadotrochus salmiana (Rolle) 1899 is not clearly identified and there seems to be some indication that this may be the same species as Mikadotrochus schmalzi Shikama 1961 (Venus 21:500, 1961). The relatively most abundant of these rarities is Mikadotrochus hirasei (Pilsbry) 1903. This shell is pictured on the 4-yen definitive postage stamp of Japan, first issued on 15 May, 1963. Specimens of Entemnotrochus rumphii (Schepman) 1879 do not exist in Japan; they have all been destroyed during the war. Photographs have been preserved and one is displayed at the National Science Museum in Tokyo (see photographs in Shikama, T.: Selected Shells of the World, Vol. 1 and in Venus 18:211, 1955). This species is the largest of the slit shells and has the longest slit, measuring up to 20 cm. Dr. Kuroda mentioned a sixth species, Petrotrochus teramachii Kuroda 1955 (Venus 18:211, 1955) but my notes do not contain details other than that it is quite similar to Petrotrochus africana (Tomlin, 1948).

The Teramachi home is not easy to find - and it is accessible only on foot. At one time Mr. Teramachi conducted his shell business from here but now he has relegated the commercial activities to a number of his associates. Years ago, Mr. Teramachi took up shell-collecting as occupational therapy during convalescence from a long illness. Quite soon he became addicted to the hobby. He saw the many rare specimens dredged up by the fishermen operating in the Tosa-Kochi area. For more than 10 years he spent all his available time with these fishermen. He went out on the long arduous fishing trips with them. He taught them to save the unusual specimens and organized commercial outlets for the shells. These activities led not only to the discovery of rare species but also to the world's introduction to such Tosa deep water shells as Mirabilis thatcheria, Mikadotrochus hirasei, Tibiaeformis teramachiae, Errones teramachii and many Latiaxis species.

The room in which we sat served as the den, waiting room and workshop for Mr. Teramachi. Books were stacked on the mat - Japanese books in one stack, non-Japanese books in another. There were boxes and boxes of seashells. The whole house seemed to be crammed full of these specimens - almost entirely of Japanese origin. Of more interest to me, however, were the tales of shell collecting (and of shells) that passed back and forth between these two veteran conchologists. A synoptic sketch of Japanese conchology spanning couple of generations and historical sidelights related to new and rare species were the inevitable results. Both agreed that collector interest recently had reached new heights and intensity in Japan, and that the available stock specimens of uncommon and rare species have dwindled markedly.

(To be continued)

WELCOME NEW MEMBERS: Mr. Allen Kight, Freeport, Texas; Mrs. W. S. Odom, Sr., Galena Park, Texas; Mr. Sidney Stubbs, Houston, Texas; Mrs. Sandra Runnels, Houston, Texas

Gulf Coast Shell Club of Beaumont has asked to exhibit March 19 and 20. Dorothy Kister at PA3-2494 has information regarding this show.

SPECIAL ANNOUNCEMENT TO CONCHOLOGY GROUPS

Ernie Libby has accepted a position with the Trust Territory of the Pacific Islands and will be moving to Saipan permanently. For that reason, we intend, within the next few months, to make final disposition of our portfolio "INTERNAL STRUCTURE OF SEA SHELLS", copies of which were first distributed about a year ago.

Until April 15, 1966, we shall accept orders from Shell Clubs for these portolios in lots of five or more at the cost (to the Club) of $1.75 each. Orders for less than five will be filled at the retail price of $3.00 each. After April 15, 1966, the portfolios will be removed from sale.

Please note the following change in address, effective immediately:

L-S Enterprises
(% W. W. Sutow)
3854 Palm St.
Houston, Texas 77004

Special note:

We also have a supply of incomplete portfolios which contain 8 prints each (2 prints missing). Since these can be sold to the general public at bargain prices during shell shows, we offer the incomplete portfolios at the cost (to the Shell Club) of $10.00 for the first dozen and $5.00 for each additional dozen.

A reference to one of the earliest malacological societies can be found in Vol. 2 of Basteria (1937, p. 64). During the years 1720-1726 a group of shell collectors in Holland came together regularly to admire each others new acquisitions and discuss and identify shells.

DIGGING FOR ANGEL WINGS
by Leola Glass

While walking on the beach at Rockport about two months ago I was surprised, and excited, to see syphons coming up through holes in the sand. No one had ever mentioned to me that Angel Wings could be found in Rockport. I rushed back to our boat for proper digging equipment. First, I donned waders so I could sit down and save my back. We had overlooked taking a shovel aboard, so I went to the galley to look through the utensils hoping to find something to use as a digger. I chose a 16" long wooden spoon; grabbed a bucket, and returned to the beach.

Sitting comfortably astride the largest syphons I could find, I began digging with my wooden spoon. It proved to be an ideal digger. I learned that I could dig smaller and smaller holes to only one side of the shell. Also it was less work to dig those that were away from the water, up to three feet from the water's edge. One hole I dug was 12" long, 6" wide, and 15" deep. Then, I got that size down to 8" by 4"; one hole turned out to be a circle 5" across. Since the digging was so easy and resulted in perfect shells, I dug away for nearly three hours, realizing that I might never do this again. The next two days I went back to the same spot and could see no sign of syphons - the tide was higher.

A very large and grand trophy now adorns the TV set in the home of the Harold Geis' and it is placed there for everyone to see as Harold was selected "Diver of the Year" by the Texas Gulf Coast Council of Diving Clubs and he is very proud of this award. He claims he is not a good swimmer, just an avid sheller. Harold is also president of the newly formed Oceanography Society in Houston.

An American export to Europe is Petricola pholadiformis. This species in general reaches a somewhat larger size in Europe than in the Western Atlantic. The Texas form of this shell is really tiny! It was probably transplanted to Europe (Essex, Gr. Br.) together with oysters (around 1890) and has spread from there into the North Sea during the last 50 years.

January 15th field trip to Boliver Peninsula was led by Harold Hahs and was well attended but shelling was rather poor as the tide was high. Live Dosinias were found by the Kisters, taken home and fried. The quahog beds were completely covered by water, so for the hunters of food the day was far from successful. However, live Thais were found along with a number of Arcas. Large red flags led the way for the shellers and it was easy to follow the trail blazed by Harold. But no trail led to the elusive Mitchelli sometimes found at the point beyond the garbage dump. The Gulf Coast Shell Club calls the garbage dump flats "Mitchell's Point" as a number of Mitchelli's have been found there by their members. All in all, we trust next year's field trip planned for the membership of the Outdoor Nature Club will greet us with better tides and more shells.

THE STORY OF THE HERMIT CRAB
by Kathryn Kirby

I am a little hermit crab and my home is the ocean, and my house is an empty sea shell. When I get scared I can pull myself way into my shell for protection.

One day when I was crawling around on the ocean floor, looking for a new house since mine was getting to small for me, I could feel the water starting to get rough. That's when I knew there was a storm and the ocean was angry and disturbed. The next thing I knew I was thrown upon the beach. I was very frightened of this strange new place and I wanted to go back to the sea, so I righted my little house and started on my way. All at once I had the feeling I was in danger so I pulled myself way into my home, hoping that whatever the danger was it would soon go away. The next thing I knew something grabbed me real rough and then suddenly my house and I were thrown down real hard on the sand. I didn't have any idea what would happen next, but I knew I had to try again to get back to the sea. Once again I righted my home and crawled wearily back towards the ocean and again I got that old danger feeling and back into my shell I drew. Something picked me up again but this time it wasn't rough. Then, I was put into some sea water, The next thing I knew I was taken out of that water and put in some more, in a large glass tank. It had sand and other empty shells, and other sea critters. I could crawl all around but I couldn't get out.

There was a pretty Murex shell lying on the sand. After trying it out I decided to make that my new home. I was beginning to get sort of lonesome, because there was no other hermit crabs around, but then one day something nice happened to my home. Another little crab was put there too. He tried to take my house but I told him to go find one of his own. Soon, he had a new shell, a pear whelk. His old house , like mine, was all broken up and too small.

The other day another hermit crab was put in our home with us. He is a distant cousin of ours. His house was a little rock snail, but he changed to a sharks-eye. He is a little pest. He is always trying to get into our shells and crawling all over us. I guess he wants to play, but I'm too old to play. Oh well, some day he will be too old to play and then it will be peaceful once again.

In this place where we live there are other sea critters. There are three Lightning whelks, some olive shells, an ear shell, sea anemones, sea pansies, a pink tellin, surf clams and some slipper limpets. I don't have to look for food for it is put on the sand and all I have to do is eat it.

I can't get back to the sea right now, so I will just have to sit back and wait and be happy with my new friends.

A force of about 33 pounds is necessary to dislodge the common Western European limpet from its substratum.

An easy way to dislodge limpets and chitons is to pour a few drops of pure alcohol around the base of the shell.

A tiny Nudibranch found in the Northwestern part of Holland, Corambe batava Kerbert 1886, may have been imported by Dutch trading ships during the 18th Century.

A beautiful black and white photograph of the five specimens of Conus gloria maris in the Netherlands can be found in Basteria, Vol. 3, (1). (1938).

The Tennessee River is one of the most remarkable in the United States. More than 90 species of fresh water mollusks live in the drainage; many species and several genera are endemic in this drainage (O. D. Schalie, Batteria Vol. 3).

Texas CONCHOLOGIST

Volume II: Number 8 April, 1966

NOTES & NEWS

April 27, 1966, regular meeting in the Lecture Room, Houston Museum of Natural Science. This is an important meeting as further details about our shell display in Shamstown Mall will be discussed. Plan to be in on the fun!

Dues are now payable for 1966-67. If you are a member of the Outdoor Nature Club dues are $1.00. Subscribers - $2.00. Make checks payable to:

Miss Flower Follett
421 Rittenhouse Rd.
Houston, Texas 77022

March 23, 1966, found Nat Sutow presiding while our chairman, Tom Alster, was out of town. Door prizes, given by Melba and Boyd Bridges, were won by:

Fred Wilson - Strombus raninus
Louise Bland - Stromous alatus

Melba gave us a brief summation of their six weeks' tour of Sanibel Island and the Bahamas. She promises to write about some of their experiences during that time. While on Sanibel, Melba and Boyd stayed in Marylou and Carlos Cardenal's beach home which is next to Helen Denny and when it was raining, Melba said she spent time in Helen's museum. Be sure to drop by Melba's Art de Mer and see the Bahama shells she was able to find.

A discussion was held about various shells the members brought and Mrs. Fred Allen had a nice display of brittle starfish. Dr. Pulley invited everyone downstairs to see the Museum's new exhibit of Gulf Coast shells. Mildred Tate is the owner and has given a number of her specimen shells to the Museum. The shells are labeled and are very beautiful.

WELCOME NEW MEMBERS: Mrs. A. N. Brandee
Mrs. Fred C. Allen
Fred Wilson, Junior member
Dr. Jack M. Renfrow
Dr. Alfred E. Leiser

Our sympathy to Mr. Bud Anderson, on the passing of his mother, Mrs. Louise Anderson and to Mrs. Raymond H. McDavid, on the passing of her father-in-law, Mr. Homer L. McDavid.

WHAT MEMBERS ARE DOING

Doris and Wyatt Odom Sr. are taking scuba lessons at the downtown Y. For better shelling, says Doris. Better watch this pair, they will scoop up all the goodies.

Melba Bridges and husband returned from a shelling and business trip to Florida and the Bahamas. They reported that Fla. was cold and raining throughout most of the stay. They were glad to get back to sunny Houston.

Ike and Anita Sheffield, our traveling members, are looking bert after a fabulous winter playcation south of the border. Will be off again to parts unknown real soon.

Mr. and Mrs. L. Dexter who went shelling at the southern extremity of Padre Island during the weekend of March 12-13, reported a second find of a live P. nebaticus. They picked it up at the most southerly tip of Boca Chica beach, where it crawled around on the mud at low tide.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode Mrs. Anne B. Speers

Fam. Lyonsiidae
Along the Texas coast this family is represented by a single species.

Lyonsia hyalina floridana Conrad 1849. This rather inconspicuous fragile little clam is apparently widespread along the Texas coast in bays and inlets. According to 14, alive in open bay margin environment and inlet influence environment at Rockport and in low salinity bay influence environment of the Laguna Madre.

Figured in: 1, 3, 4, 5, 6, 14.
Previous references: 11 (alive in Aransas Bay), 14, 15, 19, 20.
Localities: Virginia Point near Galveston (dead, coll. Ode). Indianola (dead, coll. Ode). Mudflats west of Palacios (dead, coll. Ode). Corpus Christi Bay, Laguna Madre, Port Isabel, last three alive (coll. Speers).
Remarks: Previous references to this species for Texas have sometimes been made either as Lyonsia floridana Conrad 1849 or as Lyonsia hyalina Conrad 1831 (see 1, 11).

Fam. Cardiidae
A large well known family of shells to which belongs the common heart shells of the Texas beaches.

Trachycardium muricatum Linne 1758. Single valves common on all Texas beaches. Living in hypersaline bay areas and inlets. Winter storms occasionally deposit live shells on Gulf beaches of Mustang and Padre Isl. (Speers). No live shells have been taken, so far, at Galveston, but very fresh material has been found at Sargent.

Figured in: 1, 2, 3, 4, 5, 6, 7, 14, 17, 21.
Previous references: 11 (alive), 12, 14 (alive), 15, 17, 19, 20, 24.
Localities: Dead shells common on all Texas beaches.

Trachycardium isocardia Linne 1758. This somewhat larger, heavier and more spinose species is rarely collected north of the shell beaches of Padre Isl. (Sargent beach, two valves, (Coll. Ode) and Matagorda 1 valve (Coll. Dexter). From Big Shell south, worn single valves are not unusual and occasionally fresh valves are found. A very few live specimens have been collected from the Gulf Beach by collectors in the Port Isabel area.

Figured in: 2, 3, 6, 7, 21.
Previous references: 11, 12.
Localities: Sargent, Matagorda, Padre Island, Port Isabel.

Dinocardium robustum Solander 1786. This genus is very closely related to Laevicardium (see 8). Single valves are common on all Texas beaches and on occasion live shells may be common on the Gulf beaches of St. Joseph, Mustang, and Padre Isl., especially after a storm. A notable drop in population occurred after hurricane Carla. At Galveston, where juvenile specimens are common in beach drift this is the most common Cardium. The species lives on the mud flats of Bolivar Point and San Luis Pass. Some specimens resemble strongly the subspecies Vanhyningi Bender, which replaces the usual form east of the Mississippi delta.

Figured in: 1, 4, 5, 6, 11, 17, 21.
Previous references: 11, 14, 15, 17, 19, 20, 24, 26.
Localities: Common on all Texas Gulf beaches and occasionally in inlet areas.

Laevicardium mortoni Conrad 1830. An uncommon shell at Galveston, but living in great numbers in bays near inlets from Port Aransas south, where dead shells abound in bay beach drift.

Figured in: 1, 4, 5, 6, 7, 11, 14, 17, 22.
Previous references: 11, 12, 14(alive), 15, 17, 19, 20(alive), 34.
Localities: Along entire Texas Coast in hypersaline bays but more common to the south.

Laevicardium laevigatum Linne 1758. This species, the egg cockle is rare at Galveston, where only fragments and a few old single valves have been found (coll. Ode). It increases in numbers to the south. Very fresh single valves with hinge intact may be found from Big Shell south, but at present, no records of live specimens from beaches are available. Reported living offshore in 26.

Figured in: 1, 2, 3, 4, 5, 6, 11, 21, 17, 21.
Previous references: 11, 14, 17, 19, 20, 26, 29.
Localities: Rare at Galveston, increasing in frequency toward the south.

Papyridea soleniformis Bruguiere 1789. Two worn single valves have been found at Port Isabel (coll. Speers). Reported offshore in 17, 18.

Figured in: 1, 2, 3, 5, 7, 21.
Previous references: None.
Localities: Port Isabel.

Microcardium spec. A single worn valve of this small genus was collected by A. Speers along the Port Aransas ship channel.

Previous reference: None for the beaches, but known offshore.
Localities: Aransas ship channel.

Remarks: Trachycardium egmontianum Shuttleworth 1856 has been reported from Galveston in 11. The following species have been reported offshore, mostly from calcareous banks assemblage.
Trachycardium magnum Linne 1758 in 18, 24 (Pleistocene)
Microcardium transversum Bender and Abbott 1951 in 18(alive), 19. (see also 42).
Microcardium peramabile Dall 1886 in 17 (common in mud along whole coast in upper continental slope) and 29.
Cyclocardia armilla Dall 1903 in 18.
Trigonocardia media Linne 1758 in 17 (rare along Texas coast, in sand on outer shelf) and in 31.
Laevicardium pictum Ravenel in 19.
Laevicardium fiski Richards 1954 in 17 (see also 42). It is not impossible that a single shell from St. Joseph Isl (coll. Ode) is this species.

REPORT ON THE BOLIVAR SHELLING TRIP OF MARCH 6, 1960.

About 30 people gathered with spades, garden shovels and other digging equipment at the mud flats of Bolivar near old Fort Fannin to dig clams at the exceptionally low tide, which was caused by the strong northerly winds of the previous day and night. Surprisingly enough not many live clams were found. Some Mercenaria campechiensis, Dinocardium robustum, Spisula solidissima similis, Ensis minor, Polinices duplicatus, a single live Atrina seminuda, and a few more of the common but smaller

bivalves were dug up, such as Mulinia lateralis and Tellina iris. The best find here was undoubtedly two live specimens of Pandora trilineata, one of which was found by Mrs. Bender from Port Arthur and the other by Patsy Kister. Several old valves of Pandora were picked up in the beachdrift at the old fort. The drift there is quite remarkable because a large percentage of it consists of dead valves of Siphonaria. A large beautiful valve of Tellidora was also picked up here. Interesting was a dead and half digested Octopus which was cut from the stomach of a large fish by Tommy Kennedy and Jan Ode'. Disappointing was the almost total absence of any live gastropods.

The shelling at the beach near the dump proved also disappointing in spite of the large exposure of the tidal flats. Live Dosinia discus and Tellina alternata were taken here, together with a few Tellina iris and some Epitonium angulatum. Every where on the outer sand bars, which are usually covered by water, were live sand dollars, hairy and pinkish at the base. They are found easily in the sand by the pattern of some disturbances which correspond to the pattern of holes in the test of the animal.

Later in the afternoon your reporter went for a quick visit to the other side of the pass on Galveston Island. There were some live Spisula solidissima cast on the beach. The find of the day however, was a single but fresh valve of Isognomon bicolor, a species which to my knowledge has not yet been collected before in the Galveston area. Further interesting shells here were Macoma aurora -- dead shells of this species are always found at the locality -- and a Turbonilla species which I cannot place.

SEAHARES IN TEXAS

In the last issue of "Natural History" (March, 1966) is an interesting article, entitled "Grazing Mollusks in the Weeds" by David Linton. The grazing mollusks are seahares, which are well known along the southern end of the Texas Coast, from Aransas Bay to Port Isabel, but which to my knowledge have rarely if ever been seen in the region around Galveston. The large color photograph accompanying the article gives a good impression of the looks of these remarkable animals. It shows the lack of an external shell, although an internal structure is present. When lifted out of the water the animal is less slimy than one would expect and surprisingly more muscular and resilient. Less than 5 species (2 genera) have been reported for Texas, but it [illegible] that some names are synonymous. Reed (1941) was probably the first to [illegible] these animals (Marine Life in Texas Waters) and listed them as Thetys floridensis Pilsbry, with the remark "frequently taken in nets". Whitten et al. (1950) list Thetys spec. with the note: "occasionally large pelagic nudibranchs are found on the jetties after storms. They are also taken in the bays and while uncommon are found frequently enough to have earned the popular name "ink fish" among fishermen." The connotation with inkfish results from the animals ability to eject a secretion into the surrounding water, which clouds its immediate neighborhood with a purplish color.

Another author, Gunther (1950) mentions Thetys spec.: "one specimen was taken in a trawl in the Gulf at the whistling buoy station 5 miles offshore". A find so far offshore suggests a pelagic mode of life. According to Linton: "Aplysia (the generic name now used instead of Thetys) feeds entirely on seaweed and are thus confined to the littoral and sublittoral zones where seaweed grows." It would be interesting to know exactly how far Aplysia can occur from the shore line.

POLINICES HEPATICUS

At the Shell Show in Port Isabel a specimen of Polinices hepaticus (syn. P. brunneus), obtained alive near Corpus Christi, was awarded the Ann Speers award. The live occurrence of this species proves once more that references to several "exotic" species in the literature are not always caused by faulty identifications or mistaken localities. Polinices brunneus was first catalogued by Dall for Texas in his famous list of mollusks occurrences for the Western Atlantic. It is possible that material which Dall classified as being from Texas in reality came from Mexico and thus his reference to P. brunneus is somewhat uncertain. This reference was later repeated by Johnson. In 1940 Reed however listed P. brunneus for Texas. Although there are several obvious errors and misidentifications in Reed's faunal lists, it is remarkable that P. brunneus occurs in it, since it can hardly be confused with P. duplicatus. To my knowledge all Reeds references are based on material actually collected by him. Thus it is quite possible that Reed was one of the first to collect and report P. brunneus for Texas. In the past, dead shells have been rarely found but until now no live animals were collected in Texas waters.

MOLLUSCANA

by W. W. Sutow, M. D.

Over the years, Cypraeidae (cowries) have remained one of the most popular family of seashells among the collectors, both beginners and veterans. How many valid living species of cowries are known? This question will disturb the expert because there is controversy among the malacologists over some species designations. Donohue (Cypraea: a list of the species, Veliger 7:219-224, 1965) examined this problem in an interesting manner. He compared the list published by Schilder and Schilder (Maxima and minima in cowry shells, Hawaiian Shell News 12:6-8, 1964) with that compiled by Wagner and Abbott (Standard Catalog of Shells, Van Nostrand, Princeton, 190 pp., 1964). Donohue reported that both sets of authorities agreed on 142 species. The Schilders recognized 18 other species not recognized by Wagner and Abbott. Conversely, Wagner and Abbott gave species designations to 18 cowries not recognized as species by the Schilders. There were, in addition, 29 "controversial" species each of which at one time or another had been given species status. These add up to a total of 207 including the "non-controversial"! "provisional" and "Controversial" classifications. Since the publication of their book, Wagner and Abbott have distributed an addendum which altered a few of the listings in the cowry section.

The next few paragraphs could well be entitled "the birth and death of a meaningful display for a shell show". The idea came to mind as I thumbed through the pages of "Shells of the World in Colour, I. The Northern Pacific" by Habe and Ito, the first of a new series of Japanese books. What species of mollusks are common to Japan and the West Coast of the United States?

I visualized a display panel that would show the geographic arrangement of land and sea masses in the area. A chain of islands arch across the Northern Pacific. The Japan current sweeps up the eastern coast of Asia and down the western coast of North America. I had personally collected seashells from parts of Japan and the California coast. Through exchanges, I had obtained more seashells from Alaska and from our Pacific Northwest. Surely, I thought, one could get together a number of specimens of species common to both shores of the Pacific Ocean.

Kuroda and Habe's "Check-List and Bibliography of the Recent Marine Mollusks of Japan" was the next step. Sure enough, listed as reference No. [illegible] was a very pertinent article by A.Myra Keen (Molluscan species common to western North America and Japan, Six Pacific Sci. Proc., pp. 479-483, 1941). I wrote to Miss Keen and she kindly sent a reprint. What an eye-opener that turned out to be.

Apparently, conchologists and paleontologists had long pondered the same question. J. P. Smith (1904), Dall (1921) and Nomura and Hatai (1936), among others, have commented on the identical forms of Tertiary and recent species that seemed to have bridged the deep channel between the Aleutian Islands and Kamchatka. Dr. Keen took published Japanese catalogues and made a list of molluscan species whose type localities were east of the Aleutian Islands. From American catalogues a list was made of species whose type localities were west of the Aleutian Islands. This resulted in a total of 66 species thought by one authority or another to be common to Japan and America. She then obtained, for study, specimens from both countries for as many of these species as possible.

Many reports of occurrence of identical species could not be confirmed on examination of the specimens or other evidence. It was concluded that only 5% of the molluscan fauna of the Bering Sea area extend southward to both Puget Sound and northern Japan. Of the Japanese and California fauna only about 0.1% range the entire distance and less than 0.2% occur in Japan and California while skipping Alaska. Considering the rarity of many of the species in one or both countries, it would have been an impossible undertaking to obtain a significant number of specimens for a meaningful exhibit. Thus, another idea was buried.

In a recent article ("Introduced mollusks of western North America", Occasional Papers of the California Academy of Sciences, No. 48, 108 p., 1966), Hanna discusses the types of species that were transplanted, either accidentally or purposefully, to the Pacific Coast from other areas. Of the marine species of shelled mollusks, some have become the basis of shellfish industries such as Ostrea edulis from Europe and Ostrea gigas from Japan. Crossostrea virginica from the east coast (U.S.) apparently did not fare to well. Mya arenaria, the soft-shelled clam, seems to have gained footholds in various parts of the western coast. Paphia philippinarum, a Japanese cockle, may have been accidently introduced but is now found in abundance on many California beaches. Mercenaria mercenaria, the hard-shelled clam favorite of our Atlantic coast, has found hard going on the western side. Of interest are the studies of other molluscan species that are accidentally introduced with seed oysters. In one shipment from Japan, 12 other live molluscan species were identified. While the introduction of destructive and undesirable mollusks (including land species) creates economic and health hazards, the successful establishment of other species may confuse later taxonomic investigations.

The Gulf Coast Shell Club of Beaumont had their 4th Annual Shell Show on March 19 & 20. There were about 85 entries from all over Texas and Louisiana. Some of our Houston members came up and we enjoyed having them at the Dutch Treat supper. Some of the Houston members won ribbons.

Joe Varnado - - - - - -	1st in Dredge
	2nd in Regional
James & Myrtle Bender- -	1st in Self Collected
	2nd in Family
	1st in Shell Craft
The Robert Fraziers - -	2nd in Genus
	2nd in Flotsam-Jetsam
Madeline Merren- - - - -	1st in Cones
	2nd in Tridacna
Mildred Tate - - - - - -	Award of Appreciation for displaying Golden Cowrie
	Shell of Show - for rare dredged Lima
	1st in Genus - Tibias
	2nd in Educational display
Louise Bland - - - - - -	1st in Educational
	2nd in Jewelry
	Honorary on Shellcraft
Mike LeRoy Bland - - - -	1st in Junior Div. for collection Murex
	2nd in Education
	2nd in Sealife
	2nd in Spondylus americanus

Biz Awards:

Anna Mae Bishop - - - -	The Philadelphia Accademy Award
Mrs. W. K. Womack - - -	Ferriday, La. Best Collection
Grace Varnado- - - - - -	Gulf Coast award. (This is done by secret ballot among the members for a member who has done something to help the club grow.)
Mildred Tate - - - - - -	Shell of Show award

A HYMN TO THEM

Dedicated to the Conchology Group by Buzzy Sutow and Patsy Alster. (Sung to the tune of "Dona")

On a four-wheel drive
Bound for Galveston
There's a group that we all know well,
And the reason that they are going there
Is to look for a rare seashell.

Chorus

How the people are laughing
They laugh at what they see
They are laughing at my dad
And now they're laughing at me.

Mitchel eye, Mitchel eye, is my cry
Mitchel eye, come to me, I plea
Mitchel eye, Mitchel eye, Mitchel eye
Won't you come to me?

Verse

Now they're on the beach
Mentally out of reach
With their nose buried in the sand.
Some coming from a wreck
In water to their neck
With one shell clutched in their hand.

Chorus (repeat)

On a sandbar, we are going far
We have left the other men
When we lift our eyes, much to our surprise
The tide is flowing in!

How fast we run for shore
We run with all our might
Even though our feet are sore
We don't want to sleep here tonight!

How the water runs with us
It's running on our right
On the left, in front of us
Oh, well, we stay here tonight.

As they leave us there
They don't seem to care
If we live or if we die.
What they do not know
As they turn and go
We've found a bed of Mitchel eye!

Now the people won't laugh at us
They won't laugh at Dad or me
When we sell our Mitchel eye
We'll be rich, wait, and see.

Mitchel eye, Mitchel eye, was our cry,
We did what they thought we couldn't do.
Mitchel eye, Mitchel eye, Mitchel eye
We found quite a few of you.

The End

Texas CONCHOLOGIST

Volume II: Number 9 May, 1966

NOTES & NEWS

May 25, 1966, our final meeting until August 24, 1966. Dues are payable at this time. Sharpstown Shell Exhibit will be the topic for discussion. Bring ideas for next year's meetings.

The regular April meeting was held Wednesday 27 at the Houston Museum of Natural History. Ray Covey, photographer with The Houston Post, was on hand to take publicity photos for the shell exhibit. A picture of Judy and Colleen Fennessy, Helene's daughters, and Tom Kister appeared in the Sharpstown Center Supplement of the May 5 edition of The Houston Post. Although, Carlos Cardeza was on his way to Florida (Sanibel Island, naturally), his artistic signs for the exhibit were on display. The meeting was mostly a discussion and planning session for the shell exhibit. We were able to view and discuss shells brought by members for publicity photos as well as shells brought either display or for sale at the shell exhibit. Among these shells was an array of tellinas by Connie Boone; a large lightning whelk and helmet by Patsy Kister and various cowries from the Marshall Islands by Helene Fennessy .

May 10 was the last meeting of the season for The Outdoor Nature Club and skits were presented by the various subgroups. "The Houston Texas Junior Conchologists affiliated with the Conchology Group of the Outdoor Nature Club of Houston Folk Singing, Guitar Playing and Miscellaneous Activities Project" presented "A Hyme to Them" an original song to the tune of "Dona". The composers, Patsy Kister and Buzzy Sutow sang with Buzzy playing the guitar. The song, based on their quest for the rare Amae Mitchelli and backed up by a photograph of a two foot (?) specimen, was well received.

The editor and staff of the Texas Conchologist wish to thank all subscribers and members who contributed their time and effort to make our paper a success in its second year. The blank spaces in our recent editions are due to Ernie Libby's departure and we do need more news items, ideas, pictures, etc., to fill the voids. ANY TAKERS????

We regretfully say goodbye to Fern Heinke, who is leaving our staff due to Jules' recent illness. Louise Bland has volun teered her services in this capacity and we welcome her gratefully.

"ITS THE LAW"

Florida's queen conch, Strombus gigas, may be taken only for food, so if you are vacationing in the Keys this summer be sure to include a recipe for conch stew, soup or some other dish featuring this famous Florida delicacy.

Conus geographus Linne has been known to have killed at least six people in the past six years.

DON'T FORGET TO PAY YOUR DUES!!!!

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode Mrs. Anne B. Speers

Fam. Trochidae

This large tropical family of snails (Top shells) is represented on Texas beaches by only two species.

Tegula fasciata Born 1778. Dead shells are common around Port Aransas and Port Isabel. A single worn fragment, which probably is this species, was obtained from beach drift at Galveston. In spite of diligent collecting, no live specimens have ever been taken by us although we have a report that Mr. Paul McGee once obtained a live specimen at Port Aransas.

Figured in: 1, 3, 5, 6, 7, 11, 14, 17.
Previous references: 11, 14, 17, 19, 34.
Localities: Galveston (very rare), Port Aransas, Port Isabel.

Calliostoma euglyptum A. Adams 1854. After hurricane Hilda (Oct. 1964) a number of live shells was collected by various collectors at Port Isabel on the Gulf Beach. Dead shells were known previously from the area. Once a large fresh fragment was collected at the jetty in Port Aransas (coll. Ode). according to (11) offshore.

Figured in: 1, 4, 5, 6.
Previous references: 11.
Localities: Port Aransas, Port Isabel.

Remarks: Many other species have been mentioned for Texas offshore waters in various publications. A list can be compiled from: 11, 12, 17, 18, 21, 29.

Fam. Ostreidae.

So far two species of oysters have been found in Texas; one is the large common commercial species, which prefers a higher salinity than the common one (see ref. 45, 46, 50).

Crassostrea virginica Gmelin 1792. This species is common in all bays where it forms "reefs." Abundant immature live specimens on most jetties. Beach specimens are seldom found alive. According to 17, abundant in low salinity oyster reef assemblage. Only found in surface waters of open Gulf (46).

Figured in: 1, 2, 4, 5, 6, 11, 17.
Previous references: 11, 14, 15, 16, 17, 19, 20, 22, 23, 27, 29, 31, 45, 46.
Localities: Abundant along entire Texas coast.

Ostrea equestris Say 1924. The differences with the previous species have been extensively discussed in 45. This small oyster invades the bays during years of high salinity (46). It sometimes is found alive on the beach, attached to other shells. When fresh, some shells have a peculiar greenish cast. According to 17, abundant in high salinity reef assemblage. Many live specimens can be collected at Port Aransas and Port Isabel.

Figured in: 1, 6, 7, 46.
Previous references: 12, 16, 17, 19, 20, 45, 51.
Localities: Common along entire Texas coast.
Remarks: It is doubtful that Ostrea frons Linne 1758 occurs in Texas. It has been taken among the fouling organisms of oil drilling platforms off the Louisiana coast (46, 53).

Pycnodonta hyotis Linne 1758 has been reported from offshore coral banks in (17) and (18).

Crassostrea rhizophorae Guilding 1828 has been found dead in offshore deposits, which were dated about 3200-3600 B. P. (37).

Fam. Eratoidae.
In Texas, only one species which is rarely found south of St. Joseph Isl.
Trivia suffusa Gray 1832. In a previous issue of the Texas Conchologist (Vol. 1, (2)), This species was reported from near Port Aransas. Since then several other reports have reached us concerning dead shells of this species from Texas beaches. In February, 1965 a large but broken specimen was collected at Port Isabel (coll. Odé).

Figured in: 1, 3, 5, 6, 7, 31.
Previous references: 18 (on offshore banks), 22.
Localities: St. Joseph Island, Port Aransas, Port Isabel.
Remarks: Erato maugeriae Gray 1832 has reported in 18 (dead on offshore banks).

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MOLLUSCANA

by W. W. Sutow, M.D.

For the gourmet with molluscan tastes, Japan offers a tantalizing array of exotic dishes. I had resolved strongly to "try them all". It started the first day of the convention - at the hotel "sushi" - bar. The place was crowded but we squeezed into a corner around a knee-high table. While my Japanese colleagues pored over the menu, I gave my simple order: "Bring me everything prepared from mollusks". What a meal that turned out to be!

The preparation of the food was done in full view. A "sushi" was a bite-sized ball of rice on top of which was placed a piece of shellfish, fish or other "goodies". With traditional, rhythmic movements the proprietor molded the rice to just the right shape and size. A dab of fresh horse-radish, a couple of squeezes and with a flourish each "sushi" was placed on the plate. Before lunch was over, I had consumed such molluscan items as: Octopus vulgare, Schizothaerus keenae, Haliotis discus hannai, Meretrix lusoria, Atrina pectinata japonica, Sepia esculenta, Anadara broughtonii and Fulvia mutica.

In subsequent epicurean forays, I added to my score the following: Tapes japonica, Crossostrea gigas, Solen strictus, Crossostrea nippona, Loligo edulis, Corbicula japonica, Patinopecten yessoensis, Turbo cornutus, Spisula sacholinensis and Omnastrephes sloanei pacificus. As I re-read sections of "Stalking the Blue-Eyed Scallop" by Euell Gibbons, I sense a need for a companion volume that will capture the simple artistry and expertly emphasized flavors of Japanese molluscan cookery.

November 7, 1965

It took a while for the television picture to register. When it did, the spoken commentary began to make sense. This was a Sunday in Tokyo but I was looking at the bottom of the sea. The mound in the center of the picture suddenly moved. Several smoke-like trails spiraled upward through holes which became identified as the pores in the shell of a living abalone.

The photography was beautiful, technically superb - and became even better. The program concerned the birth of the abalone. Five meters deep, under water, the male abalone emitted puffs of cloudy material until the surrounding sea became murky. The cloud spread out and eventually reached other abalones. The female mollusk then released its eggs - minute, purplish, about 50,000 of them. Fertilization occurred in the water.

Then followed a sequence of micro-photographs that were truly spectacular. In 8 to 10 minutes, the fertilized ovum had begun to divide, becoming 2-celled in 100 minutes, 4-celled in 120 minutes. After 13 hours the many-celled embryo began to move, in a circular spinning fashion. It soon became free-swimming and by 20 hours the shell began to form. In 3 days the shell attained a coiled appearance and the internal organs had developed.

Feeding on microscopic food supplied abundantly by the environment, the abalone had become 0.3 mm (1/100 inch) at 10 days. The foot had developed and the creature now definitely resembled its parents - shell and all. By then, it had settled to the bottom of the sea and had begun to crawl about the surface of its anchorage. Moving, eating, growing, the abalone reached 1 mm size (1/30 inch) in 30 days. It was on its way toward the adult size of 4 to 5 inches some 5 years in the future.

November 29, 1965

Before I left on this trip, Ernie Libby had wondered if the Japanese had succeeded in getting the octopus to hatch and grow to maturity under artificial conditions. He wanted some specific information. My initial inquiries failed to elicit anything more than a list of names of those who "might know". These references came from the National Science Museum and from Dr. Kuroda so that I was pretty well resigned to accepting as fact the paucity of productive research in this area.

Several weeks later, on the day before my departure from Japan, I opened one of the newspapers - and there was a half page spread, in colors, of several baby octopuses swimming. It was a lengthy headlined report of the first successful culture of the cephalopod outside its natural environment. Since octopus in Japan is a popular food item, the event was of economic significance.

I brought the newspaper back and with proper dramatics I presented it to Ernie. Ernie was skeptical and wondered out loud if I'd had the article printed at some "fun shop". It took a while to convince Ernie that this was the real thing and that the timing of the news release merely fortuitous. Ernie's reading knowledge of Japanese was extremely limited, so I had to do some translating.

The report summarized the results of a four year study on the growth and development of the octopus. The work was done by Kozo Itomi at the Hyogo Prefectural Marine Experimental Station. Previous attempts to "grow" these cephalopods had all been unsuccessful. After birth, when the baby octopus is 3 mm (one tenth of an inch) long, each creature will tackle 10 mm sized plankton for food. At one feeding, the baby octopus will consume food totalling seven times its body weight. At this stage the octopus has stubby, short, fat tentacles. By the 20th day, the number of suckers on each tentacle will have increased to 12 and the animal is 7 mm in length. The octopus does not feed (in fact, it will starve to death) in bright light. It does well, however, in partial darkness where the light intensity is equivalent to that found about 10 meters (33 feet) below sea surface. Of 300 hatched, 18 survived 40 days and 7 of these reached the adult size of 1.6 kg (3½ pounds) and 40 cm (16 inches) in length. Mortality has continued high. In later studies, of 5,000 hatched only 20 or so survived. Most of the animals that died did so around the 20th day.

Thus ends the final installment of the chronicle of my trip to Japan.

(The End)

Some months ago, the manuscript for this column included a paragraph on books, listing those references which, in my opinion, would be highly desirable to have in the library of a serious beginning collector. Unfortunately, the paragraph got in the way of editorial scissors and was cut off. It has been my experience that all too often the quality and quantity of the shell collection do not correlate well with the adequacy of the collector's library. Discussions of books and literature, therefore, seem quite pertinent. The compilation of any "recommended book list" is biased by the author's prejudices and his interests but it does serve as a good starting point. Here are my choices for the first ten, alphabetically arranged:

1. Abbott - American Sea-shells
2. Abbott - Sea Shells of the World
3. Allan - Australian Shells
4. Allan - Cowry Shells of the World Seas
5. A. M. U. - How to Collect Shells
6. Indo-Pacific Mollusca (continuing monograph series)
7. Johnsonia - (continuing monograph series)
8. Keen - Sea Shells of the Tropical West America
9. Kira; Habe - Shells of the Western Pacific in Color (2 volumes)
10. Shikama - Selected Shells of the World Illustrated in Colours (2 volumes)

"SALLY SAW SEASHELLS AT THE SHARPSTOWN SENTER"

And so did Tom, Dick and Mary as our Conchology Group presented their first public exhibit of sealife from the present to one million years old. The exhibits were planned to attract interest in the wonderful world of the sea, and not for competition among members; however, had we been in competition, it would have been difficult for the judges to have awarded blue ribbons as each display was a winner. Scene stealers were the live exhibits. People were standing three or four deep around the live tanks watching animals they probably had never seen before. Our special thanks go to Harold Geis, Doris and Wyatt Odom who arranged the live displays. The day before the big event, Harold and Wyatt started searching for live mollusks and much to their dismay, found tides running extremely high for this time of year. Galveston Bay was their first stop and they were able, by feeling around with booted feet, to locate oysters in about 18" of water. Angel wings were dug in about 6" of water and quahogs found with no trouble whatsoever. Mussels, usually out of water, were covered and had to found by groping around among the grasses. Periwinkles favored the searchers by being high on the grasses and on the rocks. The Bureau of Commercial Fisheries in Galveston, located in the old Fort Crockett Buildings along the sea-wall, was contacted and Harold was able to borrow "Oscar the Octopus", two horse conchs, a tulip and a few anemones. These had been dredged at depths from about 50 to 100 feet and kept alive in the Bureau's experimental tanks. Salt water was also furnished by the Bureau, and this had been filtered, tho at times noone could see "Oscar" as he often hid himself in his "Tun" home after expelling the ink he uses for protection. Incidentally, the Bureau welcomes visitors.

The Odoms furnished two twenty-gallon aquariums and Harold built an "on-the-spot" tank of wooden planks and lined with four layers of heavy plastic.

The general chairmen of our exhibit, Harold Geis and Tom Kister, wish to extend their most sincere appreciation to Carlos Cardeza who was responsible for the schedule and very "professional" posters. Carlos did all this while he and Mary lougot ready for their annual trek to their summer home in Sanibel, Fla. Special "thank-yous" go out to the following people who helped make our show such a big success: Mr. John Edstrom for his invitation to exhibit in Sharpstown; The Houston Post for advance publicity; Leola Glass with her group of tireless workers who spent hours on Kisters' patio, sacking, cleaning, sorting and oiling shells for the shell store. Leola also arranged and assigned space for all exhibitors. Connie Boone for excellent coverage of hourly workers; Mildred Tate who gave specimen shells and all others who donated their "extras".

Thank-yous are in order to the members who set up exhibits on Thursday evening and during most of Friday and Saturday were present to give explanations:

Art de Mer	Melba and Boyd Bridges
Pollution in Harris County by Dr. Walter Quedebeaux	Bob Douglass
Map - Shell Fish - Harvesting Areas	Tom Kister
Pleistocene Shells	Dr. Louis Brand
Flotsam and Jetsam	Patsy Kister
Jr. Education	Mrs. L.A.M. Barnette
Fossil Shells	Miss Flower Follett
Abalones	Louise Bland
Texas Sea Shells	Girl Scout Troop 247
	Jeane Dashiell
Murex Shells	Mike Bland - Jr. Member
Echinoderms	Susie Kister " "
Bahama Shells	Maudeen Marks
Spondylus	Mike Bland

Conchologist	Helmer Odé
Microscopic Shells	Helmer Odé
Live Clams and Snails	Harold Geis
Gastropods	Dorothy and Tom Kister
Mollusks on Stamps	Wat Sutow
Money Cowries	Wat Sutow
Edible Clams	Harold Geis
X-Ray pictures	Wat Sutow
Echinoderms	Jean Dashiell
One Day's Shelling	Jean Riddle
Echinoderms	Leola Glass
Indio-Pacific Shells	Fred Wilson, Jr. Member
Jewelry	Fern Heinke
Rocks or Shells	Dorothy Kister
Colors and Designs in Texas Shells	Connie Boone
Fresh Water Clams	Connie Boone
Texas Crabs	Doris and Wyatt Odom
Handicraft of Marshall Islands	Helene Fennessy
Aquariums featuring "Oscar" the Octopus	Doris and Wyatt Odom
Scuba Equipment	Village Sporting Goods
Texas Gulf Coast Shells	Lawrence and Anella Dexter
Cuban and Philippine Tree Snails	Dorothy Kister
Clams	Dorothy Kister
Shell Ecology	Buzzy Sutow
Pacific Shells	Dr. Louis Brand

Other members busy at the show included Mrs. Sandra Runnels, Mrs. Mary Sutow, Mrs. M. J. Lanahan, Mr. Sidney A. Stubbs, Mr. Bud Anderson and Mrs. W. C. Woods.

Three flower arrangements using shells were presented by:

Miss Dixie Harris
Mrs. Charles Francis
Mrs. Charles Duran

This list could go on and on and if we failed to mention anyone, please forgive us. This show could not have been the success it was without every member pitching in and doing his or her share. Again, may we say a simple "THANK YOU" everyone.

The Tom Pulleys and the John Edstroms were honor guests at our Dutch-treat dinner after the closing of our show on Saturday evening. Dr. Pulley was responsible for the cases a few of us used in our displays. It was agreed by everyone who attended to "do it" again next year, so start thinking ahead and while shelling this summer, be sure to set aside extras for next year's big event. Incidentally, start bringing in those cleaned, extras to our future meetings, we have a place for them.

The books listed on page 6 of this issue are indispensable to any shell collector who wants to understand his shells. Not only are the figures in most of these books of high quality, but the text is written by outstanding authorities in the field.

AN UNUSUAL OCCURRANCE OF DIPLOTHYRA SMYTHI

The oyster piddock, Diplothyra smythi, which occurs commonly along the Texas Coast, is usually found boring in the thickest part of the valves of Crassostrea virginica. For this reason it has been classified in several papers in the last ten years as a member of the oyster reef community. Not only are the valves of Crassostrea vulnerable to its attack, but also quite often old Mercenaria shells are found riddled with holes left by the piddock. Apart from bore holes in Crassostrea and Mercenaria, I have found Diplothyra in shells of Thais haemostoma, Murex fulvescens and Echinochama arcinella, all shells which have parts of sufficient thickness to allow a hole to be bored in them. In Turner's paper in Johnsonia, Diplothyra is also mentioned from Pleuroploca. More unusual than these occurrences are those in which the animal has bored into rock. At High Island and Sargent occasionally beach pebbles of rather soft shale can be found in which Diplothyra has embedded itself. However, the most unusual occurrence of all came recently to my notice. Turner states in Johnsonia that the occurrence of Diplothyra in wood needs confirmation. At least one case can be reported. In checking through my collection I came upon a lot of large specimens of Diplothyra, which was mislabeled Martesia cuneiformis. The reason for this error must have been the fact that these shells, which were all dead at the time of collection, were extracted from a piece of wood, picked up on St. Joseph's Island.

by
Helmer Odé

If you look forward to more shelling hours in the summer than winter, count on looking for low tidal hours and on doing more wading to gather your shells. Don't overlook the grassy areas in the bays. Try filling a crab net with nylon net and seining through grasses and shelly muck in the bays to find many small specimens. Frequently beginners neglect the jetties and pilings as collecting areas. Many kinds of shells live in the tidal pools or attached to rocks or wood. Many shellers haunt the dunes and dig the debris piled at fence lines. The shells may be old but some prizes can be found. The point is--you can shell successfully during the summer months. Roaming the beaches, digging and wading are all really a little more pleasant when it isn't so cold and miserable! You may also develop an interest in bringing your specimens home alive in salt water. There is much to learn from the live animal.

by
Connie Boone

DON'T FORGET TO PAY YOUR DUES!!!!!!!

Texas CONCHOLOGIST

Volume III: Number 1 August, 1966

NOTES & NEWS

August 24, 1966, 7:30 p.m., our first meeting of the new season in the Houston Museum of Natural Science. Dr. Wat Sutow, our new program chairman, has promised us an exciting evening with Ernie Libby via slides and shells from Saipan.

Amid the soft hootings of two owls, one large and one small, Connie Boone and Wyatt Odom led a discussion on salt water aquariums at our May 25 meeting. Tom Kister gave a report on our scccessful shell exhibit in Sharpstown. It was decided to join the American Malacological Union and to write a letter of inquiry to the Coastal Bend Shell Club of Corpus Christi regarding their invitation to be guest hosts at the A.M.U. meeting to be held in that city in 1968. Carlos Cardeza was a surprise visitor from Sanibel Island.

Harold Geis has been scuba diving in the Port Mansfield area lately and this time searching for a Spanish Armada, according to the Corpus Christi Caller, however, Harold claims everyone but the weather cooperated and so the sleeping armada is still at rest on the floor of the Gulf.

Welcome: Mr. Harry B. Short - Houston, Texas.

Seaweed is once again prevalent on our Gulf shore line and Mildred Tate suggests shaking it while still fresh for small sea life. Mildred has sent word that the Brazosport Youth Museum, 101 This Way, Lake Jackson, is open and she would like to have everyone drop by for a visit. Too, she would like to borrow or trade deep water specimens for land snails to use in a special exhibit case. Anyone interested write to her at

211 Huisache
Lake Jackson, Texas

ECHINODERMS - Benefits to Man:

Germ-killing drugs are produced by some sea-cucumbers.

Some echinoderms are eaten as food.

Sand dollar eggs are hatched by scientists to study growth processes.

AHOY THERE! This is your paper! Put your ideas, thoughts, etc. in writing and send them to any member of the editorial staff before the first of each month. The more features we have, the better the paper.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode Mrs. Anne B. Speers

Fam. Retusidae

So far only two species of this world wide family have been found in Texas.

Retusa candei Orbigny 1842. Although it has been suggested that this species represents a form or southern race of Retusa canaliculata Say, other investigators (49) claim that both species are different even on a generic level. Dead shells are found on all Texas beaches. Live specimens on the mudflats of San Luis Pass (Galveston Isl., coll. Ode), Port Aransas and Port Isabel (coll. Speers). Acc. to (17) common but rarely alive in enclosed lagoon or interreef assemblage and open sound assemblage.

Figured in: 3, 6, 7, 11, 17.
Previous references: (all to R. canaliculata): 11, 14 (alive, 15 (alive), 17, 19, 22, 51.
Localities: Common along entire Texas coast.

Rhizorus acutus Orbigny 1841. So far only collected at Port Isabel (coll. Speers, Ode) from beachdrift of the Laguna Madre; it is rare.

Figured in: 1, 6, 11.
Previous references: 12 (offshore), 18 (offshore).
Localities: Port Isabel.
Remarks: Other species reported offshore are:
Retusa frielei Dall 1881 (listed by Dall in 11).
Pyrunculus caelatus Bush 1885, (listed in 18).

Fam. Dentaliidae.
Many species of this large family have been described. From Texas beaches so far only two species have been identified with certainty.

Dentalium texasianum Philippi 1849. This is a common Texas beach shell. Dead specimens occur in beach drift along the entire Texas Coast. Collected alive in "inlet influence environment" at Rockport (14). According to 17, common in stiff sediments in inlet and deep channel assemblage. Has been dredged alive in Aransas Bay (Speers).

Figured in: 1, 4, 6, 11, 14, 17.
Previous references: 11, 14, 15, 17, 19, 20, 24.
Localities: Dead shells common along entire Texas Coast.

Dentalium eboreum Conrad. This species is quite common south of St. Joseph Island but very rare at Galveston. (a single worn spec., coll. Ode). A few live specimens have been collected on Mustang Island (Speers).

Figured in: 1, 4, 6.
Previous references: 19, 23.
Localities: Galveston (rare), common south of St. Joseph Island.
Remarks: Also reported or listed for Texas are:
Dentalium carduum Dall 1889 in (22).
Dentalium gouldii Dall 1889 in (11).
Dentalium sericatum Dall 1889 in (22).
Dentalium callipeplum Dall in (19).
Dentalium laqueatum Verrill 1885 in (18), dead on offshore banks.

Fam. Chamidae

This remarkable family of bivalves is represented by three genera on Texas beaches. The valves of these shells have the peculiar tendency to grow spirally so that the hinge area is continually covered by new shell material. Genera are thought to turn in one direction only and generic distinction is made on the basis of this assumption. There is, however, some doubt whether this criterion constitutes a valid basis for generic or even specific distinction (a cc. to Prof. C.M. Yonge in a lecture on "Form and Habit of Chamidae with reference to the Evolution of the Rudists". Houston 1964).

Echinochama arcinella Linne 1767. Although according to the description in reference 1, Texas specimens come closer to E. cornuta Conrad 1866, we shall report the species as E. arcinella, because all previous Texas collectors employed this name and because many specimens are rather intermediate in character. Dead and worn shells are not uncommon at Galveston, and are common at Sargent and Matagorda. It is quite common at Port Isabel, where sometimes live specimens have been taken (Speers). Reported to be common on calcareous banks assemblage offshore (17).

Figured in: 1, 2.
Previous references: 11, 12, 19, 26, 29 (E. arcinella). 17 (E. cornuta).
Localities: Galveston, Freeport, Sargent, Matagorda; more common south of Matagorda.

Chama congregata Conrad 1833. Dead shells of this species are not uncommon at Galveston, but are easily overlooked because most beach material is in quite poor condition. Also found at Freeport, Sargent, Matagorda, alive at Port Aransas (23, and coll. Speers) and Port Isabel (coll. Speers). Sometimes young shells are found attached to larger shells, but these invariably have a very old appearance (Sargent, Mustang Isl.). Usually the cupped valves are more common than the much smaller flat ones. Also reported alive from the offshore banks (17 18).

Figured in: 3, 4, 6, 17.
Previous references: 12, 17, 18, 19.
Localities: Galveston, Freeport, Sargent, Matagorda, St. Jos. Island, Port Aransas, Mustang Island and Port Isabel.

Pseudochama radians Lamarck 1819. An uncommon species in Texas. It has been taken alive at Port Aransas (23, and coll. Speers) and Port Isabel (coll. Speers). Once, two large beach worn valves were collected near the jetty at Port Isabel (coll. Ode).

Figured in: 1, 2, 3, 4.
Previous references: 23.
Localities: Port Aransas, Port Isabel.
Remarks: In the Speers' collection is a single worn valve fromPadre Island (Big Shell) which might be Chama macerophylla Gmelin 1790. According to 17, this species is common the deeper banks of the calcareous bank assemblage; acc. to (18) reported dead from the offshore banks.

Some specimens of another Chama, possibly Chama florida Lamarck, too worn to be identified with certainty, were collected at Galveston and St. Joseph Island (Coll. Ode) and Padre Island (coll. Speers).

Fam. Phasianellidae
A family of lively colored snails, which has only one representative in Texas.

Tricolia affinis cruenta Robertson 1958. Dead specimens of these little shells are common around Port Aransas and Port Isabel. Live specimens have been collected at Port Isabel (coll. Speers).
Figured in 3, 5, 6, 21.
Previous references: 19, 21.
Localities: St. Joseph Island, Port Aransas, Padre Island, Port Isabel.

NOMENCLATURE OF PHYLUM MOLLUSCA FOR DILETTANTE NOMENCLATORS OR NAMES OF MOLLUSKS FOR AMATEUR CLASSIFIERS

BY

Mary H. Sutow

Since the policy of this paper, so adopted by its members, is of scientific nomenclature...

'no'men-kla'tur' N., L., 'nomen' - name; 'calare'-to call. The system of names used in a particular branch of knowledge or art, or art, or by any school or individual; esp., the names used in classification as distinguished from technical terms.

only, it leaves us dilettante...

'dil'e-tan'te' It. (Italian), proper present participle 'dilettare', to take in. N., pl., 'dilettanti' a lover of fine arts, esp., one who follows an art or a branch of knowledge, desultorily or superficially, as a pastime. SYN. see "amateur".

in the dark deep recess of the world unknown. Nomenclature (names) by nomenclators (classifiers) fly around us like shingles during Carla. We look sick at each other and smile weakly, afraid and ashamed to admit that it has gone way over our heads.

For the benefit of those dilettanti (amateurs) who like me knows Latin only as a dead language and Greek a synonym for 'unknown', I am writing this for the shell collectors who are still amateurs, in hopes that it might clarify few of the terms thrown at and around us.

nomenclators...

'no'men-kla'ter N., L., same derivative as 'nomenclature. 1. One who calls persons or things by their names; in modern use, one who announces the names of the guests or of persons generally. 2. One who gives names to things; a classifier of objects under appropriate terms.

of phylum...

'fi'lum' N., new L., pl. 'phyla' - biol.; one of the primary divisions of the animal or vegetable kingdom so called because the members are assumed to have common descent.

mollusca. . .

'mo'lus-ka' N., L., 'molluscus'- soft. One of a large phylum (division) 'mollusca' containing most of the animals popularly called 'shellfish' except the crustaceans. It comprises the slug, snails, mussels, clams, oysters, whelks, limpets, cuttlefishes, etc., all of which have a soft unsegmented body protected in most instances by a calcareous shell.

We are labeled CONCHOLOGIST...

'kong-kol'o'jist' N., Gr., 'konche'- shell; 'ology'-study of. The branch of zoology which deals with shells or mollusks.

and maybe a MALACOLOGIST...

'mal'a-kol'o'jist' N., Gr., 'malaco'- soft; 'ology'- study of. Those who study the branch of zoology which deals with soft parts of mollusks.

though our study of soft parts may be limited mainly to savoring the clam chowder and such. Be that as it may, we do collect shells and our need to know the nomenclature is acute. Nomenclature (name) of the common mollusca herein named will be jargon of this area, TEXAS.

We will limit ourselves to the very common mollusks of the Gulf Coast, and only those found along Texas shoreline. (This statement should not have been made. Someone will find a species which has no business here and make a liar out of us.) They will also be large enough that identifying them will not be too much of a problem. It will be divided according to their faunal...

'fo'nal' adj., L.L. (late Latin) Animals or animal life of a region, period, or environment.

line, located somewhere on Matagorda Island. It is considered a very weak line by Dr. Tom Pulley, Director of Museum of Natural Science, Houston, Tex., and a very well known Conchologist (shell collector) and Malacologist (eater as well as internationally recognized authority on all phases of Marine Biology, and former president of AMERICAN MALACOLOGICAL UNION), as it overlaps one another considerably. To the north and east of the line, it goes as far as the mouth of the Mississippi River. To the south and west to Tampico Bay, Mexico After each mollusk will be either 'N' or 'S' or both. 'N'-north, 'S'-south. 'N' 'S' together will designate that they may be found on either side.

There are five classes to phylum (kingdom) mollusca (shell) (and maybe six when authorities finish deciding), each with impossible name. The two with most variety being PELECYPOD...

'pel'e-cy-pod' (Veliger): N., Gr., 'pelekys'- ax; 'podos' foot. A bivalve, shell in two pieces, hinged along one edge.

(a word not found in our Webster Collegiate Dictionary from which all the other words, their pronunciations, derivatives, and meanings have been taken. "A Glossary of a Thousand-and-one Terms Used in Conchology" published by the Veliger gave us the pronunciation, derivative and meaning for 'pelecypod'. We will, however, refer to this class as BIVALVE - 'B')...

'bi'valv' N., L., 'bi- two; 'valva'- leaf, fold. An animal with two-valved shell, as clam, oyster.

and 'G' GASTROPOD.

'gas'tro-pod' N., Gr., 'gaster'- stomach, 'podos' foot. (Veliger): A class of mollusks, a scientific term for univalve with stomach situated in the region of the foot. (Webster): Any large class of mollusks including most forms having univalve shell and many having no shells; a slug, a snail, or allied mollusks.

'C' for CEPHALOPOD...

'sef'a-lo'pod N., Gr., 'kephale'- head, 'podos'- foot. Any of a class of mollusks (cephalopoda) containing the squid, cuttlefishes, octopuses etc., having a tubular siphon under the head, and around the front of the head a group of muscular arms, usually furnished with sucker.. Most forms have a bag containing inklike fluid which they can eject from their siphons. (Veliger): One of the five classes of mollusca - squid or cuttlefish, octopus, argonaut, spirula; some with internal shells as pens or cuttlebones, others with external shell as nautilus.

'A' for AMPHINEURA...

'am'fi-nu-ra' (Veliger): N., Gr., 'amphi- around, 'neuron' nerve. One of the five classes of mollusca, the chitons.

'ii'ton' N.,Gr., 'ki'ton'- a tunic, cloak. A mollusk. A coat-of-mail shells found mostly on rocky shores in all parts of the world.

and 'SC' for SCAPHOPOD

'ska'fo'pod' (Veliger): N., Gr., 'scaphe'- boat, 'podos' foot. Tusk, or tooth shells, a tapering, curved tubular shell opening at both ends and elongated, foot adapted for burrowing. Shell in one piece, lives exclusively in the sea.

Last but not the least (because it looks as if before too long, much of our food, protein and otherwise, will be coming from the sea), we are putting 'E' after those mollusks which makes excellent eating. All the Gulf Coast mollusks are edible except the cones and terebras.

As dilettante (amateur) collectors usually start on littoral...

'lit'o-ral' adj., L., 'litoralis'-seashore. The coastal region between the high and low tide line.

(the term 'littoral' is used very loosely here), zone, which most of us refer to as a 'beach'; that area roughly between the mean high tide and mean low tide line, above the lapping water and below the dry (blowing kind) sands), we too will start there. It offers variety, though pickings may be thin at times but again heavy and accessible to most of us at all times, prime factor. A beach-worn specimen, a fossil, a live one from off shores, and at times, a deep water rarety, especially after a storm. It is this zone that yields the greatest in number and the unexpected.

(to be continued)

MOLLUSCANA

by W. W. Sutow

Let's talk a little more about BOOKS.

The intrinsic worth of any reference book depends primarily on the purpose for which the book is used. As far as seashells are concerned, books may be consulted for help in identification, sometimes for background historical information. Again, check-lists are examined to determine distributional data or to evaluate the completeness of a given collection. Further, books may be obtained for sheer enjoyment of the color plates or photographs or drawings of the seashells contained therein. And, of course, books (which in a larger sense includes other published records) provide invaluable source material for all scientific malacological and conchological studies.

All of this brings me to the subject of John Q. and Rose Burch. For many years, they operated an extensive and highly professional specimen shell business. They have contributed regularly to the malacological literature. John Q. Burch has been president of the American Malacological Union. Now they are "semi-retired" and handle book orders only from their home at 4206 Halldale Ave., Los Angeles, Calif., 90062. They extend a most hospitable welcome to visitors interested in the hobby of shell-collecting. I know. Last March, I went there unannounced, and the Burches spent a whole half day showing me portions of their fabulous collection of specimen shells and of their priceless library of molluscan literature.

When I asked Mr. Burch if he would write a paragraph or two for the TEXAS CONCHOLOGIST, he promptly said he would. And he did. I had requested him to comment on those books which he thought would be useful for the serious amateur shell collector. I had also asked him to indicate the current prices on these books. (All of the listed books can be ordered from the Burches at the address given above). In Mr. Burch's own words:

"The shell collector with a world wide collection has a problem in getting a workable library. There is simply no such thing as one book or set of books that will cover the field. It becomes necessary to reach for different books for each faunal province. The last attempt to cover the entire phylum was the MANUAL OF CONCHOLOGY by Tryon and Pilsbry not quite a century ago. This work is now being reprinted in 45 volumes for $1,000.00, and should perhaps be purchased by all large libraries in which the set is not represented. It is to be regretted that the work has not been brought up to date by some competent scholars. For the land shells of this country we have no problem. THE LAND MOLLUSCA OF NORTH AMERICA (NORTH OF MEXICO) by Henry A. Pilsbry is excellent and thorough. It is in 4 large books. We list it for $26.60 postpaid. Foreign land shalls are impossible, and there is no adequate book available for the fresh water faunas of this or any other country that I know of.

I suggest the following for the marine shells. None of them will be complete, but they are the best we have at this time. For West Mexico to Panama we have SEA SHELLS OF TROPICAL WEST AMERICA by A. Myra Keen, ($12.65 postpaid). For both coasts of the United States we have AMERICAN SEASHELLS by R. T. Abbott ($15.15 postpaid). CARIBBEAN SEASHELLS by Germaine L. Warmke and R. T. Abbott is a useful book for this fauna ($9.10 postpaid).

For the Indo-Pacific we have some beautiful books. SHELLS OF THE WESTERN PACIFIC IN COLOR, vol. I by T. Kira and vol. II by T. Habe. Both are in English and sell for $18.15 each postpaid. T. Habe has published two very good books recently. The scientific names are given, but the text is in the Japanese language. SHELLS OF THE WORLD IN COLOR, Vol. I, THE NORTHERN PACIFIC, and Vol. II, THE TROPICAL PACIFIC. Both have color plates, introduce new taxa, and sell for $10.15 each postpaid. For New Zealand we have but one book, SHELLS OF NEW ZEALAND by A. W. B. Powell, $4.15 postpaid.

For Australia we have a number of rather useful books, but it is well to consider the fact that Australia is really a continent with some five quite different faunas. AUSTRALIAN SEASHELLS by Joyce Allan attempts to cover them all, $12.15 postpaid. MARINE MOLLUSKS OF VICTORIA by J. Hope Macpherson and C. J. Gabriel is an excellent work on this fauna ($12.15 postpaid). QUEENSLAND AND GREAT BARRIER REEF SHELLS by O. H. Rippingale and D. F. McMichael is a beautiful color plate book ($17.15 postpaid). For South Africa we have MARINE SHELLS OF SOUTHERN AFRICA by D. H. Kennelly, $4.15 postpaid. For West Africa we have rather a good book by Maurice Nickles. It is well enough illustrated and with the scientific names, but the text is in French. $10.50 postpaid.

We have some very good books on single families. The cone collector is happy with CONE SHELLS OF THE WORLD by J. Marsh. All color plates, $14.65 postpaid." (end of letter).

Thank you, John Q. and Rose Burch.

--o--

RANGIA HUNTING
by
Dorothy Kister

Clear Lake is not clear and never has been. It was named for Clear Creek which was once clear blue water. I learned to swim in this lake at the old girl scout camp "Tejas". It was either swim or sink to one's knees in mud. Needless to say, I learned my strokes in a hurry to avoid the latter happening, never realizing, at the tender age of 13, I would be willing to sink in knee-deep mud hunting the rare Rangia flexuosa.

The coldest and bluest Texas norther of the winter season raged in on Saturday, March 5, but the sun was shining and so the Sutows and Kisters invited themselves down to do a little Rangia hunting in the Glass' front yard at Clear Lake. We arrived with our usual shelling equipment of rakes, shovels, buckets, etc. and dressed for the North Pole (no wonder we sank). The wind was blowing the water out of the lake and when we bent over to pick up a shell or two, we were also blown over.

Wat Sutow had started raking the bottom of the lake two weeks before, but from a safe and dry pier. This time, however, with such a low tide, we dragged one foot in front of the other raking as we sloshed along. We were successful! Time passed slowly and found us still painstakingly trying to fill our small buckets. I was mud from head to toe having fallen several times and Wat, taking pity on my condition, rolled a large truck tire out to me and from then on I was able to find Rangias by walking around the rim, thereby forcing the mud up around the edges.

During this time, Mary Sutow had shelled in one place finding just as many shells without raking, for as the water receded the Rangias had just literally popped from the mud and were simply "there" for the taking. All our labors could have been avoided simply by sitting in a warm house talking shells and waiting for the water to be blown out of the lake by the wind.

Wat mailed live specimens to Dr. R. Tucker Abbott for further study.

Clear Lake is POLLUTED and we wonder just how much longer these shells will continue to make their homes in such waters.

TEXAS CONCHOLOGIST

Volume III, Number 2 September, 1966

NOTES & NEWS

September 28, 1966, 7:30 p.m., regular meeting in the Lecture Room of the Houston Museum of Natural Science. The program for this meeting will feature "VACATION SHELLS". This is the chance to show off your "catch". Each member will be asked to bring to the meeting the two best shells obtained during the vacation. The member should then narrate the circumstances of the find and explain why the specimens were considered to be the best or most interesting.

In October, we have a real treat. Several members of the Gulf Coast Shell Club from Beaumont will be our guests at the meeting and will present the program.

The November meeting is a "work-shop". The subject matter will be announced later. There will be no meeting in December. (Wat has asked us to say that the programs for the coming months are subject to change.)

August 24, 1966, was "LIBBY" night and our small meeting place was overflowing with members and friends of Ernie's who were there to view and listen to tapes and slides of Saipan and surrounding islands. His slides of the beaches, shells, and flowers made all of us wish to be out there with him and Ceil and do a little snorkeling in the clear blue Pacific. From what this reporter could see, it is an ideal paradise and it seems that the Libby family is much busier there then they ever were in Texas and they left our great state to "get away from it all". We wish to thank Ernie for his wonderful program and hope he will be back scuba diving soon. The tapes and slides arrived by special delivery Sunday before the meeting and we were indeed lucky to have them for Ernie has been ill and did a great deal of taping from a sick bed. Listed below is his address and we know he would like to hear from every member who can spare a word or two on a card or a letter.

FROM THE CONCHOLOGY GROUP TO ERNIE: "HURRY AND GET WELL"!!

The E. L. Libbys
Capital Hill
P. O. Box 65 - Rural Branch
Trust Territory of the Pacific Islands
Saipan, Mariana Islands, 96950

A short business meeting preceded the program. Two bags of Philippine shells, donated by Wat and Ernie, shell earrings given by Dorothy Kister were door prizes. Winners were Mrs. Marie Nelson, Sandra Runnels' mother from Victoria, Tex., Mrs. Ella Corey, Mr. Fletcher and Patsy Kister. All present were winners, however, for Ernie and Wat supplied the group with cypraes and turbos. On display was a GOLDEN COWRY (?) sent to Dorothy Kister by Ernie.

Anna Mae Bishop, President of Gulf Coast Shell Club, Beaumont, Tex., spent several days with Louise Bland in August. While in this city, she visited with Mildred Tate at the Brazosport Museum and Melba Bridges' Art de Mer in Westbury Square. Anna Mae specializes in the Cypraea Family now.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

CORRECTION: In the last issue of the second volume of the TEXAS CONCHOLOGIST your editor let an annoying error slip by. The sentence describing the species of oysters of the Texas Coast should read: "So far two species of oysters have been found in Texas; one is the large common commercial species, which lives in the bays; the other species, which is much smaller, prefers a higher salinity."

Fam. Neritidae

This is a large family of lively colored snails, many of which inhabit fresh and brackish water. In Texas, three genera with four species.

Neritina virginea Linne 1758. This beautiful and variable shell displays many color variations. It lives around Port Aransas and Port Isabel in the bays, and some day probably will turn up alive around Galveston. Old and worn specimens are regularly found on the beaches from Bolivar Peninsula to Matagorda. According to 17: few at the margins of lagoons in open sound or lagoon assemblage.

Figured in: 1, 3, 5, 6, 11, 17.
Previous references: 11, 14, 15, 17, 19, 20.
Localities: Galveston, Sargent, Matagorda, Port Aransas, Port Isabel.

Neritina reclivata Say 1822. Eighty years ago, this species was reported alive from Virginia Point near Galveston (47). Two years ago, a single live specimen was collected at the same locality (coll. Paul McGee). One live and several dead specimens were found in the Laguna Madre at Port Isabel (coll. Speers). Old and worn specimens are sometimes found along Galveston Bay (Seabrook), on Galveston Island, Freeport, Sargent and Matagorda. According to 17, in fresh water, low salinity assemblage (Mississippi delta).

Figured in: 1, 3, 5, 6, 17.
Previous references: 17, 19, 22, 24.
Localities: Galveston, Freeport, Sargent, Matagorda, Port Isabel.

Nerita fulgurans Gmelin 1791. This larger and heavier species has been collected alive on the jetties of Port Aransas and Port Isabel. If these man-made structures were absent, the species would probably not occur in Texas. It is probable that Nerita versicolor and Nerita tessellata which have been reported for Texas in (16) and (22, 52) respectively, are really this species.

Figured in: 1, 3, 6.
Previous references: 19.
Localities: Port Aransas, Port Isabel.

Smaragdia viridis viridemaris Maury 1917. Live specimens of this easily recognized species have been collected in the bays around Port Aransas and Port Isabel (48, coll. Speers). Dead shells are rare in beach drift along the Port Aransas Causeway and not uncommon at Port Isabel.

Figured in: 1, 3, 4, 5, 6.
Previous references: 1, 19, 49.
Localities: Port Aransas, Port Isabel.
Remarks: Nerita peleronta Linne 1758. has been listed in (22). Although at present, this species does not occur in Texas, it is possible that it once occurred on some jetties, because there are reports that the species is present in some older collections in Texas.

Fam. Donacidae

To this family belong many species characteristic for the surf zome of sandy beaches. In Texas, two species undoubtedly closely related, of the genus Donax occur one of which has been reported under a variety of different names. We have not tried to distinguish between several forms but have used the name Donzx variabilis roemeri (see 11) for one and Donax tumidus for the other. A full discussion of their relationship is given in 55.

Donax variabilis roemeri Philippi 1847. This species has been reported for Texas under various names, many of which are probably synonymous. The relationship of this species with others has been discussed in 56, 57, 58 and 59. It is an abundant and variable species along all Texas beaches, often found alive in great numbers. In 17, reported as abundant in Texas in the surf zone of sandbeaches assemblage. See also 55.

Figured in: 1, 11.
Previous references: 11, 12, 14, 17, 19, 20, 24, 25.
Localities: Abundant along entire Texas Coast.

Donax tumidus Philippi 1849. This species is somewhat less common than the previous one, but also occurs everywhere along the Texas Coast and can often be collected alive on the beaches. It has been stated (55) to live in slightly deeper water than the previous species, but extensive collecting at Galveston by Harold Geis has shown that it also lives intermixed with Donax variabilis roemeri. Several distinguishing characteristics have been discussed in 55.

Figured in: 3, 6.
Previous references: 11, 14, 17, 19, 24, 55.
Localities: Along entire Texas Coast.
Remarks: Donax variabilis variabilis Say 1822 occurs east of the Mississippi delta. According to 11, this form can be found on Padre Island also. Other references to Donax presumably referring to one of the above species are:

Donax denticulata Linne 1758 in (22).
Donax fossor Say 1822 in 22.

Also listed in 22 is Iphigenia brasiliana Lamarck 1818.

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* *

SEA BEANS

by Helmer Ode

On the Texas beaches one often comes across large brown, somewhat heart-shaped, ve ry solid objects of apparently vegetable origin, which are cast up on the beach. I have oftenwonderedwhat these so-called seabeans or sea hearts were, a wonderment I have shared until recently with George H. Godfrey, the author of an article, entitled "Sea Hearts" which appeared in the magazine Sea Frontiers, Vol. 12, No. 1, January 1966. This author in turn was enlightened by a paper from the hand of Keith Shackleton in "British Yachting World, Feb. 1959. The following information, taken from the article in Sea Frontiers, I think, is of sufficient interest to repeat for our readers.

Sea Beans wash ashore on most Gulf beaches from Padre Island unto Florida and perhaps not too surprising on the coasts of Ireland and Great Britain. I do not recall at the moment having seen them on the Dutch coast. Several kinds of beans occur, some of which are figured in the article in Sea Frontiers, but the large even brown one, which one commonly finds in Texas, is derived from a giant woody vine, Entada gigas (syn. E. scardens, Lens phaseoloides), which grows in the West Indies, Africa, tropical Asia and the Pacific Islands. This vine ca n reach a length of 100-150 feet and blooms with yellow and white flowers. The seeds, which are the beans, form in woody seedpods which may be as long as five feet. After maturing some seeds are carried by rivers to the sea and start their journey with ocean currents until they drift ashore.

The kernel of the seed is toxic to men because it contains toxic saponins. However, they can be eaten after a thorough soaking and roasting which removes the poisons. Maybe the presence of these toxic constituents is the reason that I have never seen a bean attacked by any type of boring organism, mollusk or otherwise.

Efforts to let the seeds germinate have in some instances, mentioned in the paper, met with success. Seeds apparently will develop into a vine in peat moss, but the plants thus obtained should be shielded carefully against cold weather. It would be interesting to repeat this experiment.

MOLLUSCANA

by W. W. Sutow

Offhand, The Annual Report of the Tennessee Valley Authority 1965 would not seem to be a likely source for items of conchological interest. But, buried in the report on pages 29 and 30 is a section entitled "Mussels". It is stated here that the Tennessee Valley region (which includes large portions of Tennessee, Kentucky and northern Alabama as well as small sections of Virginia, Georgia and Mississippi) harvested 2,112 tons of fresh water mussel shells in 1964. Since this represented a reduction of 63% from the year before, the harvest in 1963 must have been about 5,700 tons. Some 400 mussel diggers received almost $140 per ton for these shells plus additional money for "pearls and slugs". The shells were exported to Japan for use in the cultured pearl industry. Now, I'm not sure how large these shells were, but assuming an estimated dry weight of 3 to 4 ounces each and a wastage figure around 20%, the total take (in 1964) would have been over 20,000,000 mussels! It is reassuring to read that some conservation measures are now being adopted to regulate the harvesting of these bivalves. Tennessee and Kentucky require licensing of the operators and limit the size of the mollusks, the gear used and the operating hours. Selected sanctuaries for the mussels have been established.

The bivalve shells mentioned above may be put to another use - as a source for chemicals for scientific research. An important find of "biogeochemical prospecting" is described in SCIENCE ("High-purity calcium carbonate in freshwater clam shell" 152:1368-1370, 1966) by D. J. Nelson, T. C. Rains and J. A. Norris from the Oak Ridge (Tennessee) National Laboratory. These scientists had been studying the behavior of radioactive strontium in the waters around Oak Ridge (Clinch and Tennessee rivers). It was found that the calcium carbonate (a form of chalk) extracted from the clam shell contained considerably less strontium than the high-quality, "reagent grade" calcium carbonate used in the research chemical laboratories. Analysis showed that other impurities also were present in much less quantities. Thus, an important biogenic source for the chemical compound has been discovered - a source that represents a "renewable natural resource" in contrast to an "exhaustible source" such as ore bodies. The molluscan species examined were Quadrula pustulosa, Elliptio crassidens and Anodonta corpulenta. The high quality chemical could be easily extracted even from shells that were discarded as having "undesirable color or structural characteristics" for the cultured pearl industry.

Venus (the Japanese journal of malacology) for May, 1966 contains memorial addresses to the late Tetsuaki Kira who died on April 17, 1965 at the age of 76 years. This well-known Japanese conchologist was the author of Shells of the Western Pacific in Color (1962). Two previous editions, both in Japanese (1954 and 1959), were published before the popular English edition appeared (see Texas Conchologist, Vol. II, No. 5, 1965). In the same issue of Venus (24:312-341, 1966), Habe and Kosuge describe ("New genera and species of the tropical and subtropical molluscs") the new genera and species that were figured in their new book, Seashells of the World in Colour, Volume II, Tropical Pacific Shells. Some 19 previously undescribed species and 5 new genera are officially documented in scientific detail. This book has been mentioned in this column for the past two issues of THE TEXAS CONCHOLOGIST.

The roads to productive shelling beaches are almost never charted - and even word-of-mouth information is hard to come by. Usually the shell collector has to adhere to a tight schedule and synchrony with the proper tide often is accomplished only with risky disregard for speed limits and property rights. The problems are multiplied when one heads for an unknown shore. Therefore, any shell collector who plans a trip anywhere on the American Pacific Coast should immediately invest $1.95 for a copy of a booklet entitled Beachcomber's Guide to the Pacific Coast, published by the Sunset magazine. This contains a gold mine of information about beaches, and more important, it describes access roads to these beaches. The publication deserves all this free advertising. It is a honey! (John Q. Burch will fill your order).

OUT OF THE SARGASSO SEA - from THE CORPUS CHRISTI TIMES
by Mr. Kenneth McCaleb

There's no mystery about where the "gulf seaweed" that's now infesting our beaches comes from. It's "sargassum" and both it and its name originate in the Sargasso Sea, a vast area of the Atlantic Ocean about the size of the continental U.S.

Old Seafarers' legends about ships becalmed and entangled in the Sargasso Sea lack verification, but the truth is weird enough. Great currents of the North Atlantic encircle the Sargasso--"a place forgotten by the winds"--where the brown algae called sargassum grow , and supports many kinds of marine life which, because of unique conditions, are found nowhere else.

Life changes in the Sargasso too. Tiny sea creatures borne from distant shores by the weed adapt themselves to life on the huge, mostly submerged raft of weeds--two or three miles from the bottom--and new forms develop through the generations.

A 'BLESSING IN DISGUISE?'

Every so often, portions of the great mass of sargassum are torn loose and drift ashore--as now--on the beaches of Padre and Mustang Islands. The last time this occurred in great quantity was four years ago--in April and early May of 1962--and some knowledgeable folks called what seemed to most people to be a plague "a blessing in disguise."

At Port Aransas, biologists of the University of Texas Institute of Marine Science pointed out that algae harbor forms of marine life which larger fish--from trout and mackerel to sailfish and marlin--love to eat. Fishermen found that, if they could keep lines and nets from becoming entangled in the stuff, they could catch fish around the floating sargassum--as a lake fisherman might when casting near a bed of lily pads. The future would be served, both added, as small native fish found shelter in the sargassum--permitting them to grow into larger fish for the next year's anglers.

Sargassum even makes good fertilizer, if washed by fresh water and allowed to "age" in a compost pile. Something like peat moss.

So you see, if all this be true, it goes to show how Nature provides a balance between the benefits and disadvantages of everything--if science can only find it. Of course, nobody has yet discovered what webworms are good for. But I dare say people are working on that too.

OYSTER TALK

Everyone who has been collecting shells knows that most species of shells live in surroundings to which the species is specially adapted and outside of which it is seldom, if ever, found. For instance, there are many shells which can be found alive only in the shallow bays, while others are only found in the deeper waters of the inlets. Then there are those shells which only live in the deeper waters of the Gulf. To this group belong some of much sought after species of the Gulf. It may be noted that the beach itself presents a mixture of shells derived from many different environments. Fresh water and land snails are often mixed with bay species. Together they have been washed out through the passes and are cast up on the beaches. Also many "old bay" species, derived from sediments, deposited in bays, but since long covered by the sea are found in this material. Some of the old Rangias and Mercenarias now found on the beaches are more than 5,000 years old. Old oyster reefs contribute

Crassostrea and other small species. Finally some deeper water species, may be "walked" ashore by crabs. These shells are mostly old and worn, covered by bryozoa - the typical brownish rough coating -- and often show a hole in the base, caused by the continuous wear and tear on the sand while they were carried around. The oyster which is building the reefs in the Texas bays, does not occur in the open sea. The specimens collected in surficial waters as on jetties and pilings of oil company platforms, are able to survive at most a few years because often the surface waters are less salty than the deeper waters, but usually these die quite young. Consequently large live oysters do not occur on the jetties. The old large oyster shells taken on the outer beaches are practically all derived from old buried reefs, now being uncovered by the sea and scouring of current in the inlets. There is another species of oyster (Ostrea equestris) which prefers saltier water than the commercial one. In spite of the fact that it is quite common, it has not often been mentioned in the literature pertaining to Texas. Commercially it is not important, firstly because it does not appear to build reefs and secondly, because it stays much smaller. It can be easily differentiated from the Crassostrea because on its internal edge it possesses a row of denticles or little pits, which give the shell rim a crenulated appearance. It lives in the saltier parts of the bays near the inlet areas, and can also be found alive in the open Gulf, where it attaches itself to old shells or other solid objects.

In its community of the oyster reefs, the oyster clumps create a possibility of survival for many smaller species of shells. Also, it hosts a number of parasites, and its dead shells provide the material in which boring types of bivalves can survive. Typical species always found on the oyster reefs are Anachis avara semiplicata, the well known brown streaked "dove" snail, which is commonly found along the whole Texas coast in beach drift, Anachis obesa, a smaller species, also quite common Mitrella lunata, and quite often Bittium varium. These species live on the green algae which always are present on the oysters and cover them with a greenish blanket. Seila adamsi is another species found on the oysters, but usually not in the same large numbers. At Port Aransas and Port Isabel a small chiton, Ischnochiton papillosus is often found. So far no trace of it has been seen at Galveston. Polinices, Crepidula fornicata, plana and glauca also live in the oyster community, but are not bound to it. Typical for the old oyster shells is the small boring clam, Diplothyra smythi, which is quite common and must be considered as a pest. Not only oyster shells, but every shell of some thickness is often riddled with holes, until the whole shell has become a soft spongy mass. It must be said, however, that some of these bored-in shells, in which there is hardly a place for another hole are still surprisingly strong. It is not advisable to break these shells with your bare hands, because the pieces into which it falls apart can be as sharp as a knife or act as an ice pick. When I broke in that manner my first Mercenaria, I walked with a sore thumb for two weeks. Since then , I break them with a sharp tap with a hammer on an old newspaper in my garage. In some bays Diplothyra appears to be more common than in others. (Copano Bay acc. to references.) but large numbers of attacked oysters can be found along the whole coast. Together with Diplothyra, several other boring species can be found. These however, may not be characteristic for the oyster reef community. Quite interesting but not well studied are the little gastropods which prey on the oyster. These little parasites live on the outer edges of the oyster shell and suck with a long snout on the oyster when it opens its valves. I have found the common Odostomia often alive at Port Aransas. Probably several other related species are parasitic upon the oyster also. To collect these alive one best uses, according to Mrs. A. Speers, a brush and brushes a clump of oysters thoroughly in a pail with water. In this manner, many oysters may be cleaned and the small gastropods sorted out at leisure at home.

WELCOME to the following new members:

Susan Fletcher - Jr. Member
Bellaire, Tex.

Mr. A. E. Sturmer
Lexington, Ky.

From Houston - Mrs. L. B. Corey, Mrs. Lorne Van Stone, Mrs. David Lindsay
Miss Elsie Shivers, Mr. John Simmons, Mr. John Edstrom
Mrs. Clyde Villnes

Our subscribers in Little Rock, Arkansas, the George Major family, report that they have again displayed their shells at the "pop exhibit" for the Museum of Science and Natural History. This is a repeat request for them. Last summer their exhibition aroused tremendous interest and they were asked to show their shells again. A picture of genial George Major appears in the brochure distributed by the Museum.

Harold Geis is still searching for ways to cook octopuses. On one of his seafaring trips, he was the recent recepient of two small ones (the local paper had us believing they were 8 feet long) now in his deep freeze and whenever anyone comes up with a new recipe he cuts off another arm (the animal's-not his own) and tries it. So far he has had it pressure cooked, baked, broiled, fried and repressured without success. He reports that anyway it is prepared, it still cannot be chewed. To put it quite frankly - this gourmet needs help. Harold's other project on which he asks assistance is cataloging dredged Texas shells and anyone wishing to give of their time may call him at JA 2-8479. This is a wonderful opportunity to learn about our local shells.

A TIP FOR THE TRAVELING CONCHOLOGIST . . . . by Leola Glass

While traveling for days at a time, I can usually prevent the decaying animal from staining the shell by stuffing soft tissue into the mouth of the shell and packing it in a closed jar. I replace the tissue often, if possible. Besides jars, I also use plastic shoe boxes, ice cream cartons, and pill bottles, all packed in a plastic garbage can with a tight lid. Place a doubled sheet of plastic (from cleaners) over the can before fitting the lid and no odor will be noticed in the car or boat. But, when you arrive home and open that lid, be sure there is plenty of fresh air available!!!!

HOW TO EVICT HERMIT CRABS . . . . by Leola Glass

To get hermit crabs out of shells, I place the shells in a dry glass jar and screw on the lid, and place the jar in the sun. As the animals come out, I remove them from the jar, keeping the shells as dry as possible; soft paper in the bottom of the jar will help to absorb moisture.

Tom Kister, ably assisted by Patsy, gave a shell talk before the Christian Business and Professional Women's group recently.

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The CONCHOLOGIST

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NOTES & NEWS

October 26, 1966, our next meeting and members will be notified as to the meeting place. Dr. Pulley has graciously opened the Museum of Natural Science Lecture Room for us during the winter months and when he is not available it creates a hardship for a member of his staff so Maudeen Marks is now searching for a new home for our group. The fourth Wednesday of each month will still be the time so keep the date circled on your calendar. The program portion of the October meeting will be "Shell Exchange Night" and will be devoted to shell exchanges among members and guests of the Conchology Group. This will be a chance to share with others your extras (in good condition with adequate collection data) and to obtain (in trade) specimens that you need. Members are also requested to bring one or two donations for the two "prize boxes". Drawings will be held for the prize boxes one of which will go to a junior member and one to an adult member. For those not participating in exchanges, a round table discussion will be held for identification of the commoner cowries of the world.

Confirmation has been received from the Gulf Coast Shell Club that several of its members will attend our November meeting (instead of October). The program for the evening will be presented by the visitors.

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Everyone present won a door prize at our September meeting. Carlos Cardeza was back from his Sanibel, Florida home with a box of live specimens and he must have spent all of his time cleaning shells for our group as the box he brought with him was filled with crown and horse conchs, sunray tellins and beautiful tulips. Maudeen Marks remembered us while shelling in Mexico by giving nerites she found by braving the waves of the Pacific Ocean as they broke over the rocks. Members displayed shells from their vacations and gave a brief summary of their two most unusual or important finds. Jeane Dashiell reported that we are now members of the American Malacological Society. The sum of one hundred dollars was voted upon by the members in order to start our library. Connie Boone has been working on this project and is chairman of the newly formed library committee. Dr. Pulley has offered a home for our books and a checkout time, reading place, etc., will be announced later. Carlos Cardeza announced our first field trip will be held October 9, 1966, at the Bolivar garbage dump flats. The tide is not a minus one but 0.1. We have been asked by the San Antonio Shell Club to help select a shell for our state. Should be a common one and easy to identify. A number of our members are planning Mexico trips and Wat Sutow suggested SHELLING IN THE SEA OF CORTEZ by Paul E. Violette, a good book to have along. Helmer Ode wants everyone to be on the lookout for two new shells on our coast: Rangianella, 1/2 inch, which occurs in brackish water and Alexania floridana Pilsbry, 1/4 inch, a pelagic shell which might occur in Texas.

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Mary and Wat Sutow took Ernie Libby's "Saipan Slide Show" to Lake Jackson on Tuesday, Sept. 20, 1966, for the meeting of the Brazoria County Shell Club. A very appreciative audience enjoyed Ernis"s presentation. (Ed.'s note: Ernie is back on Saipan and feeling OK once more after a short hospital stay on Guam.)

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

Fam. Arcidae

Many species of this large family of bivalves have been found on Texas beaches. Four of the most conspicuous beach shells of Texas belong to this family. Several other species are less common or rare. There are five genera in Texas: Arca, Anadara, Barbatia, Arcopsis and Noetia.

Arca zebra Swainson 1838. This species is only found on Padre Island and in particular near Port Isabel. Mostly dead specimens have been taken on the beaches, but recently two live specimens, very young, were collected at Port Isabel.

Figured in: 1, 2, 3, 4, 5.
Previous references: 11, 18 (offshore).
Localities: Padre Island, Port Isabel.

Arca imbricata Bruguiere 1789. A common species, usually called A. umbonata, on all Texas beaches, especially south of Port Aransas. Live specimens are so far not known from Galveston, but have been taken at Port Aransas (21) and Port Isabel (several collectors). According to 7, common in calcareous banks assemblage.
Figured in: 1, 2, 3, 4, 5, 6, 11, 17.
Previous references: 11, 12, 15, 17, 18 (offshore), 19, 20, 23.
Localities: All Texas beaches.

Arcopsis adamsi E. A. Smith 1888. Only a few dead valves, badly worn except one, which looks fresh, of this small arcid have so far been taken on the beach. Their occurrence on the sandy beaches of Texas is somewhat unexpected. The subspecies conradiana has been reported dead offshore in (18)
Figured in: 1, 2, 3, 4, 5, 6.
Previous references: 12, 18 (both offshore).
Localities: Galveston, St. Joseph Isl. (single fresh valve), Port Aransas, Port Isabel (one valve in drift, one attached to whipcoral, coll. Odé).

Anadara notabilis Röding 1798. On one occasion two very worn, sandblasted specimens were found on the beach near Port Isabel (coll. Odé). It is possible that they are reworked fossils.

Figured in: 1, 2, 3, 4, 5, 6.
Previous references: 12 (alive offshore), 22.
Localities: Port Isabel.

Anadara lienosa floridana Conrad 1849. This species, the largest of all Texas arc shells is rare at Galveston (only a single valve, coll. Odé), but it is not uncommon on Sargent and Matagorda beach, and it can also be collected on Mustang and Padre Island, especially near Port Isabel. No record of live specimens is available and beach shells are always found in worn condition. Juvenile specimens have until now not been collected.

Figured in: 1, 2, 3, 4, 5, 6.
Previous references: 11, 12, 20, 22, 51.
Localities: Galveston, Sargent, Matagorda, Mustang Isl., Padre Isl., Port Isabel.

Anadara transversa Say 1822. This species, the next two, and Noetia ponderosa constitute the bulk of all conspicuous Texas beach shells. Although Mulinia lateralis and Abra aequalis and occasionally other small species are far more numerous in the beachdrift at Galveston and further south, their smaller size and greater fragility make it appear that A. transversa, A. ovalis, A. brasiliana and N. ponderosa are more common. A. transversa is a highly variable shell of which live and fresh specimens seldom reach the size of the older and worn beach valves. These older shells are especially heavy and well developed in the area around Port Aransas and farther south, and resemble species described from the Pliocene of the Carolinas (see ref. 7); it is probable that these species are identical with A. transversa. In (4) mention is made and figures are given of two different types of this species. Both can be collected on Texas beaches. Juvenile specimens resemble those of A. brasiliana. Acc. to (14) alive in many types of bay environment.

Figured in: 1, 2, 3, 4, 5, 6, 7, 11.
Previous references: 11, 12, 14, 15, 19, 20, 22, 23, 24, 51.
Localities: Abundant on all Texas beaches.

Anadara brasiliana Lamarck 1819. Commonly found alive after rough seas on all Texas beaches. In the south, where it is replaced to some extent by A. chemmitzi, it appears to be less common than in the Galveston area. Juvenile specimens show a characteristic wavy depression which is also found in A. transversa, but never in A. ovalis. Adults have two valves of unequal size. Live specimens reach often larger sizes than older beach shells.

Figured in: 1, 2, 3, 4, 5, 6, 11.
Previous references: 11, 12, 14, 15, 19, 20, 23.
Localities: Abundant on all Texas beaches.

Anadara chemnitzi Philippi 1851. This species, closely related to the previous one, is smaller and more regularly formed. Juvenile specimens, however, look quite different from juv. A. brasiliana; hinged specimens are quite rare (coll. Speers). Never found at Galveston, but only south of St. Joseph Island.

Figured in: 2, 3, 5, 6.
Previous references: 11, 19, 20.
Localities: St. Joseph Isl. and more common further south.

Arcidae (to be continued)

MOLLUSCANA

by W. W. Sutow

"How much is this sea-shell worth?"

Sooner or later, the collector will arrive at the stage where the "dollars and cents value" of a particular sea-shell must be considered. How does one go about determining what a shell is worth - in the open market and for trading purposes?

One can, for a starter, examine the current price lists of the many dealers. A word of caution here - the relative prices involving different species should be derived from the same list. If one shell is priced from one list and another species from a list of a different dealer, the values will not be truly comparative.

Years ago, Walter F. Webb published "A CATALOG OF RECENT MOLLUSCA FROM ALL PARTS OF THE WORLD" in which "standard" prices were given. Obviously, the prices are now out of date. In 1960, the Paleontological Research Institution sold a 54-page mimeographed compilation of range of prices from the lists of ten well-known shell dealers ("CATALOGUE OF PRICES OF WORLD-WIDE MARINE SHELLS"). The extensive John Q. Burch lists (now being continued by Richard E. Petit) were not included.

More recently (1964), R. J. L. Wagner and R. Tucker Abbott published the "VAN NOSTRAND'S STANDARD CATALOG OF SHELLS". Organized in a fashion similar to the well-known stamp catalogs, the market values for several popular families are given. In addition, the Eastern North American Seashells, Western North American Seashells and Caribbean Seashells are tabulated in alphabetically arranged "quick lists". While there have been criticisms that many of the values do not seem realistic compared to the actual market prices, this book represents a positive effort to furnish a basis for estimating the worth of seashells. (Apart from the estimates of value of shells, this book provides a number of excellent check lists as well as historical references to nomenclature).

The latest publication on shell values appeared this summer, a nicely-bound book by A. Gordon Melvin, entitled "SEA SHELLS OF THE WORLD WITH VALUES". Each shell is illustrated. There are 27 color plates and an equal number of plates showing black and white photographs. Each plate contains pictures of 10 to 48 different species. The author chose those species most sought by collectors. The values are based on the prevailing prices for which the shells sold during the five years preceding publication of the book.

Maldive Islands, located in the distant Indian Ocean, recently issued six values of postage stamps that prominently featured seashells. Actually, only four species were pictured in two pairs, each pair appearing (differently colored) on three separate values. This brings to mind that PHILATELIC CONCHOLOGY (or CONCHOLOGICAL PHILATELY) provides extra fun for those who pursue this "double-hobby". I am, of course, referring to the shell collector (or the stamp collector) who seeks stamps that show mollusks.

Those who are interested might find additional information on the subject in one or more of the following references:

1. "Shell Collecting - Philatelic Style" by Elmer J. Binker, Jr. in Shells and Their Neighbors, No. 23, June, 1964.

2. "Philatelic Conchology" by Tom Rice in Between the Tides (Gulf Coast Shell Club), Feb., 1965.

3. "Philatelic Findings in the Phylum Mollusca" by John F. D'Aiuto, in Topical Time (American Topical Association) Vol. 16, No. 6, Nov.-Dec., 1965, pp. 20-21.

4. "La Faune" Clement Brun Catalogue de Timbres-Poste. Current edition.

A NEW SHELL FOR TEXAS? . . . . . .by Anne B. Speers

If you have read the New York Shell Club Notes, No. 123, pages 3-4, you are aware of the rare Alexania floridana Pilsbry which this article says has been collected in Texas (Port Aransas). This rarity is described as very small, (6 x 4.5 mm), of a dilute cinnamon or dark carob, brown color, and except for the small spire and swollen body whorl, not particularly striking in shape. (see illustration). It has a thin flexible operculum and two very rapidly enlarging whorls. The article tells of how the shell has been assigned and reassigned to various sub-classes, families, and genera--but now appears to be correctly assigned to the family Epitoniidae. This family, with the Janthinidae make up the entire superfamily Ptenoglossa (wing-teeth), and the Alexania is further described as having the anatomy of Epitoniidae, and radula of the Ptenogloassa, and the shell characteristics of Recluzia (a Janthinidae), thus serving as a sort of evolutionary jackpot.

After reading the article, I looked up the various references from which it was taken, and in this way discovered that, alas, the record for Texas is not correct, but was due to the misreading of one of the quoted Nautilus articles by the author, Mr. Jacobson.

It was easy to see how this came about, indeed, I misread the article in the same way, but when I traced the reference from the Nautilus article, I discovered the mistake. The Nautilus, Vol. 72; 68-69, contains an article by Robertson and Habe on the Alexania, and from its somewhat ambiguous sentence structure we could get the impression that the shell had been collected in Texas. The article speaks of the shells characters, its affinity of the Janthinidae, and states, (and I quote) "the Japanese species (of this shell) is semi-parasitic on a sea anemone, Aiptasiomorpha luciae Verrill, which is an almost cosmopolitan species. It also occurs at Beaufort, N. C. and Port Aransas, Texas, as well as on the Pacific Coast, as stated by J. W. Hedgpeth in Fish Bull. 89, Fish and Wildlife Service PP. 285-290, 1954." End quote. This reference to the notes by J. W. Hedgpeth, contains the error--for Mr. Hedgpeth's work concerned the sea anemone mentioned --and in no way refers to Alexania as Mr. Jacobson supposed. This I determined by looking up the reference in Fish Bull. 89.

Too bad--for Texas would love to claim this rare shell. However, since we do have the sea-anemone, Aiptasiomorpha luciae, on which it is semi-parasitic, perhaps we should at least acquaint ourselves with the shell's characteristics--for who knows, it might turn up yet.

For further information on this shell see:

1933-Pilsbry, H. A.; 47 Nautilus 33-35
1945-Pilsbry, H. A.; 58 Nautilus 112-116 pl. 5:1-12
1958-Robertson, Robert, and Katura Oyama, 72 Nautilus 68-69
1965-Robertson, Robert, and Tadashige Habe, 78 Nautilus 140-141

An Interesting Monograph on the Genus Janthina . . . . . Recently your editor received a Zerox copy of DANA Report No. 38, (1953), published by the Carlsberg Foundation (Denmark), entitled: THE GENUS JANTHINA, A MONOGRAPH, by Dan Laursen. In this most interesting paper a critical discussion of the purple snails is presented. Later in this year, we hope to publish a discussion of Texas Janthinas by Mrs. A. Speers.

This is the hurricane season and just recently the Kisters received a letter from Carlos Cardeza telling about "Alma" and his latest experiences on Sanibel Island. It is as follows:

"This is overdue, as usual. However, being "in residence" on Sanibel is somewhat less than the loafing and relaxation one might think. But I am glad to report some progress on the collection of various mollusca - ahem - for the Club's next exhibit. Not as specimens, but as material available for low-price sale to promote interest in shells among children from 5 to 80.

We are trying to accumulate a total of 100 pounds of all sorts of stuff which needs to travel to Houston, so that we can ship it ahead by motor freight; this has been very satisfactory - they handle it carefully and cheaper than REA. There is a 100 lb. minimum which you have to pay regardless so don't hold your breath waiting for it. It will all be shipped to my wife's secretary, and she'll know where each box goes and will give you a call when it's there. But so far the total weight is about 50, so it won't leave till I get a lot more packing done.

There are 40 Busycon contrariums processed completely with opercs in, which have been contributed by our dear neighbor Helen Denny to "The Cause", (from the Houston group -"we thank you," Helen). The Busycons I have collected you will find each with its operc inside but still needing the "stuffing" and glueing-in. NONE of these, of either lot, are really specimen shells, but fine for the exhibit use. There will be a list in each box - so far there are also crowns, olives, jingles, elegant dosinias, etc. There will likely be others.

Hurricane Alma was a disappointment to shellers here; it passed to the West of the Island andwhile it tossed up many dosinias, tellina alternata and pens, it seemed to have sucked the univalves out to sea. Most people went to the mainland before the blow, but we gambled on my analysis of the thing and won: They predicted 7 to 11 ft. tides above normal, but (a) the mouth of the Bay is now 2/3 closed by the causeway and (b) the storm center was moving North at 20 knots; so I figured nothing like that much water could possibly come in. During the night (while we did pile furniture up) we watched our canal and it never came within 2 feet of the top! Lost a few shingles, but no catastrophe; all fixed long ago.

We now have a boat, specially designed for shelling: 15' by 5' beam, flat bottom and flat bow curving down like a barge. It will float on a heavy dew, and you can run it onto sand or grass flats with no problems about getting off again; actually it turns out to be a darn good sea-boat too, now that I've been caught out in stiff blows a couple of times. A 9-1/2 hp outboard makes her zip right along, or slows it to a snail's pace. We've found many good flats, bars and places along the mangroves which have yielded whelks, crowns, big tulips and horse conchs. We've got some real SPECIMENS in sufficient quantity to be able to at last offer to trade with people. I even found a small bed of Macrocallista nimbosa and have a fair quantity of beautiful specimens in various sizes, all taken alive. Among the cones, so far almost nothing of alphabets, a few Floridanus.

Helen Denny came tearing over the other day in great excitement - she had dug - alive a golden Macrocallista nimbosa! About 3" and really golden in color, the rays being in deeper shades of gold. None of us here had ever heard tell or read about such a thing.

Since we've had the boat, we've been taking out shelling parties on the bay. We've had some most interesting people and their kids, and they've had phenominal luck . . . better than most times we've been collecting for ourselves. We try to

give them complete instructions on what to do with them ... we have them boil them here, take out the beasts, save the opercs, how to get the part out which sometimes breaks off, then send them along with instructions on how to Clorox, scrub, acidize if desirable, oil, and stuff them with operc gludd in. It's amazing how much fun and interest you can instill in people who have had little idea what shelling was all about. Further, we keep a log book for them to write their names and addresses and we feel each time as if we've made some nice new friends. The only Texans so far were a woman from Dallas and one from Waco; they shelled with us while their men went fishing, and the women did better than the men! We've had them from Rochester, Minn., Washington, New York, Delaware, Ohio, etc. And if you don't think that I work darn hard while we're out with the boat, and Marylou doesn't work equally hard conducting the processing and instructions when we get back, you're (CENSORED). Well, we both remember when we first came to Sanibel, and the really hard time we had getting anybody to tell us anything about collecting.

And now a Station Break while I go swab out the boat and get it ready for the next jaunt."

* * * * * * * * * * *

HINTS FOR SHELL-SHOWERS . . . . . .by Dr. W. W. Sutow

The successful display put on last May by our Conchology Group has aroused anew some talk about a group-sponsored competitive shell show. Last year, I had the good fortune to act as one of the judges at the South Padre Island (Port Isabel) Annual Shell Fair. The other two judges were Dr. R. Tucker Abbott and Paul McGee. What an educational experience that was for me! A few of the things (good and bad) that caught the attention of the judges may be worth repeating here for the benefit of new would-be exhibitors at competitive shell shows.

1. The need for accuracy extended to all categories in competition - and incorrect identification was not the only offense. It was distressing to find an operculum neatly fixed in the aperture of a gastropod shell that characteristically does not have an operculum. One exhibit was marred by having a shell labelled as being collected in a local geographical area when the shell in question obviously could not have been found there. Less obvious but noticed by the judges were full grown miniatures included among "juvenile forms" of large shells and juvenile forms labelled as "adult miniatures".

2. The objective or the purpose of the exhibit was clearly expressed among most top award winners. A few simple explanatory words, clearly and legibly appended, would have improved many displays. On more than one occasion, the judges concurred that a given display was nothing but a collection of shells that could have been bought by anyone and simply shown. All the specimens should contribute meaningfully toward the main theme of the exhibit.

3. Over-crowding should have been avoided by many. This applied to descriptive printing and diagrams as well as to shells. The judges were not usually impressed by the simple numerical magnitude of the specimens unless the number itself was the main point of the exhibit (such as a "complete collection" of a genus or family; a "growth series"; or, color or ecological variations). Several exhibits showed two or more specimens of one species when a single specimen should have sufficed.

4. Judges are human. An exhibit that had the earmarks of someone having put in thoughtful effort and hard work caught their eyes. If the display was technically or artistically good, its chances for a high award became real.

5. An exhibit with a different and original slant had an advantage. Displays of popular items such as cones, cowries and spondylus suffered from stereotypy unless the presentation was novel.

6. Entry in the proper classification was essential. One exhibit of blue ribbon quality wound up with a secondary award because it was competing in the wrong class. The exhibitor should have been pretty sure where the entry belonged.

7. Precise, complete collection data for each specimen would have helped some exhibits. Other things being equal, self-collected material was viewed more sympathetically than material obviously not self-collected.

8. Judges do have their prejudices. But quality had universally recognizable features. Even the only entry in a classification did not always win a blue ribbon.

9. Intelligent, purposeful handling of even limited material on hand often won over poor utilization of a surplus of specimens.

WELCOME NEW MEMBERS: Mrs. Robt. B. Overstreet, Houston, Tex. Mr. John Q. Burch, Seal Beach, Calif.

Mr. John Q. Burch advises that his new address is as follows:

1300 Mayfield Road
Apt. 61-L
Seal Beach, Calif., 90740

* * * * * * * * * * * * * * * * * * *

Sea anemones appear to grow quite old. The University of Edinburgh has living specimens that were collected fully grown in 1870. They still are in the best of health and each year they produce clouds of eggs and sperm.

Weekend daylight minus tides for November and December are as follows:

11-12-66	-0.2	9:36 a.m.
11-13-66	-0.3	10:18 a.m.
11-27-66	-0.1	9:24 a.m.
12- 3-66	-0.3	1:42 p.m.
12- 4-66	-0.1	2:48 p.m.
12-10-66	-0.6	8:42 a.m.
12-11-66	-0.7	9:18 a.m.
12-17-66	-0.1	1:30 p.m.
12-18-66	0.0	2:24 p.m.
12-24-66	-0.3	7:54 a.m.
12-25-66	-0.5	8:24 a.m.
12-31-66	-0.6	12:36 p.m.

December 27 thru 30 are the lowest tides of the year. They are morning tides and are -0.8.

The members of the South Padre Island Shell Club have invited us to attend, and exhibit in, their 7th annual shell fair which will be held on South Padre Island on February 25 and 26, 1967. Senior judge will be Dr. Harold Rehder of the United States National Museum. Other judges will be Dr. Harold D. Murray and our own Paul McGee. An informal reception will be held Friday evening, the 24th, and an Awards Dinner the following night, February 25. The fair will be open to the public on Sunday the 26th from 9:00 A.M. until 6:00 P.M. Advance planning and reservations may be made by contacting

Mrs. Betty Allen, Reservations Chairman
Box 2110
South Padre Island, Texas

Texas CONCHOLOGIST

Volume III, Number 4 November, 1966

NOTES & NEWS

November 16, 1966, 7:30 p.m., regular meeting in the Lecture Room of the Houston Museum of Natural Science. The program for this meeting will be an interclub first: Members of the Gulf Coast Shell Club at Beaumont will be guests of the Houston Conchology Group and will present the program. The nature of the presentation has not been disclosed. The enthusiasm and activities of our neighboring shell club are well known to our members and the guests will most probably be good friends of many of our club members. Let's give our visitors a royal welcome!

The monthly meeting of October 26, 1966, was held for the first time in the Houston Natural Gas Hospitality House located on Kirby Drive. In the absence of our president, Dr. Sutow presided. Mrs. Constance Boone, Dr. W. W. Sutow, and Dr. Helmer Ode were elected to the nominating committee. Mrs. Marilyn Krog and Susan Adair were visitors. The door prize, a beautiful Cypraea coxeni from Australia, contributed by Dr. Sutow, was won by Mrs. Wyatt Odom. For the program, Dr. Sutow discussed some aspects of exchanging shells with collectors in other parts of the world and showed various catalogues and books listing shell values. A newly published book, very well illustrated is: SEA SHELLS OF THE WORLD WITH VALUES by A. Gordon Melvin. After his presentation, members had the occasion to exchange shells.

WELCOME:

Miss Lillian Long
7525 Park Place
Houston, Tex.

Mrs. E. J. Goodwin, Jr.
3 Leisure Lane
Houston, Tex.

Mrs. Hugh Junkin
8 Leisure Lane
Houston, Tex.

Mrs. L. Sweitzer
1808 Nantucket
Houston, Tex.

Cathey Constantine
3744 Nottingham
Houston, Tex.

Mrs. J. Young
P. O. Box 846
Marathon, Fla.

Mrs. John Q. Burch has informed Wat Sutow that he (Mr. Burch) and Mrs. Burch are retiring from the book business. They will now spend their entire time with shells and shell-collecting.

Leola Glass, Connie Boone, Helen McIver and Mary Sutow recently returned from a two-week shelling excursion on Sanibel Island and the Florida Keys. While on Sanibel, Leola received two Helen Denny awards for finding two junonias.

Wat Sutow presented a discussion on "American Seashells" at the regular meeting of the Gulf Coast Shell Club at Beaumont, October 11, 1966. He reports an enthusiastic and good audience and he also indicated his appreciation of the reception that followed the meeting.

Some beautiful photographs of living argonauts have appeared in the article "The Exquisite Argonaut" by William M. Stephens in "Sea Frontiers" Vol. III, No. 3 (May-June, 1965).

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

Anadara ovalis Bruguiere 1789. Live specimens are often found on all Texas beaches. Old, worn specimens are often considerably larger than fresh live ones. Juvenile specimens are quite different from those of A. transversa and A. brasiliana.

Figured in: 1, 2, 3, 4, 5, 6, 11.
Previous references:; 11, 12, 15, 19, 20, 22, 23, 24.
Localities: Common along entire Texas coast.

Barbatia tenera C.B. Adams 1845. Superficially this species resembles A. transversa, but is fatter, more fragile and more regularly formed. Dead shells are occasionally found on the Gulf beach at Port Aransas and Port Isabel and once a worn valve was taken at Galveston (coll. Odé) near the jetty at Bolivar Pass. Live specimens have been collected near Port Aransas (coll. Speers).

Figured in: 1, 2, 3, 5.
Previous references:; 18 (offshore)
Localities: Galveston, Port Aransas, Port Isabel.

Barbatia domingensis Lamarck 1819. Live specimens of this species are commonly found at Port Aransas and Port Isabel, attached to rocks in shallow water. Dead shells are sometimes found in beachdrift or in bore holes in pebbles near Sargent, Port Aransas and Port Isabel. According to 17, common in the calcareous banks assemblage along the Texas Coast.

Figured in: 1, 2, 3, 4, 5, 6, 17.
Previous references: 6, 12, 17, 18 (alive offshore), 19, 23 (alive).
Localities: Sargent, St. Joseph Isl ., Port Aransas, Port Isabel.

Barbatia cancellaria Lamarck 1819. This is a rare species in Texas, which has been reported offshore, but so far not from our beaches. A single specimen in poor condition was collected at Sargent (coll. Odé).

Figured in: 1, 3, 4, 6, 7, 8, 9.
Previous references: 11 (offshore), 18 (offshore).
Localities: Sargent.

Noetia ponderosa Say 1822. This is an abundant beach shell which is often collected alive on all Texas Gulf beaches. After hurricane Carla, a notable drop in numbers occurred around Port Aransas.

Figured in: 1, 2, 3, 4, 5, 6, 11.
Previous references: 11, 12, 14, 15, 19, 20.
Localities: Abundant along entire Texas Coast.
Remarks: Several other species have been reported offshore.

Anadara baughmani Hertlein 1951. in 1, 17, 19, 26, 29, 54. According to (17) abundant in mud environment along entire coast in outer shelf assemblage.

Eontia bisulcata Lamarck. Acc. to 12 offshore. This species is unknown to us and may be merely juvenile Noetia ponderosa.

Bentharca asperula Dall 1881. Listed by Dall in (22).

Fam. Nuculanidae

A family of taxodont bivalves, of which two species of the genus Nuculana occur on Texas beaches.

Nuculana acuta Conrad 1843. This species occurs along the entire Texas coast, but is common only south of Matagorda. Hinged specimens have been dredged in Aransas Bay and at Port Isabel (Speers). Also reported alive in ref. 14 from Rockport and the Laguna Madre. The species may live in the Galveston area, no reports of live shells are available.

Figured in: 14, 17, 22.
Previous references: 11, 14, 15, 17, 19, 20, 24.
Localities: Along the entire Texas Coast, but common only south of Matagorda.

Nuculana concentrica Say 1824. This species, not unlike the previous one in appearance, has been reported from the coastal bays. It occurs commonly in beach drift at Galveston, but is largely replaced by N. acuta around Port Aransas and Port Isabel. According to 17, common in clay in enclosed-lagoon assemblage and in open sound or lagoon-center assemblage. A different race may occur offshore in clayey sediments. It is probable that the shells reported as Nuculana eborea Philippi in references 14 and 20 are this species.

Figured in: 14, 17.
Previous references: 14, 15, 17, 19, 24.
Localities: Along entire Texas Coast, abundant in beachdrift at Galveston. Relatively less common south of Matagorda.
Remarks: Several other species have been reported from deeper water offshore:
Nuculana jamaicensis Orbigny 1842. In 17: abundant along whole coast in mud of outer shelf assemblage.
Nuculana c.f. carpenteri Dall 1881. In 17: rare on upper continental slope.
Yoldia solenoides Dall 1881. In 17: common in upper continental slope assemblage. In 18: dead from offshore banks.

Too large to move about the ocean floor in search of food, the 600 pound giant clam, Tridacna gigas, grows his own. The huge bivalve maintains colonies of single-celled algae on the broad mantle edge of its shell. These grow and multiply and then are eaten along with the rest of the clam's diet, which is filtered from food-laden Pacific waters. (from Sea Frontiers, Vol. 12, No. 3, page 157.)

PIONEER TEXAS CONCHOLOGIST . . . . . Constance Boone

On every field trip, local members search eagerly for the Amaea mitchelli (Dall) wentletrap and consider the trip a thorough success if they happen to be lucky enough to find ONE of the fairly scarce shells. We've even been entertained with a clever song about our search, and the Beaumont Club thinks so much of the shell that it has adopted it as the club shell. So perhaps you may also be interested in the man for whom the shell was named and to learn that he was truly the first Texas conchologist of note.

Dr. W. H. Dall of the United States National Museum, published a paper in 1889 in which mollusks of Texas were first enumerated. This was followed in 1892 by the first exclusive lists of Texas Mollusca, published by Singley in a survey for the United States Fish Commission. About this time also, Joseph Daniel Mitchell, an amateur naturalist of Victoria, Texas, was an enthusiastic conchologist and correspondent of Dr. Dall. Specimens of each shell he collected were sent to Dr. Dall for the Smithsonian. Dr. Dall taught Mr. Mitchell how to collect and preserve his specimens and how to record the necessary material on them. So it was that the Amaea mitchelli was discovered in 1896 and again in 1902 and Dr. Dall gave the brown-banded, large and beautiful wentletrap Mr. Mitchell's name. The Macoma mitchelli was named in 1895, and there are species of fresh water and land snails also bearing Mr. Mitchell's name.

Mr. Mitchell published two pamphlets on Texas shells--marine, land and fresh water--one undated and one dated June, 1894. The undated pamphlet simply is a list of Latin names for the shells in three fields and indicates the shells Mr. Mitchell collected. The other pamphlet included informative notes, some amusing because Mr. Mitchell reported faithfully on his attempts to eat each specimen and what its edible quality was.

Joseph Daniel Mitchell was born at Mitchell's Point near Port Lavaca on October 22, 1848, and died in Victoria, February 27, 1922. He was the son of Isaac Newton Mitchell, a native of South Carolina, and Mary Augusta Kerr, daughter of Dr. James Kerr, surveyor-general of DeWitt's Colony. She had come to Texas in 1825 with the colony of families for Austin's Colony.

As a boy, Mitchell roamed the bays and inland waters of Texas, studying all of nature. Though he had no formal education after the age of 11, he went on to become an outstanding authority on Texas natural history and corresponded with scientists all over the nation who accepted his thorough work as authentic. His papers on everything from the blue crab to mosquitos and rattlesnakes were published in science journals. In one of the U. S. National Museum publications in 1895 his study of the blue crab is printed in full. A quote from it says: "Born on an isolated point on the Bay, and inheriting the naturalist's instincts from my mother, I made this crab (Callinectes sapidus) one of my earliest playthings, and it has been an interesting study since." There follows a very complete observation of the life and times of this very familiar food crab.

Mr. Mitchell ranched in Calhoun and adjoining counties from 1867 to 1887 and had a home at Wolf's Point on the bay. Later he moved to Victoria and helped to found the public school system there. For 17 years he was an entomologist with the United States Department of Agriculture. He represented the Victoria district in the 24th Texas Legislature and was the author of the law creating the present State Fish, Oyster and Game Department.

A great conservationist, Mr. Mitchell planted oyster beds up and down the coast and sought to preserve the beds in existence. He was constantly concerned with the wanton use of this natural food.

His collection of shells was given to the University of Texas, according to his family. Some nature collections remain with the family.

He is remembered for his concern in thoroughly indoctrinating every child around him in the beauty of nature. His children and grandchildren were taught to love the sea and often gathered for oyster feasts on the beach. His daughter remembers the many times "Papa" brought in clams and popped them into the fire to steam by lifting the lids of the big wood stove.

The information for this article comes from notes written by my son some ten years ago when he was doing a historical paper on Texas shells. He was able to interview Mr. Mitchell"s daughter and to view family scrapbooks and articles. I have an undated listing of Texas shells collected by Mr. Mitchell. There are 61 land shells, 107 fresh water shells, and 157 marine shells listed. I also have a copy of the interesting discourse on the blue crab. Anyone interested in seeing these may contact me.

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THE TOE/HEEL SPLITTER . . . . . .by Corinne E. Edwards

Bear Cut, where the swift water flows between Virginia Key and Key Biscayne, Miami, Florida, is a familiar name to shellers. Actually we shell mostly on the flats on the north end of Key Biscayne from the bridge, around the curve about a scant half mile to "THE" rocks. These "ROCKS" are fossilized mangrove roots to be exact and ought to be preserved as a National Monument, but we take them for granted.

Shells come and go to the beachcomber, wader, sheller, and hap-and-chance tourist according to the season, the 80-90 degree temperature, the summer downpours of fresh water on the low-tide exposed flats, hurricane or high wind or wave action. Atrina rigida, the Pen Shell, can not get away or bury itself, but at low tide the pliable shell edges are held tightly together to avoid heat or rain. When cleaned and in a shell collection these shell edges are no longer pliable and would break if pressed together. Us "old timers" always wear sneakers or tennis shoes and easily recognize the barefooted "tourist" and sooner or later he gets a split toe or heel from PEN SHELLS protruding just above the sand.

We snorkel for "treasures" at Bear Cut in deeper water and around the rocks, but we search the flats for Candy Stick Tellins, Tellina similis, to feed mollusks in aquariums, for freshly-dead Chione cancellata or other common shells for the shop at the Science Museum; or for the little Olivella and Conus jaspideus. In my case, I sometimes walk there searching among the Turtle Grass roots for Linckia guildingii, the Breaking or Comet Star that can twist off one or more arms and not only regenerate another in the same place, but the arm or arms that twisted off get busy and rapidly grow four more new arms. At first, or especially if it makes an error and grows five more new arms on the old long arm, it looks like a comet -- hence the common names.

The Pen Shell lives buried in the sand with only the gaping upper edges of the shell and with the yellow-brown mantle edge showing -- when the tide covers it. Due to refraction of light waves, I once poked a finger into the gaping shell which quickly shut tight. The muscle is very strong and I had to violently kick the shell (and hurt my toe despite my sneaker) in order to get my finger free. I had a badly black and blue fingernail to display at my Show & Tell programs to amuse the school children. If one wants a good shell-show specimen it is best to bring along a shovel to dig around the shell out far enough so as not to cut the silky byssus threads, each one attached to a bit of shell debris to hold the wedge-shaped Atrina rigida firmly down in the sandy mud. I like to show this V-shaped shell in my Show & Tell program and tell the students I can not pull it up out of the sand without breaking it, despite the pointed base and softness of the bottom -- then I wait a bit and soon a hand goes up or a voice inquires "How DID you get it? This is my cue to go on and explain and show them the byssus threads, from which Jason's Coat of Golden Fleece was supposedly woven.

The taker-rate of Atrina rigida is high out to the low tide mark and not always by shellers or science students from the nearby Miami University Marine Lab. but by the curious who stumble over them or cut toe or heel. Looking closely at low one can see hundreds of tiny slots and these baby Pen Shells will grow up during the winter months. Beyond the low tide mark on the Causeways, Virginia Key and at S.W. Point the Pen Shell is plentiful, huge and available, with Anomia simplex, the Jingle shell; Crepidula fornicata, the Boat shell oysters, small mussels and an occasional chiton attached to the inch or so that protrudes above the sand.

Those fond of sea food come at low low tide with shovels and low stools and kettles and long sharp knives. The men folk dig deep and bring the giant shells in to the wives sitting in ankle deep water. The women slash the shell open by cutting the huge round white muscle, throw down the mantle body and cut out the two halves of the succulent adductor muscle. By the time the tide turns, the scum forms, and water flows back over the flats, they have a goodly mess of seafood and go ashore. While the men build a drift-wood fire, the women salt-water-wash the white meat and then it is cooked in oil and a feast is held then and there. Seafood spoils easily in hot weather and this "IS" the way to enjoy Atrina rigida. Many times I have been asked the name of "--the big brown "oyster" with the "scallop" inside or have been told that those men and women were "digging scallops".

Piles of empty Pen Shells are soon cleaned of all meat and become hiding places for small Octopi, holdfasts for Arc shells, especially the turkey wing, Arca zebra, egg case masses of Pleuroploca gigantea, the horse conch, and for huge masses of egg capsules of great groups of Murex pomum, the apple murex.

Sometimes Marco Island Beach or Sanibel Island Beach, on Florida's west coast are piled high with these big dark rough shells which are lined with a purplish pearly nacre --- and sooner or later one will hear an "OUCH" as someone in bare feet steps on the sharp spines or razor edge and splits toe or heel.

The common name Pen Shell comes from its resemblance to the turkey feather or quill used as a PEN by our great great grandfathers - incidentally they dipped the pen into octopus ink and blotted the writing with beach sand sharpened the pen point with a tiny "pen knife" which had a pearly (shell) handle.

NOMENCLATURE OF PHYLUM MOLLUSCA FOR
DILETTANTE NOMENCLATOR
OR
NAMES OF MOLLUSKS FOR AMATEUR CLASSIFIERS

by
Mary H. Sutow

PART II TAXONOMY OF NOMENCLATURE FOR PHYLUM FAUNA

PROCEDURE OF NAME CLASSIFICATION FOR ANIMAL KINGDOM

Delving into nomenclature (name) of phylum mollusca (mollusk kingdom) we came upon taxonomy...

> 'taks-on'o-me' n., (French 'taxonomie' from Gr., 'taxis' arrangement + 'nomus' -law). Classification especially of animals and plants according to their natural relationship also the law and principles of such classification.

procedures followed in scientific nomenclatural endeavor, which we think must precede our main task (which we thought was simple but are not at all sure now) of listing common names of mollusks of Texas shorelines with their scientific

monikers. We rank amateurs need some understanding of the framework upon which the procedures of taxonomy (classification) lie. Why there is a need for the binomial...

> 'bi'no-mi'al' n., 'bi' plus gr., 'nomus' - law, rule; 2 Biol. A species name consisting of two terms.

system of nomenclature which gives mollusks (and other fauna) such horrendous spelling names.

The nomenclature of phylum mollusca has two parts (and sometimes more) to its scientific apellation. An apt description is given by Dr. R. Tucker Abbott who fills the Pilsbry Chair of Malacology at the Academy of Natural Sciences of Philadelphia, as:

> "The genus...
>
> > 'je'nus' n., pl., genera, L., birth, race, kind, sort. 2 Biol., A category of classification between family and species; a group of structurally or phylogenetically...
> >
> > > 'fi'lo-je-net'i-kal-i' adv., Gr., 'phylo' a combining form meaning tribe or race; L., fr. Gr., 'genesis' - root of; to be born; the race history of animal or vegetable type.
> >
> > related species, or an isolated species exhibiting unusual differentation.
>
> which is akin to surname as Smith or Jones, and the species...
>
> > 'spe'shiz' n., L., 5 Biol. A category of classification lower than genus or subgenus and above a subspecies or variety; a group of animals or plants which possess in common one or more distinctive characters, and do or may interbreed and reproduce their characters in their offspring.
>
> which is akin to a first name such as William or Julia."

The first word in the scientific nomenclature of a mollusks is the 'genus' (surname - kind) and is always capitalized. The second part is the 'species' (first name - form (loosely used)) and is not capitalized. The 'species' part of the nomenclature can be a Latinized form of a descriptive adjective such as 'Anadara transversa' Say (ana'da-ra trans'ver- sa) Transverse Ark, or a geographical connation e.g. 'Callocardia texasiana' Dall (kal'lo-kar-de'a tex-se'a-na) Texas Venus. It might also be a describer's (at times, finder's) name as in 'Amaea mitchelli' Dall (a-me'a mi'chal-i) Mitchell's Wentletrap. Finder is Mitchell, describer, Dall. The name of the person who describes the species is the name written after the nomenclature of the mollusk. The 'Lucapina sowerbi' SOWERBY, (lu-ka'pe-na so'wer-be), Sowerby's Fleshy Limpet with SOWERBY as a describer, and in this case finder as well with the species named after him 'sowerbi'. A describer is usually but need not be, (a chance for us?) a well known Marine Biologist, or a Malacologist of reputed standing, whose work is recognized by other in his field.

Members of phylum mollusca also have different families to which they belong. Like their human counter-part, it is often difficult to see the resem-blance between the members of the same family. The FASCIOLARIIDAE (fas' se-o-lar'e-da-e) family is a good example. This family has CHESTNUT LATIRUS

(Leucozonia nassa Gmelin, 'lu-ko'zo-ne'a na'sa') a little fellow only 1-1/2 inches long, heavy, squatty, living among rocks at low tide. Then there is the huge, hairy, rough HORSE CONCH (Pleuroploca gigantea Kiener 'ploo-row'plo-ka ja'gan-te'a') which may grow to be two feet long with one foot one being very common. The smooth BANDED TULIP (Fasciolaria hunteria Perry 'fas'se-o-la're-a hun-tur're-a') and ORNAMENTED SPINDLE (Fusinus eucosmius Dall 'fu-se'nus oo-kos'me-us') which is an elongated beauty of three inches or so, and dredged off-shore, are all in the FASCIOLARIIDAE family. Small, large, rough, smooth, shallow, deep, yet all of one family. Of course, they are divided into sub-families, genera, sub-genera, species, sub-species, etc., but still all in the FASCIOLARIIDAE Family.

On the other hand, some look like honest to goodness kissin' cousins at least, but aren't at all related, the ANGEL WING group being of this clan. They look like one nice happy family with no dissenstion, but one belongs to family PETRICOLIDAE (petre'ko-le'da-e; 'petra' L., rock; 'colo' -inhabitant) and three to the family PHOLADIDAE (fo-la'de-da-e).

We are taking the words of authoritative Malacologists on the issues of families as we have no way of explaining why they belong to this family, and not to that, when they look like they shouldn't (or should). (We think the Malacologists themselves are not too sure of some of the ground they tread, as they cautiously avoid committing themselves on these issues).

Now, as to why we have this binomial (two term) system of nomenclature in taxonomy (classification arrangement) of mollusks. Way back in the middle of 1700, a man named Carolus Linneaeus, a botanist of renown from Sweden, decided it was about time to clear up the mess of too many names given to a single species. He could see no reason, just because the said species had decided that the world wasn't such a big place after all, and that the other side of the earth was just as good a dwelling place as this side, for it to have more than one name.

The first organized attempt to have one system of naming world's fauna and flora was standardized by Linneaeus in 1758 by establishing binomial nomenclature in which each species (of animal or plant) received two names, the first being that of genus to which it belongs, the second that of species itself. This clarified the confusion. It was an international code, whereby anyone in any part of the world knew a pecten was a pecten regardless of what name it went by locally. This was the forerunner to INTERNATIONAL CODE OF ZOOLOGICAL NOMENCLATURE adopted by the XV INTERNATIONAL CONGRESS OF ZOOLOGY in London in 1961.

Due to more extensive studies, nomenclature is being revised constantly. Authorities often disagree. This process will go on for quite some time, if not indefinitely. So should you see one authority listing a species under one genus or a family, and another authority listing it under a completely different name, or, even the same authority saying one thing in one publication and using a different nomenclature in his next, do not be too upset. Just hope that they won't change the name to yet another before we have familiarized ourselves with this one.

(to be continued)

The bone of the cuttle fish, Sepia officinalis, is part of an elaborate mechanism for adjusting the buoyancy of the animal. During day time the animal makes its density heavier than that of seawater and lies buried in the gravel and sand of the bottom. At night, it lightens itself and comes off the bottom in search of prey. The structure of the bone, which contains gas-filled lamellar and which is covered by specialized tissue make this weight adjustment possible.

CONCHOLOGIST

Volume III, Number 5 December 1966

NOTES & NEWS

NO MEETING IN DECEMBER! ! NO MEETING IN DECEMBER!! !

Forty-one members and guests were present at the November 16 meeting held in the Houston Museum of Natural Science. Because we are a subgroup of the Outdoor Nature Club, officers for the coming year 1967-68 have to be elected early. The following slate of officers was elected:

Chairman	Mr. Laurence N. Dexter
Vice-chairman	Mr. Tom L. Kister
Recording Sect. and Treas.	Mrs. J. M. Fennessy
Corresponding Sect.	Mrs. David A. Dashiell
Editor	Dr. Helmer Ode
Program Dir.	Dr. W. W. Sutow

Shell earring door prizes were won by Mildred Tate, Myrtle Bender, Laurence Dexter and Edmund Sutow. Trays of cypraeas were shown by Mrs. Anna Mae Bishop, our guest speaker and corresponding member from Beaumont, Texas. Anna Mae introduced "Ernie" (named after our former genial art editor, Ernie Libby) and explained the various parts of the cypraea from this model. A question and answer period followed her lecture.

Time and place for our January meeting will be announced at a later date.

* *

WELCOME: Miss Suzanne Adair, Houston, Texas; Miss Marylyn Krog, Houston, Texas

Mrs. Fern Heinke, on November 2, found a beautiful live specimen of Semele bellastriata on the Gulf Beach at Port Aransas.

When Anella and Laurence Dexter went to Wisconsin in September, they carried with them a beachcomber's exhibit of seashore treasures much like the exhibit they prepared for the Conchology Group's Shell Show at Sharpstown in May. Fulfilling a promise given on an earlier visit, they presented it to an unusually fine School House Museum in the little town of Red Mound which nestles in the scenic hills along the Mississippi in southwestern Wisconsin. We expect "beach-combing on the Gulf Coast" will be a popular indoor attraction in Red Mound this winter.

Mrs. L.A.M. Barnette reported she has several requests for our traveling school shell collections.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode' Mrs. Anne B. Speers

In the previous issue, one species belonging to the Arcidae was inadvertedly omitted. It is discussed below:

Fam. Arcidae

Barbatia candida Helbling 1779. This species is only rarely found alive on Padre Island. At Port Aransas and Port Isabel, a few live specimens have been taken (23, coll. Speers). According to Ref. 17, common in calcareous banks assemblage along the Texas coast.

Figured in: 1, 2, 3, 4, 5, 6.
Previous references: 11, 16, 17, 18 (offshore) 23.
Localities: Port Aransas, Port Isabel (coll. Ode).

Fam. Ungulinidae

In Texas occur three species belonging to the genus Diplodonta, which is characterized by the structure of its hinge teeth, as is indicated by the name.

Diplodonta punctata Say 1822. This species is probably the least common of the Texas Diplodonta's. Dead valves are rare in beach drift at Galveston, but appear to be slightly more frequent to the south. This species is the least rounded in outline of the three Texas species. According to ref. 14 and 17; alive in open sound or open lagoon center-assemblages, but it is possible that another species (D. soror) is referred to.

Figured in: 2, 4, 14 17, 20.
Previous references:
Localities: Galveston, Freeport, Padre Island, Port Aransas.

Diplodonta semiaspera Philippi 1836. Although this species is rarely found in beachdrift, complete hinged, dead shells are not uncommon in burrows in old Crassostrea and Mercenaria shells. The remarkable fact about these tightly fitting holes is that they must have been made by the animal while living in the shell, because often hardly a trace of their presence can be noted from the outside (see also remark in ref. 3). How the animal makes its burrow is unknows to us. Live specimens, closely

encased in rock, have been taken at Port Aransas and Port Isabel (Speers). According to 14, alive in open bay center-and inlet influence-assemblage at Rockport and in the Laguna Madre.

Figured in: 3, 4.
Previous references: 14, 17, 20, 24, 25.
Localities: Galveston, Matagorda, Port Aransas, Port Isabel.

Diplodonta soror C. B. Adams 1852. This is the most common Diplodonta of Texas. It is uncommon at Galveston, where dead shells are found in beachdrift and on the mudflats of Bolivar and San Luis Pass. At the latter locality once a live specimen (Odé). Dead shells are much more common around Port Aransas, where also live specimens have been taken. (Speers).

Figured in: 65.
Previous references: 13
Localities: Galveston, Freeport, Sargent, common south of St. Joseph Isl.
Remarks: It is probable that a fourth species occurs in Texas. Some small shells collected by A. Speers on Padre Island and some at Galveston (Odé) resemble Diplodonta nucleiformis Wagner 1838. Thyasira trisinuata Orbigny 1842 has been reported in 17 ("few, to the south in upper continental slope assemblage") and in 18 ("dead on offshore banks").

THOSE PURPLE PELAGIC PUZZLERS
or
THE SNAIL MAIL REACHES TEXAS AT ITS UAUAL SNAIL PACE
by
Anne B. Speers

There are times, here in Texas, when tracking conchological information seems like only an exercise in frustration. The major study collections on the East Coast, then seem light years away, and the Texas Public or University Libraries seem remarkably devoid of the old, out-of-print reports and publications which we are constantly seeking. Even news of fairly recent publications is slow to come percolating down to the attention of the Texas amateur sheller, as we learned once more this past year, when we were searching for particulars concerning one of our Janthina species. This time, however, the hunt was finally successful, and we not only solved the problem at hand, but gained considerable knowledge concerning the whole family Janthinidae.

Because the hunt became a bit involved and time consuming, and there seems no point in others going through the same exercise, we pass along the following account of the experience and information gained. Of course, there's a bit of self interest in this too--we hope some reader will come up with an answer to one perplexing question which still remains.

The Janthinas are generally fascinating to most people, both shellers and non-shellers, for their exquisite coloring and unusual life habits. (For details of life habits, see: Sea Frontiers, Oct. 1964, or reprint of the article in Texas Shell News, July 1966.) Texas shell collectors are usually blessed with a generous deposit of live or very fresh specimens along our Gulf beaches almost every spring. (Spring 1966 being an interesting exception!) Indeed, a few scattered specimens of this genus might be found almost any month of the year, but we expect their arrival any time from March through May when the south-east, spring winds blow in seemingly endless gusts, bringing the pelagic forms such as the man-of-wars, velellas, porpitas, and their companions, (for other Janthina news - esp. the nudibranch companions, see Bulletin of Marine Science of the Gulf and Caribbean, Vol. 13, 1963; Nos. 1-4) the Janthinas --usually in numbers large enough to allow

us to pick and choose among the finest for our collections. Janthina janthina Linné is by far the most common species found on our beaches, followed by the species we have known as Janthina globosa Swainson, represented by considerably fewer specimens usually; and occassionally the much smaller species we have called Janthina exigua Lamarck is found, generally only every few years, and then in comparatively scant numbers.

With April 1965, came a typical deposit of these shells, arriving this time with many more fine specimens of J. globosa than usual. In collecting these, my attention was caught by a number of these shells much paler in color than usual. These pale "globosa" I had collected before, but only two or three, and after looking them over casually, I had dismissed them as mere aberrant forms. This time, however, the unusual number of these pale shells, plus the fact that about a dozen were found actively feeding on the numerous Velellas coming in, (these were transferred to my aquarium where they finished their meals in about 24 to 36 hours) --focused my attention to the point that I separated them and later examined them with great care--especially comparing them to the usual form of J. globosa. Several consistently differing characteristics were apparent in these pale shells. Compared to the usual J. globosa, they had a more flaring aperture, with the upper edge of the outer lip originating higher on the body whorl; their spires were more depressed; the columella had a decided reversed S curve; and the lower edge of the aperture flowed into the columella, leaving a rounded basal edge, rather than a blunted point as seen on the regular J. globosa, and, of course, the pale more bluish color was the most noticable difference. All very interesting--but could this really be a distinct species?

A search of all the literature I could lay hands on gave no encouragement. So where was there even a hint that a fourth Janthina species answering this sescription existed. nevertheless, several specimens went into alcohol and the rest were kept apart--just in case.

Then, by coincidence, word from Helmer Odé told me that he and Harold Geis believed they might have a new Janthina, and his description made it clear that they were interested in the same shell I had been puzzling over. With great respect for the opinion of these gentlemen, this news was all that was necessary for me to add this shell to the numerous others I was planning to take with me to Philadelphia in Oct. (1965) where I would be visiting the Academy of Natural Sciences.

Once at the Academy, Dr. Robert Robertson settled our problem by handing me a publication entitled, "The Genus Janthina", by Dan Laursen; published in Copenhagen in 1953. There was time for only a quick perusal, but it was sufficient to learn that there is indeed, a distinct Janthina species corresponding perfectly to the particulars of our pale shell, and its name is Janthina pallida Thompson 1841. Though described more than a century ago, and though the Laursen paper was published twelve years ago, we were only now getting the word! Par for the course? Well, as this publication had answered one question, perhaps it could tell us more, so publisher, addresses, etc., were noted in hopes of obtaining our own copy.

Shortly after returning to Texas, again a coincidental word from Helmer. He would shortly be traveling to Europe--and Amsterdam. I rushed the information I had on the Janthina paper, and knowing Helmer's unique talent for ferreting out "snail mail", relaxed, confidently expecting my copy soon. But it wasn't quite that easy--the paper was out of print and unobtainable--for most people, anyway. Undaunted, Helmer, after some delay managed a loan of the paper and finally in August 1966, I had a Zerox copy.

Now we know the effort was worthwhile, for Mr. Laursen offers quite a new picture of the various members of the family Janthinidae, and some of our former conceptions of names for the different species must undergo considerable change. From this latest Janthina research we learn there are five members of this Genus, designated as follows: (Bracketed () remarks following the shell name are by this writer, indicating changes from our present popular conception as seen in "American Seashells" by R. Tucker Abbott.)

Janthina janthina Linne 1758

(No change--same shell and name as American Seashells, Abbott; ppg. 160, plate 4J)

Mr. Laursen cites 32 synonyms for this species alone, (he reduced some 60 synonyms to obtain the five named species he lists) and gives some fascinating details on the reproducing habits of this species. We will discuss this a bit more later on. This is the only species which remains unchanged from former conceptions.

Janthina exigua Lamarck 1816

(Old familiar name, but for a species completely different from what we called exigua)

Unfortunately there is no readily available reference picturing the species designated as J. exigua by Mr. Laursen, to which we can refer you. However, the shell has quite distinctive characteristics separating it from the other species of the genus--namely: J. exigua reaches 15.3 mm in height; 8.3 mm height of aperture; 6.2 mm width of aperture. It is distinguished by the conic-egg shaped shell; spire rather tall; edge of aperture passing in an even curve to the columella, with the outer lip forming a deep sinus in the middle of the body whorl. The surface is regularly furrowed by comparatively deep furrows, which make it easy to distinguish this species from all others. The furrows slant backward from the suture, and the early whorls, then follow the general contour of the outer lip, on the body whorl, and end at the umbilicus. The shell is violet in color, thin and translucent.

As Mr. Laursen points out, it is the unusual sculpture this species bears which most easily differentiates it from the other smooth surfaced species of the genus. In form and shape, the elongated, egg shape is especially notable. We know of no records of this Janthina exigua occurring in Texas. If any reader has collected such a shell on this coast, please let us hear from you, in detail.

Janthina umbilicata d'Orbigny 1840

(New name for an old friend, the shell we have formerly known as J. exigua Lamarck; see Am. Seashells, Abbott; Page 160, Plate 41.)

There is a slight puzzle in nomenclature here. Among the synonyms cited by Mr. Laursen for this species is: Janthina globosa Blainville 1825. Indeed, Myra Keene, in SEA SHELLS OF TROPICAL WEST AMERICA, chooses this, the earlier name, as the correct on for this species. Perhaps because of the popular use of Janthina globosa Swainson (not Blainville) for another distinct species, this name is passed by, by Mr. Laursen, and J. umbilicata is selected. Which one will be considered correct is not a problem for the amateur, but we should be aware that two synonymous names are being used in current literature.

In discussing Janthina umbilicata, Mr. Laursen gives 9 mm as the height of the largest shell measured. I find one in my personal collection measuring 13 mm in height, which brings this usually smaller shell into the range of J. exigua, as designated by Mr. Laursen.

This species is not deposited on our beaches as often as J. janthina, or J. globosa, but when this species does occur it is usually in fair numbers, though easily overlooked because of its size and somewhat darker shade of purple than other species. Look for the sharp, elevated apex, the deep sinus of the outer lip--coinciding with the fairly sharp keel on the body whorl. Note a very straight columella standing at a right angle to the horizontal axis of the shell--also the usually very tiny umbilicus--all of which separate this from young J. janthina which most closely resembles it.

Janthina prolongata Blainville 1822

(New name for shell we have formerly known as Janthina globosa Swainson; see Amer. Seashells, Abbott Pg. 160, Pl. 4k)

Mr. Laursen and Myra Keene agree in their selection of Janthina prolongata in place of Janthina globosa for this species. It is well illustrated in both American

Seashells, Abbott and Sea Shells of Tropical West America, Keene. Notice in both plates how the shell would appear to rest on a blunt pointed base. This is one of the easier ways to distinguish this species from the next, which has a rounded base. This is the second most common species of the genus seen in Texas.

Janthina pallida Thompson 1841 (New name for a new species for Texas lists)

This is the shell that began this whole inquiry. As I have remarked, on the beach it is most easily spotted by the pale, washed-out color. Strangely, Mr. Laursen does not mention this characteristic, perhaps because much of his material was quite old, so that the difference in color was not so noticable. However, the name translates from the Lating as "pale" so it seems reasonable to assume that the feature was recognized by the original author.

Besides the differentiating characters noted in the first part of this article, Mr. Laursen stresses the pronounced contrast in the shape of the radular teeth in this species as compared to the other Janthinas. Happily my preserved specimens enabled me to observe this feature, and they are quite different, as even I could see, who knows little of radular features. Helmer noted still another characteristic of interest, (again, not mentioned by Mr. Laursen) this is the microscopic sculpture this species exhibits under 10 to 20 power magnification. This sculpture consists of fine, crowded, wavy, concentric lines forming a cross-hatch where they cross the verticle growth lines. These lines are usually most apparent on the body whorl, especially near the columella. Janthina prolongata also exhibits some concentric lines, or grooves, but these are much courser, few in number, and widely spaced. It should be noted that the rounded base of this species, and the deep sinus and keel of J. umbilicata can be evaluated fully only in specimens which have unbroken outer lips!

So there we have the five species of the genus Janthina--one new one to add to our Texas lists, one new one to look for, and two new names to roll around on our tongue. But still one puzzle remains: Mr. Laursen devotes considerable time and space to establishing once and for all that Janthina janthina is a viviparous species, while the others are all oviparous.

Who are we to doubt this, but unless I've finally slipped over the edge--I would swear that I have collected Janthina janthina with float intact, and on the float--egg cases! Unfortunately, I have no proof, at present. I have preserved live Janthina janthina and separately, the floats with egg capsules, both in alcohol, and a few dried specimens with the whole business together. Alas, these dried specimens have crumbled and could no longer prove they were all of a piece. Under the microscope these are shaped much as other Janthina cases--and contain millions of the tiny shelled veligers. I have inquired of three other collectors and they too believe they have collected Janthina janthina as an egg bearing species. I am sure most collectors have seen the many, many, unattached floats which bear egg capsules, and which come in at the same time that the Janthina shells are coming in. I know I have collected two forms of these floats-one I have found with Janthina prolongata, and one I have always associated with J. janthina. However, memory can play strange tricks, so next time the Janthinas come rolling in, I'll be watching closely to find a J. janthina complete with float and egg cases. I hope others will watch too. If, in the meantime, some intelligent soul has actually found and preserved in alcohol the floats--for heaven's sake, do let us know post haste. Does Janthina janthina lay eggs in Texas? Or is the observation rotten in Texas--or is something "Rotten in Denmark?"

(Sorry about that!)

****

The intentional or accidental introduction of marine animals from the shore of one country to the shores of another has occurred many times. There are many instances known of American molluscs introduced in Europe, and vice versa. In the article "The Clam and Intustry in Britain", Alan D. Ansell discusses several cases. (Sea Frontiers, Vol. 10, No. 1, February 1964.)

MOLLUSCANA

by W. W. Sutow, M. D.

As one pursues conchology as a hobby, one develops an increasing interest in the history of the science and in the biographies of men associated with it. There are dozens of prominent names concerned with one aspect or another of this field. It remains for the academic malacologist to assess the relative importance of the scientific contributions of these men. I wondered, however, if some perspective might be obtained by quantitating the frequencies with which these names appear in the molluscan nomenclature. I started with R. T. Abbott's AMERICAN SEASHELLS. I tabulated the number of times each scientist's name appeared in relation to about 2000 designations of genus, subgenus, species and subspecies in the book. Some names, such as Linne, Dall, C. B. Adams and Conrad appeared throughout the wide spectrum of molluscan classifications. Others, such as Bartsch, were concentrated in sections dealing with a specific genus. Determined in this manner, the eight most frequently occurring names in association with American seashells were as follows (in order):

1. DALL, William Healey, 1845-1927, American
2. LINNAEUS, Carolus, 1707-1778, Swedish
3. CONRAD, Timothy Abbott, 1805-1877, American
4. CARPENTER, Philip Pearsall, 1819-1877, English
5. GMELIN, Jean Frederick, 1748-1804, German
6. SAY, Thomas, 1787-1834, American
7. LAMARCK, Jean P. A. de Monet, 1744-1829, French
8. SOWERBY, George Brettingham, II, 1812-1884, English

The second eight in order of frequency with which their names were associated with shells were: GRAY, BARTSCH, GOULD, ORBIGNY, PILSBRY, C. B. ADAMS, RÖDING and MÖRCH.

*****

Last month, I mentioned PHILATELIC CONCHOLOGY. Here are some additional bits of informations on the subject.

Since 1859, many well-known seashells have adorned the philatelic issues of various countries. The molluscan families representatives of which have appeared on stamps include:

PLEUROTOMARIIDAE	OLIVIDAE	LIMIDAE
TROCHIDAE	MITRIDAE	OSTREIDAE
TURBINIDAE	VASIDAE	CARDIIDAE
POTAMIDIDAE	HARPIDAE	TRIDACNIIDAE
STROMBIDAE	VOLUTIDAE	VENERIDAE
CYPRAEIDAE	MARGINELLIDAE	NAUTILIDAE
CASSIDIDAE	CANCELLARIIDAE	SEPIIDAE
CYMATIIDAE	CONIDAE	LOLIGINIDAE
DOLIIDAE	MYTILIDAE	ARGONAUTIDAE
MURICIDAE	PTERIIDAE	
FASCIOLARIIDAE	PECTINIDAE	

And the countries that have printed these "seashell-on-stamp" stamps include:

ALGERIA	GERMANY	NETHERLANDS
AUSTRALIA	GILBERT and	PORTUGAL
BAHAMAS	ELLICE ISLANDS	RYUKYU ISLANDS
BARBADOS	ISRAEL	SOMALI COAST
BRITISH SOLOMON ISLANDS	JAMAICA	SPAIN
CAYMAN ISLANDS	JAPAN	SWITZERLAND
COMORO ISLANDS	JUGOSLAVIA	TOGO
COCHIN	MALDIVE ISLANDS	TRAVENCORE
DUBAI	MONACO	TRAVENCORE-COCHIN
FIJI	MOROCCO	TUNIS
FRENCH POLYNESIA	NEW CALEDONIA	TURKS and CAICOS ISLANDS
	NEW HEBRIDES	WALLIS and FUTUNA ISLANDS

*****

AN INTERESTING PAPER

by Helmer Ode

For two different reasons the paper by D. C. Tabb and R.B. Manning, which appeared in Vol. II, 1961 of the Bulletin of Marine Science of the Gulf and Caribbean, is of interest to the Texas shell collector. In it the authors present a checklist of marine biota of Florida Bay. The reason that this inventarisation was undertaken was to prepare a record of the marine organisms of the area before human activities would have changed the biology of the area drastically.

It is to be feared that in the near future practically the whole coast of the U.S.A. will be seriously affected by human influence, leaving us with a flora and fauna which is but a ghost of what was described by Singley and Mitchell 50 years ago. Fishing areas, bird rookeries and migratory fowl wintering areas are being destroyed by dredging and bulkheading. As technical capability increases, an even more serious threat to conservation is posed by more ambitious plans, such as reclamation projects of whole river systems, which empty in the coastal bays. That this is a real problem is borne out by the paper: In Florida human activity in the coastal bay areas has already so far proceeded that it was difficult to select an area where no major changes in biology had occurred. The area chosen by the authors for study was protected better than the others because it was located within the confines of Everglades National Park.

Today we are witnessing the same process of human encroachment upon nature in Texas. The coast is rapidly being transformed in an uninterrupted series of boat marinas, beach house developments and other recreational areas, and the biology of the area is being drastically changed by levees and other regulation of the hydrology. The proposed plan for state wide control of the hydrology of the coastal bays from Sabine to Port Isabel poses the threat that much of the riches of the bays will be gone by the start of the next century.

The second reason of interest of the paper is quite different. Shell collectors who have collected in the Port Aransas-Port Isabel area are familiar with the fact that a number of species are abundant as dead and bleached shells throughout the bays, but that live specimens of these species have never been taken in the area. The most characteristic species of these are: Modulus modulus and Cardita floridana. Less common or rare but also exclusively dead are: Cerithium floridanum and Crassispira ostrearum. Other species still occur alive, but in numbers which make it difficult to explain the abundance of dead shells, Prunum apicinum and Chione cancellata, although the latter is not rare alive. Commonly alive are found Crepidula convexa and Anachis avara. All these enumerated species are listed by Tabb and Manning as characteristic for the Thalassia (Turtle Grass) community of the Florida Bay. Although Thalassia still occurs in Texas, the abundance of dead shells of species no longer or rarely found alive in Texas bays raises the interesting question whether at some period in the recent past the Thalassia community was not far more widespread throughout the bays than it is at present.

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Texas CONCHOLOGIST

Volume III, Number 6 January, 1967

NOTES & NEWS

January 25, 1967, 7:30 p.m., regular monthly meeting. Until further notice, 4503 Beechnut, Southwest Service Center, will be our new home. This service center is located near Meyerland between Stella Link and Post Oak. Dr. L. Elcan Walker of Houston will discuss "Abalones of the World" at this meeting. Dr. Walker has gathered abalones from around the world and has a very special interest in the haliotids of the Pacific Coast of North America. Along with his family, Dr. Walker has also collected "rocks". In particular, he has studied jade of which he owns a 1200-pound specimen. We look forward to a very informative program.

Dr. Wat Sutow, our program chairman, has outlined some interesting future programs for the meetings. Mrs. Jessie Geis will present a much-needed talk on "Conchological Latin" at the February meeting. In March Dr. Helmer Odé will speak on "Some Pelagic Snails of the Texas Coast". This will be followed by a workshop on the same subject. In April, Wat will report on the South Pacific and his rendezvous with Ernie Libby in the Marshall Islands.

* * * * * * * * * * * * *

Welcome: Mr. Richard Rosenkranz, Houston, Texas
Mr. Larry Horner, Houston, Texas

* * * * * * * * * * * * *

Because several new subscribers have asked for a list of the numbered references in the series "Notes Concerning Texas Beach Shells", this list will be republished. In the last issue of Volume III, an index of all species discussed so far will be given, and the references from Volumes I and II will be reprinted.

Helmer Odé, Harold Geis and Wyatt Odom went dredging in the Gulf, south of Galveston, two days during December. The plan was to go as far as the 100 fathom line and obtain samples from that depth up to the coast. However, the weather was not cooperative. Rough seas limited the dredging operations to much shallower water. In spite of seasickness pills, seasickness also troubled the shellers and during much of the time at least one of them could be found stretched flat on the deck or leaning over the railing. Nevertheless, with great determination, in spite of all adverse conditions, some interesting samples were obtained about which later a report will be forthcoming.

* * * * * * * * * * * * *

Mr. and Mrs. John Q. Burch have retired as announced in this paper previously. Their book business has been taken over by the following new owner:

Pamela Gates - Books
P. O. Box 1160
Alhambra, Calif., 91802

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HOUSTON, TEXAS

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

Fam. Lucinidae.

This widespread tropical family of bivalves is represented in Texas by five genera and eight species.

Lucina multilineata. Tuomey and Holmes 1857. Dead valves of this little shell are abundant at Port Aransas and farther south. It is quite rare at Galveston. Live specimens are known from both Aransas Bay and Port Aransas (Speers) and it has been reported alive offshore in (12).

Figured in: 1, 4, 6, 17.
Previous references: 11, 12, 14, 15, 17, 19, 20, 22.
Localities: Galveston, Indianola, Port Aransas, Padre Island.

Lucina amiantus Dall 1901. In the south somewhat less common than the previous species; at Galveston slightly more common, (only dead shells). Reported alive in 12, 14, and collected alive in Aransas Bay and at Port Isabel (Speers). According to (17) common in inlet assemblage.

Figured in: 1, 4, 6, 17.
Previous references: 11, 12, 14, 15, 17, 19, 20, 22.
Localities: Galveston, Indianola, Port Aransas, Port Isabel, Padre Island.

Lucina floridana Conrad 1833. Dead shells are quite common at Port Aransas and Port Isabel, but far less so at Galveston and Freeport. Live specimens have been taken in Galveston West Bay (coll. Geis), at Port Aransas and Port Isabel. The coarse edentulous hinge easily distinguishes this species from the next one. It is, especially in the South, a common bivalve of our bay and inlet areas, often alive.

Figured in: 1, 4, 5, 6, 7, 11.
Previous references: 11, 15, 19.
Localities: Galveston, Freeport, common in the south.

Phacoides pectinatus Gmelin 1792. This is a common species on all Texas beaches; but it is perhaps most common in the south. It has been taken alive on the mudflats of Galveston West Bay and all bays to the south. Also reported alive in 11, 14, 15, 20.

Figured in: 1, 2, 3, 4, 5, 6, 7, 11, 17.
Previous references: 11, 14, 15, 17, 19, 20.
Localities: All Texas beaches.

Codakia orbicularis Linne 1758. This large species may be extinct in Texas. All dead valves found so far are old and worn and may be reworked material. One hinged pair of valves from Port Isabel. (coll. Dashiell)

Figured in: 1, 2, 3, 5, 6.
Previous references: 11, 19.
Localities: Causeway to Port Aransas, Shamrock Island, Port Isabel, Padre Isabel.

Anodontia alba Link 1807. Common around Port Aransas and Port Isabel where live specimens have been reported from the "grassy" areas of the bays. Very rare at Galveston, (so far a single old valve, coll. Odé). Reported alive in 14, 20.

Figured in: 1, 2, 3, 4, 5, 6, 11.
Previous references: 11, 14, 19, 20.
Localities: Galveston (rare), Port Aransas, Port Isabel.

Anodontia philippiana Reeve 1850. This species is differentiated from the previous one by the different orientation of the anterior muscle scar. Single valves are common on the beaches of St. Joseph, Mustang and Padre Isls. Pairs can on occasion be taken from the spoil banks. All material appears old. Since no material has been found with any remains of ligament it is doubtful whether the species still lives near the Texas coast. Possibly still living off Mexico.

Figured in: 1, 4, 5, 6, 11.
Previous references: 11, 19, 20.
Localities: Port Aransas, Port Isabel.

Divaricella quadrisulcata Orbigny 1842. This species has only been found at the extreme southern tip of Padre Island. Here sometimes specimens are found in beach drift or attached to clumps of whipcoral; once a fresh pair was found thus (coll. Speers).

Figured in: 1, 2, 3, 5, 6.
Previous references: 11, 22.
Localities: Port Isabel.
Remarks: Phacoides spec. is reported in 19.

Lucina sombrerensis Dall 1886 is reported in 17 as being common along entire coast in intermediate shelf environment.

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A WORKING LIBRARY FOR THE COLLECTOR OF TEXAS MARINE SHELLS

by

Helmer Odé

The collector of Texas marine shells is faced with the formidable task of identifying shells of a fauna which until recently was very incompletely known and described. Although in the last twenty years, good progress has been made in the study of Texas marine mollusks, it still is virtually impossible to identify many of the Texas beach and offshore species with any amount of certainty, even leaving aside many taxonomic difficulties concerning better known species. As more and more

smaller forms are being described from adjacent areas, in particular Florida, deeper offshore waters in the Gulf of Mexico, and the Yucatan Peninsula, it becomes evident that several of these forms extend to the Texas coast and its immediate offshore waters. When I started to collect shells in Texas in 1957, it became soon apparent that none of the popular books available for identification was sufficient for the task and that only painstaking and patient investigation of the literature could settle some of the puzzling problems.

To assist those collectors who want to acquire a better idea of the Texas marine shell fauna I present the following notes which may be helpful.

The collector who is just starting and not familiar with the main classification on family and generic level should not be without Abbott's book (1), Perry and Schwengel's MONOGRAPH OF WESTERN FLORIDA SHELLS (2), Abbott's and Warmke's BOOK ON CARIBBEAN MOLLUSKS (3). All three works are well illustrated and the descriptions are in general clear. Another popular, but older work is that of Smith (4). It employs older names and its figures are not of the same quality as those of the above-mentioned works. From its wealth of figures of the smaller species the collector will get an idea of the general shapes and variability of these interesting shells. For identification of the smaller Texas forms, however, descriptions and figures must be considered often insufficient. The small field guide by Percy Morris (5) is a good buy, but it contains some incorrect identifications. The figures are reasonably clear, except for the smaller species, which sometimes do not present enough detail. Aside from the descriptive part, the collector will find many hints in these five books about the technique of collecting and arranging and care of his collection. Also useful is the study of checklists published for the area. The most valuable of these is the illustrated checklist of Pulley (6), which appeared in the Texas Journal of Science, and which still can be ordered. Since its publication many additions have been found and some taxonomic changes have been made. It should, of course, not be expected that in these works the whole of the Texas fauna is described and figured. With their help a beginning collector may be able to identify--at a guess--about 40% of the Texas beach species, but from them he will obtain an invaluable background and familiarity with the general classification of his shells so that more specialized works can be studied.

Among the more specialized works of importance for the collector who has become familiar with the composition of the Texas fauna in the first place should be mentioned the publication Johnsonia (7) which appears at irregular intervals. In it restricted groups, either families or genera or mollusks of the Western Atlantic are critically discussed and their biology and taxonomy is reviewed. So far three complete volumes have appeared and the 4th Volume is in progress. The material published up until now goes a long way to clear up many taxonomic difficulties and its illustrations are superb. For those families and genera not yet treated in Johnsonia the Texas collector must go to other sources. Many are easily available and we mention here: Abbott's MONOGRAPH ON THE SHELLS OF THE CAYMAN ISLANDS (8), Olson and McGinty's publication on SHELLS OF THE ATLANTIC COAST OF PANAMA (9), Usticke's checklist on the SHELLS OF THE VIRGIN ISLANDS (10), McLean's treatise on Puerto Rican (11) and Clench's and Turner's discussion on the types described by C. B. Adams (12). Very useful is also Olsson's and Harbison's Monograph on the Pliocene Mollusks of Southern Florida (13).

Mention should be made also of several papers by R. H. Parker, who described the various mollusk assemblages from Louisiana (14) to the Texas Coast (15) and who studied the fauna of the offshore waters (16).

With these excellent tools, I would venture the guess that when taxonomic difficulties are left aside about three quarters of all Texas beach and bay shells can be identified. I would consider above material a reasonable working library for the amateur collector of Texas marine shells.

For those who still are not satisfied but would like to try to find out what the difficult species "are", only patient detective work can serve their purpose. If one has an approximate idea about family or genus, one should go if possible, to monographs dealing with that group of shells. Perusal of the literature lists in various Zoological Publications, a study of journals in the field of malacology, such as Nautilus and Veliger is required. Quite often interesting data are obtained from older information on Gulf of Mexico shells and faunal listings. Monographs on related families should be studied. The works of Dall, Bush, Bartsch, Verrill and Pilsbry, which appeared in scientific journals 80 to 10 years ago should be consulted. Since in many of the difficult groups there is still much confusion in taxonomic matters, it will often not be possible to identify the smaller and lesser known species with any certainty. This should not discourage the collector. Part of the fun in collecting shells is the detective work connected with the identification. GOOD LUCK!

(1) Abbott, R. T. (1955) AMERICAN SEASHELLS, D. VanNostrand Co., Inc., 541 pages

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3. Warmke, G. L. and Abbott, R. T. (1961), Caribbean Seashells, Livingston Publ. Co., 346 p.
4. Smith, M. (1951), East Coast Marine Shells, Edwards Bros. Inc., 314 p.
5. Morris, P.A. (1956), A Field Guide to the Shells of the Atlantic and Gulf Coasts, Houghton Mufflin Co., Boston, 236 p.
6. Pulley, T. E. (1952), Illustrated Checklist of Marine Mollusks of Texas. Texas Journal of Science, Vol. 4., 167-199.
7. Clench, W.J. et al (1942-to date), Johnsonia, Monographs of the Marine Mollusks of the Western Atlantic. Dept. of Mollusks, Museum of Comparative Zoology, Harvard Univ., Cambridge, Mass.
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9. Olsson, A.A. and McGuinty, T.L. (1958), Recent Marine Mollusks from the Caribbean Coast of Panama with the description of some new genera and species.
10. Usticke, G.W. Nowell, (1959), A Checklist of the Marine Shells of St. Croix, U.S. Virgin Islands, with random annotations. Christiansted, St. Croix, V.I., Lane Press, Burlington, Vermont.
11. McLean, R.A. (1951), Scientific Survey of Puerto Rico and the Virgin Islands. Vol. 17. Part 1, The Pelecypods or Bivalve Mollusks of Puerto Rico and the Virgin Islands, New York Academy Sciences., 183 p.
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14. Parker, R. H. (1956), Macro-invertebrate assemblages as indicators of sedimentary environments in East Mississippi delta region. Bull. Am. Assoc. Petr. Geol., Vol. 40, 295-376.
15. Parker, R.H. (1959), Macro-Invertebrate Assemblages of Central Texas Coastal Bays and Laguna Madre. Bull. of Amer. Assoc. of Petroleum Geologists., Vol. 43, 2100-2166.
15. Parker, R.H. (1960). Ecology and distributional Patterns of Marine Macro-Invertebrates, Northern Gulf of Mexico, in: Recent Sediments, Northwest Gulf of Mexico, American Assoc. of Petroleum Geologists, Tulsa, p. 302-337.

MOLLUSCANA

by W. W. Sutow, M.D.

PHILATELIC CONCHOLOGY has been mentioned previously in this publication. With the current issue, the subscriber will have received a "live" specimen (mint copy) of a seashell-on-stamp stamp. This is the 4-yen value from Japan (Scott catalog #746) released in 1963 as part of the current definitive set. The shell is Perotrochus hirasei Pilsbry 1903. This noble species from the depths of the Pacific Ocean off the coast of Japan is probably the most "common" of the rare Pleurotomariids and is highly prized by the collectors.

The Pleurotomariids are anatomically and physiologically very primitive and are often called "living fossils" - throwbacks to ancient times. The first living representative of these slit-shells, Pleurotomaria (Perotrochus) quoyana was described in 1856 by Fischer and Bernardi. It is known, however, that drawings of Perotrochus beyrichii (Hilgendorf, 1873) were printed in Japan in a book by Musashi as early as 1843. For the family Pleurotomariidae J. Sowerby 1821, three genera are currently recognized: Perotrochus P. Fischer 1885; Entemnotrochus P. Fischer 1885; and Mikadotrochus Lindholm 1927.

In a recent article, F. M. Bayer ("New Pleurotomariid Gastropods from the Western Atlantic with a Summary of Recent Species", Bulletin of Marine Science, 15:737-796, 1965) reviews the known pleurotomariids and documents, in addition, three new species from the Caribbean waters. Historically, six species were described (world-wide) between 1856 and 1903. Then no new species were reported for 45 years until 1948. For North American waters, nothing new was described between 1861 and 1963, a period of time exceeding one hundred years! Geographically, one species occurs off South Africa and one species in the East Indies. Seven species including the East Indian slit-shell are found off Japan. Up to now, six species have been dredged from the Western Atlantic Ocean (Caribbean waters).

The six North American species are the following:

Perotrochus quoyana	Fischer and Bernardi 1856
" adansoniana	Crosse and Fischer 1861
Mikadotrochus amabilis	Bayer 1963
Perotrochus midas	Bayer 1965
" lucaya	Bayer 1965
" gemma	Bayer 1965

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Estimates of numbers of different species in a given family or class or order or phylum are always intriguing. The shell collector is naturally interested in knowing how many species of mollusks are thought to exist. The following estimates are credited to Dr. Rehder (U. S. National Museum) and are tabulated in "Growth Including Reproduction and Morphological Development", edited by P. L. Altman and D. S. Dittmer, Federation of American Society for Experimental Biology, Washington, D.C., 1962, p. 535.

Estimated number of species

Animal kingdom	Total	990,725
Arthropoda (most numerous)		765,257
Mollusca		81,000
Cephalopoda	675	
Bivalvia	15,000	
Scaphopoda	325	
Gastropoda	64,200	
Amphineura	800	

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CHANGING NAMES

by Helmer Ode

Shell collectors have often complained to me that it is useless to learn the Latin names of shells, because of the frequent name changes. By the time they have learned one name, another name is used in the books. The problem is indeed somewhat annoying but when compared with the problems facing the expert, who must determine a "correct" name, it is negligable. Moreover, the confusion which arises from the use of popular and local names, instead of scientific names, is immeasurably greater, than that caused by a temporary inconvenience. For those who are not familiar with the necessity for these changes, the following may be of interest.

The idea to classify animals and plants by a name consisting of a generic and specific part, was conceived by Linneus in the 18th century. His so-called binomial system of nomenclature was an enormous improvement on the pre-linnean attempts of classification and it may truly be stated that biological classification started with Linneus.

The early naturalists who were not yet familiar with the enormous variety of species often classified forms together which are now placed in different orders, or classes. With the increase of knowledge about classification, it became apparent that many of the originally given names should be changed, at least in the generic part. This was not always done, but on the whole confusion arising from this change was not serious. Far more serious errors were caused by duplications. In the early part of the 19th century many fine collections of tropical shells existed in Western Europe and were described by the naturalists. Because communications were not as easy as nowadays and the editions of the books printed not as large, it is not surprising that many duplications in nomenclature occurred. Especially if the original descriptions appeared in little known publications the chances for such duplicate descriptions were great. Unfortunately this was the case.

Nowadays illustrations of shells can be made quite clearly by a photograph, but the early naturalists depended completely on the skill of their draftsmen. Although many very precise and beautiful figures (whatever technique was used), were prepared, not all early illustrations were clear or without error. Not seldom for instance right handed spirals were printed as left handed ones. That is they were printed as mirror image! These imperfect figures and plates contributed to the confusion, because the wrong name became attached to a certain species as consequence of a wrong interpretation of a figure.

In the beginning of this century a careful set of rules was worked out how to establish the "correct" name and how the so called priority rules should be applied. Thus the names given by certain naturalists were considered invalid, and had to be replaced by others. If the original specimens, from which the old illustrations and descriptions were derived, were placed in a museum collection and are still available for critical study (so-called "type" specimens) it is still possible to clear up many taxonomic difficulties. Unfortunately many of these original specimens were lost. Sometimes the collections became disarranged or more or less disappeared through neglect; in other cases acts of war destroyed valuable material, or sometimes fires or earthquakes took their toll. For instance, in the great Chicago fire a famous American shell collection was lost.

The patient investigations by the experts into the true identity of the earlier described shell species has brought to light the fact that many names in common use about 40-50 years ago were erroneous. This detective work is still going on, with the result that names have to be changed. Fortunately this process must end and although some personal bias in the interpretation and application of priority rules cannot be avoided, we may expect that the majority of scientific shell names will become final and "correct". The greatest difficulty appears at the moment the sometimes perhaps unnecessary splitting of closely related forms into separate species. This difficulty will probably never be resolved because the delineation of the range and variability of "a species" depends too much on personal inclination and taste.

To indicate precisely which shell is discussed the more specialized works present a synonymy, which usually precedes the description of the species. This synonymy consists in a listing of the names of the species under discussion employed

by previous authors, together with the title of the book or paper in which it was published, its year of publication and if available, plate and figure numbers of the illustrations. Such a synonymy often is quite interesting and presents valuable clues as to the identity of shells in one's collection.

Although it can be expected that finally a set of "correct" names will be decided upon, there is no indication that the names will be "logical" There are many instances in which shells must be called according to the rules by strange and inappropriate names. For instance, Epitonium novangliae was originally described from a specimen accidentally transported to New England. This species lives far more to the south, --in fact it is not uncommon on Texas beaches--, but novangliae is the correct name! Even more surprising is the case of Nerita peloronta,the well known Western Atlantic species, popularly known as "bleeding tooth." Linneus named it for an island in the East Indies, in the mistaken belief that his specimens came from that location. Moreover the first part of its specific name is, as Abbott states, "a horrible latinization" of the Malayan word Poeloe(island). In the 18th century, the shells of the related indonesian species were called "poëlerontjes" by the Dutch traders who brought large quantities to Western Europe, to satisfy the demands of a flourishing shell collectors market.

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Mrs. Constance Boone sent in the following note about vines obtained from sea beans:

In February, a visitor to our shell show told me about growing a vine from sea beans, which was very beautiful and really thrived. This summer while buying bait one morning at Mrs. Fleming's bait camp along the harbor in Rockport, I noticed that the entire front of the little camp was covered with a lusty, very green vine. I asked what the vine was and was told that it was the plant from the sea beans. Mrs. Fleming had been growing the vines for a number of years. I did not see any blooms but was told they resemble large morning glory flowers, similar to the night blooming kind and are white. Mrs. Fleming also said the vines grow wild on Padre Island.

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THIS IS PROGRESS? by Corinne Edwards

WATCH OUT FOR DREDGES (AND BULLDOZERS) THEY HAVE A HABIT OF COMING BACK! Progress is wonderful but sad for the nature lover and the natural shore lines and devastating to all of our marine life and mollusks. "They" say a half inch of silt can kill out a whole area. It has been pointed out to us in South Florida and Biscayne Bay Miami area especially. "They" say the bay is worth from $500 to $720 per acre per year (In wheat country 50 bushels of wheat per acre is a fine yield and yet brings in less than $200 an acre to the farmer who has to plant, spray and cultivate it. BUT Biscayne Bay just needs to be left along, no more causeways or man-made barriers across it, no more filling in 28 and 5/8ths acres of shallow bird-feeding and shrimp and lobster and fish breeding grounds for high risers and no nourishing of the beaches. PLEASE!!!

So delicate is the biological balance that an eelgrass blight in Massachusetts waters once caused a soft-shell clam decline when the seed clams, unprotected by the eelgrass, were washed into dpeper waters. Their Bay Scallop Aequipecten irradians, declined as did other food mollusks. Even a goose, the Pale Breasted Gant, which fed on Eelgrass, almost vanished when its food supply disappeared. And so it will BE in Florida if our Turtlegrass is covered over with dredging silt or during so-called beach nourishment programs.

In the August-September 1966 issue of NATURAL HISTORY, there is a remarkable series of pictures of the seaslug, Glaucus atlanticus, which in the past has been reported for the Texas Coast. The paper to which they belong is entitled: IMPROBABLE MOLLUSK by William M. Stephens.

Texas CONCHOLOGIST

Volume III, Number 7 February, 1967

NOTES & NEWS

February 22, 1967, regular monthly meeting at Southwest Service Center, 4503 Beechnut. Mrs. Jessie Geis will help us with our Latin pronunciation.

Sgt. Dickle of the Houston Police Department made us welcome at our new meeting place, Southwest Service Center, January 25, 1967. Tom Kister informed us that John Edstrom has once again asked our group to exhibit shells May 12 and 13 at Sharpstown Center, so start saving your extra shells for our booth sale and planning your exhibits now. Our junior members have been asked to set up exhibits at the February Outdoor Nature Club meeting. Dr. L. Elcan Walker gave a very informative lecture on abalones. Dr. Walker collects rocks and it is his wife who saves the shells from the abalones they find along the coast of California. There are eight varieties of American abalone, the red abalone being the largest in the world. Only the muscle of the abalone is eaten and this should be tenderized first. Dr. Walker uses a wooden mallet to pound the muscle, letting the muscle relax between poundings. By following this method, he guarantees a gourmet dinner.

Ike and Nita Sheffield are once again in Mexico but the snow has kept them from doing a great deal of shelling. They have found a number of Chione guidias in spite of the unusual weather.

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Pierre Beyst, Beaulieu, Avenue Ermitage, Rhode Saint Genese, Belgium, would like to exchange shells. He specializes in cones, cypraeas and volutes.

All too often the editor has unintentionally reported fiction. This time he will do so on purpose. While traveling and in need of something to read, he bought an interesting novel: THE OYSTERS OF LOCMARIAQUER by Eleanor Clark, (Vintage Book, V-314) which is set in France and relates the life of those who live and work in the oyster culture. The book gives many interesting biological details about the life of the oyster. According to an acknowledgement at the beginning of the book, the author consulted the scientific works of many of the world's foremost experts, and was assisted by biologists of note during the preparation of the manuscript. The result of their joint enterprise is a most delightful book which as far as can be judged appears zoologically correct.

Most of our members who subscribe to Johnsonia will by now have received the latest issue of that publication on the Tellininae. Some changes in nomenclature have occurred, which affect offshore Texas species. The large musea, whose collections have been examined by the author, still lack Texas material as is evident from the cited examined specimens. It is unfortunate that apparently errors in the legend of Plate 142 remained undetected in proofreading.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode Mrs. Anne B. Speers

Family Pholadidae

This widespread family of bivalves is represented in Texas by the genera Cyrtopleura, Barnea, Pholas, Martesia, Diplothyra and Jouannetia. The animals live either deeply buried in mud (angel wings) or bore holes in wood, rocks or other shells (piddocks). The remarkable hinge structure of the shells involves extra plates for the protection of one of the adductor muscles which is located outside the shells. These plates are only rarely found in beachdrift.

Cyrtopleura costata Linne 1758. This common shell is often found in large numbers dead along the Texas Gulf beaches. The animal lives at many places on the mud flats (Bolivar, Galveston West Bay, Aransas Bay, Corpus Christi Bay, South Bay). Large numbers were wiped out by the freezes of 1961, when the minus tides left them exposed. This mortality has been erroneously ascribed to hurricane Carla, which in fact did them little damage.

Figured in: 1, 2, 3, 4, 5, 6, 11, 17, 21, 22.
Previous references: 11, 14, 15, 19, 20, 21, 24, 25, 26.
Localities: Common along the entire Texas Coast.

Barnea truncata Say 1822. This lesser known species is of widespread occurrence along the Texas coast. Live specimens have been collected on the mudflats of the Sabine River, Bolivar Peninsula, San Luis Pass, Matagorda Bay and Corpus Christi Bay. Dead shells are less common than those of the previous species, but are fairly common from Sabine to Bolivar Pass and quite common at Ingleside Point (Corpus Christi Bay). Dead shells are also found at Port Isabel in spoil areas, and occasionally in beach drift along the entire coast.

Figured in: 4, 5, 6, 21, 22.
Previous references: 13, 19, 21, 22.
Localities: Fairly common in the Galveston and Port Aransas areas.

Pholas campechiensis Say 1822. This always common and sometimes abundant species has been found rarely alive. Some magnificent specimens were recently collected alive at San Luis Pass (coll. Kister) from a large piece of

wood. These shells have a pinkish flush. Still more recently specimens were collected alive at low tide in heavy mud at Gilchrist (coll. Glass) and we have reports that live specimens can be collected at low tide on McFaddin Beach at Sabine. Small specimens were collected alive in wood on Mustang Island (Speers). Also living in pilings near ferry landing at Port Aransas.

Figured in: 1, 5, 6, 11, 21.
Previous references: 11, 19, 20, 21.
Localities: Dead valves common along entire Texas Coast; live specimens at Sabine (?), Gilchrist, Mustang Island.

Diplothyra smythi Tryon 1862. Almost without exception this little piddock is found boring in other shells or pieces of rock (Sargent). Rarely in wood, but some instances are known (coll. Odé, Speers). Many old Crassostrea and Mercenaria shells are riddled with their burrows. According to references 14 and 17 boring in oysters in the high salinity oyster reef assemblage. The animal is common in oysters of Lydia Ann Channel (near Port Aransas).

Figured in: 21
Previous references: 14, 15, 17, 19, 20, 21.
Localities: Commonly found boring in shells of large and thick bivalves, and sometimes in pebbles, along the entire Texas coast.

Jouannetia quillingi Turner 1955. This rare but highly characteristic species has recently been described from the Gulf of Mexico (21). The first beach specimens were found at Port Aransas (coll. Young). Also one dead specimen from a piece of rock at Sargent (coll. Odé). Mr. Paul McGee collected a large piece of shale from Heald Bank, containing many live specimens.

Figured in: 21.
Previous references: None.
Localities: Sargent, Port Aransas.

Martesia fragilis Verrill and Bush 1890. This is undoubtedly the most common woodboring piddock of the Texas Coast. The species is easily recognized by the characteristic shape and sculpture of the metaplax. Often alive in boards, tree trunks and other wooden objects.

Figured in: 21.
Previous references: It is highly probable that many previous references to other species of this genus concern this species.
Localities: Common in drifting wood along the entire Texas coast.

Martesia cuneiformis Say 1822. In Texas this wood boring piddock is less common than M. fragilis, from which it is separated by the shape and sculpture of the metaplax. It can be found in wooden objects on the outer beaches.

Figured in: 2, 4, 6, 21.
Previous references: 19, 21, 22, 51.
Localities: Galveston (Odé), Freeport (Odé), Port Aransas (Speers), Port Isabel (Speers).

Martesia striata Linne 1758. Although we so far have never found this species on Texas beaches, we will include it in our list on the strength of a reference in (21), where it is listed from Port Isabel.

Figured in: 1, 2, 3, 4, 5, 6, 21.
Previous references: 18, 19, 21 (see also 11). Probably most of these references should pertain to M. fragilis or M. cuneiformis.
Localities: Port Isabel..

MOLLUSCANA

by W. W. Sutow

The esthetic attributes of the seashells have been extolled over the ages and the beauty of the molluscan forms have been captured in many types of art. Ormond McGill, the well-known shell dealer in Palo Alto, California, has put the seashells to a still different, novel and colorful use. He has built a complete magic act around his shells! A long-time magician of international reputation, Ormond is currently presenting "A Magical Journey Around the World of Nature" in which the MAGIC OF THE SEA is featured.

* * *

Volume II of PHYSIOLOGY OF MOLLUSCA has been released recently by Academic Press. Edited by K. M. Wilbur and C. M. Yonge, this and the preceding volume (I) contain a group of technical discussions of the important life functions of the mollusks. While these articles may be of little practical interest to the majority of shell-collectors, the scope and the authority of these treatises (and the bibliographies) seem sufficiently important to record here at least the chapter headings.

Volume I

1. Classification and the Structures of the Mollusca (J. E. Morton and C. M. Yonge)
2. Physiological Aspects of the Ecology of Intertidal Molluscs (G. E. Newell)
3. Physiological Aspects of Ecology in Nonmarine Molluscs (W. R. Hunter)
4. Reproduction (V. Fretter and A. Graham)
5. Development (C. P. Raven)
6. The Culture of Marine Bivalve Larvae (P. R. Walne)
7. Growth (K. M. Wilbur and G. Owen)
8. Shell Formation and Regeneration (K. M. Wilbur)
9. Osmotic and Ionic Regulation (J. D. Robertson)
10. Muscle and Neuromuscular Physiology (G. Hoyle)
11. Special Effectors: Luminous Organs, Chromatophores, Pigments and Poison Glands (J. A. C. Nicol)
12. Locomotion (J. E. Morton)
13. The Buoyancy of Marine Molluscs (E. J. Denton)

Volume II

1. Feeding (G. Owen)
2. Digestion (G. Owen)
3. Feeding and Digestion in Cephalopods (A. M. Bidder)
4. Heart, Circulation and Blood Cells (R. B. Hill and J. H. Welsh)
5. Respiration (F. Ghiretti)
6. Molluscan Hemoglobin and Myoglobin (K. R. H. Read)
7. Molluscan Hemocyanins (F. Ghiretti)
8. Pigmentation of Molluscs (D. L. Fox)
9. Carbohydrate Metabolism (C. K. Goddard and A. W. Martin)
10. Nitrogen Metabolism (M. Florkin)
11. Excretion (A. W. Martin and F. M. Harrison)
12. Physiology of the Nervous System (L. Tauc)
13. Sense Organs (less Cephalopods) (G. H. Charles)
14. Cephalopod Sense Organs (M. J. Wells)
15. The Brain and Behavior of Cephalopods (M. J. Wells)

* * *

The sea-and-sand polished fragment of the abalone shell with its eye-catching nacreous brilliance never ceases to please the beachcomber. Highly polished specimens of the abalone, pearl oyster, nautilus and some whelks and conchs find favored spots in the displays of many shell-collectors. Cut pieces of many shells have been utilized as "mother-of-pearl" in art and ornamentation.

D. L. Fox tells us (see chapter headings for Volume II above) that the iridescent colors of these shells may not be produced by biological pigments at all. Instead, what we see as the colors are mechanically caused (schemochromically or structurally) by "wavelength interference between entering and reflected light rays by extremely thin layers of calcium carbonate alternating with a substance of contrasting refractive index, usually water".

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NEWS OF INTEREST FROM DIFFERENT SOURCES

by Helmer Odé

A new mactrid. Mention was made recently in two papers (Refs. 1, 2) of a small as yet undescribed mactrid, which was discovered in Lake Pontchartrain, La. (1) and which subsequently was also collected in Mississippi (Ref. 2). It is a small bivalve, up to one-half an inch in size resembling juvenile Rangia cuneata, but somewhat differing in shape and in structure of the hinge. Its generic name is Rangianella. So far I have not seen a photograph or a description, but Texas collectors, especially the eastern part of the state, should be on the lookout for it, because it is not unlikely that its range may extend to Texas.

Aplysia in Texas. Recently the world wide species of the genus Aplysia have been reviewed by Eales (Ref. 3). In her monograph the following species of Aplysia are specifically mentioned for Texas:

Aplysia brasiliana Rang 1828 (syn: Aplysia floridensis Pilsbry 1905)
and
Aplysia morio Verrill 1901.

Not specially mentioned for Texas, but cited for a range which includes Texas are:

Aplysia dactylomela Rang 1828 (syn.: Aplysia protea Rang 1828)
and
Aplysia willcoxi Heilprin 1886.

The latter two species are listed together with Aplysia floridensis in the faunal list compiled by J. P. Breuer for the lower Laguna Madre (Ref. 4). Another small Aplysia was recently described from Port Aransas:

Aplysia donca Marcus and Marcus 1959 (Ref. 5).

Checklists. In the last few years a number of faunal checklists has appeared which are of interest to the Texas shell collector. We mention here:

Ref. 2, which deals with the marine and brackish water mollusks of the state of Mississippi.
Ref. 4, which lists shells collected alive in the Lower Laguna Madre.
Ref. 6, which enumerates and figures shells from Alacran Reef, off Yucatan.
Ref. 7, which enumerates and figures shells from deeper water off Yucatan.
Ref. 8, which presents a listing of shells from Stetson Bank.
Ref. 9, which deals with the mollusks of a Mexican Coastal Lagoon.
Ref.10, which lists mollusks of the continental shelf off North Carolina.

Calico scallops. The differentiation between shells belonging to the closely related species Aequipecten irradians Lamarck and Aequipecten gibbus Dall is not always an easy matter. A discussion of morphological and ecological differences between the two species as they occur in Florida has recently appeared. (Ref. 11).

Aclididae in Texas. On many localities on the Texas coast very minute slender gastropods can be collected whose length is about 1 mm. Compared to them most mature vitrinellids are quite large and thus these slender shells are among the smallest mollusks of our fauna. I have obtained specimens of these shells from

beachdrift at Galveston (San Luis Pass), Matagorda, Port Aransas and Port Isabel. Until recently I was not able to place these shells and guessed that they probably belonged to the family Aclididae. The other day I came across a copy of Bartsch's Monograph of the Aclididae of the Western Atlantic (Ref. 12), which threw some light on their identity. The shells in my collection unquestionably belong to the same genus that Bartsch erected for some similar small gastropods from Florida, the Bahamas and Yucatan and which he named Henrya and placed in the family Aclididae. The shells which Bartsch described came from lagoonal areas. Further investigations are required and more material should be available before one can have certainty about the identity of the small Texas shells. In particular live animals should be obtained so that their anatomy may be studied and their relationship with the Aclididae confirmed.

Coming taxonomic change? In Ref. 2, D.R. Moore mentions that Dr. J.P.E. Morrison of the U.S. Nat. Museum supplied him the following information. Unpublished work by Dr. Alfredo do la Torre has established the genus Alabina, Dall 1902, as a synonym of Finella A. Adams 1860. Moreover, Alabina certhidoides Dall 1889, appears to be a synonym of Chemnitzia dubia d'Orbigny 1842. Hence the name of Alabina cerithidoides Dall 1889 should be: Finella dubia d'Orbigny 1842.

Nudibranches of Texas. Nudibranches form undoubtedly the most neglected group of Texas mollusks. This is not surprising, because apart from a few larger species, most nudibranches are small and inconspicuous animals, which are difficult to find and to preserve. Until recently nothing was known about the nudibranch fauna of Texas, simply because no significant collecting had been done. Recently, however, several species were reported from Texas (Ref. 5) of which three are newly described species.

Synonyms. According to D. R. Moore (Ref. 2) Meioceras lermondi Dall 1924 is synonymous with Meioceras nitidum. Hence some more confidence may be felt in affixing the name Meioceras nitidum to the little shells of this genus, common at Port Aransas.

Identity of Caecum glabrum from Texas. Specimens of a species of Caecum collected in Mississippi by D. R. Moore (Ref. 2) and thought to be Caecum glabrum Montagu, are according to Dr. H. Rehder, perhaps a different species. Since a species closely resembling Caecum glabrum is not rare in Texas, further verification of the identity of the Texas specimens appears necessary.

Drum diet. In Ref. 13 a list of bivalves, which constitute a food item for the black drum (fish), is presented. The following species are enumerated:

Chione cancellata
Amygdalum papyria (name and spelling corrected)
Aequipecten irradians amplicostatus (juv. spec)
Laevicardium mortoni
Anomalocardia cunei meris
Mulinia lateralis
Mercenaria mercenaria (Venus)
Tagelus gibbus
Donax variabilis

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Liz Eubanks, our former editor, wrote an article about cleaning shells in one of our earlier issues. We have had many requests, especially from our beginners, about cleaning methods so we are presenting a repeat from our Volume 1, Issue No. 3:

Cleaning Shells - What to Do About the Animal

Each collector has his own pet way of removing the animals from the shells so the methods described here are the ones that have worked successfully for me, and are not necessarily the only ways to discharge this rather unpleasant task. The warnings given, however, are agreed upon by most collectors. The best oommon sense guide is to remember that shells cannot withstand sudden temperature changes, and that they are principally composed of calcium carbonate and treat them accordingly. Always save opercula (all species do not have this part) and keep them with the proper shell. The animal should be removed or preserved before it begins to decay; otherwise the task is twice as difficult. Small shells (up to about 3/4") are more easily prepared for the display case by preserving the animals than by removing them. Museums and other scientific institutions usually prefer to have all shells with the animals preserved intact. Many shells such as Murex, Busycon, Thasi and bivalves, can be safely boiled to make the animal tissues firm so the whole thing can be pulled out. Shells having a heavy glaze, such as Strombus species, can be boiled perhaps, but only in a particular way; or the beautiful glaze will become checked. Oliva, Cypraea, and other shells with glossy surfaces cannot be boiled or soaked in

preserving fluids without marring their lovely surfaces. NEVER "spoil out" animals by soaking in water or burying in sand. These methods cause the acids of decomposition to be in contact with the shells, the surface of which will become etched.

To Preserve the Animal in the Shell: So that the operculum will be in view, first let the animal die; living animals withdraw deeply into their shells when put into a preservative. Then put the shell in a closed container of DENATURED ALCOHOL and let it remain for a few days (longer times for larger shells). Never use formaldehyde for this purpose! It will weaken the shell; and if left in this substance over a period of time, the shell will be decomposed. Let the shells dry after removing them from the alcohol and they should have no offensive odor.

Shells That Cannot be Boiled: Usually Oliva and Cyphoma animals can easily be pulled out of their shells after they have been killed in fresh water; because they do not have deep attachments within the shell. Cypraea present a problem, however, and after unsuccessfully trying the freezing and boiling methods (both checked the shell), as well as the method of digging the animal out "raw" (messy, Cypraea mucous won't easily wash off hands; animal did not nearly all come out), I devised a "dehydration in the refrigerator" method which has worked well for me: Let the animal die in fresh water; then, remembering that Cypraea shells will permanently water spot, dry the shell to a polish. Wrap the shell in a paper towel in such a way that the aperture has the thickest covering; and put it in the refrigerator APERTURE SIDE DOWN to stay about five days. The mucous will dry up; the animal won't decay and the shell won't check. The animal may then be pulled out with a large heavy curved carpet needle inserted deep into the muscular area. If the animal cannot all be picked out or flushed out with water, DON'T SOAK THE SHELL IN ANYTHING. Completely drain out all the water and let the shell (after drying and polishing it) set aperture UP, and the small amount of animal material remaining will dry and usually cause little or no unpleasant odor. I also use this method for small Strombus, which are next to impossible to boil without causing checking of the glaze.

Boiling Shells: Most beginners understand this method, but a few tips might be helpful. ALWAYS start any shell in COLD water, and bring it to a boil SLOWLY; also, NEVER expose a HOT shell to COLD water. Before putting shells into the boiling pan, cover the bottom of the pan with paper towels or cloth; this prevents chipping of the shell from the action of the moving water and the checking of the shell from direct contact with the heat source. Length of boiling time necessary increases with the size of the shell. If Strombus must be boiled, in addition to the above procedures, pour mineral oil into the water (enough to coat the water surface), and make sure that the water covers the shell ENTIRELY. Do not remove the shell from the water to extract the animal UNTIL the water has COOLED TO LUKEWARM; or the glaze will check. Immediately after the animal has been removed, put MINERAL OIL or VASELINE on the glazed part of the shell. If all the soft parts do not come out and will not shake out of a boiled shell (this often happens), pour Clorox into the aperture and set the shell up on its apex to soak for a few days. Be sure not to get the Clorox on the outside of the shell. After soaking, the remains will usually shake out; but if they do not, a little denatured alcohol can be poured into the aperture, and after it is dry, there will probably be no odor.

The principal value of these methods and precautions is for preserving the beauty of shells. I have yet to hear of any method that is 100 percent sure-fire for removing all of the animal every time. As you probably know already, a shell collector must be willing to endure a certain amount of unpleasant odors or limit his collection to dead shells from beach drift.

Texas CONCHOLOGIST

Volume III, Number 8 March, 1967

NOTES & NEWS

March 22, 1967, regular monthly meeting at Southwest Service Center, 4503 Beechnut. Dr. Helmer Ode will lecture on pelagic shells and will conduct a workshop afterwards so bring your purple seasnails with you and find out just how many varieties you own.

We were sorry not more members were present at our meeting held February 22, 1967. The small enthusiastic group present learned a great deal from Mrs. Jessie Geis on how to pronounce the names of our Gulf Coast Shells. She gave us English meanings of the Latin and Greek words which should help us in our shell discussions as well as daily conversation for sixty percent of our English words are derived from Latin. Jessie, though not a collector, is very patient with the shellers who use her home as a continual workshop while working on the Gulf Coast Collection for the Museum of Natural Science. Evidently she never complains for Harold is still slowly but surely filling their home with shells as well as keeping their freezer well occupied. Jessie stays busy writing children's books (she has authored several already) as well as teaching Latin and English at the University of Houston. Thank you again "Mrs. Harold Geis" for a very informative evening.

John Edstrom was with us and he will work with Carlos as Exhibit Chairman. Carlos, of course, will be basking in the sun on Sanibel Island during our May shell exhibit but he gives many ideas and hours of his time before he leaves our city. John has some great ideas this year and would like to have a shark,or barracuda or a mermaid to attract a little attention. A little attention???

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A belated thank-you to Ike and Nita Sheffield for their gift of fossil shells at our January meeting.

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We are expecting a write-up about Padre Island Shell Show in our next issue. Mildred Tate, Joe Varnado, Anna Mae Bishop, Hollis and Connie Boone drove down for this big event while Leola and Berkeley Glass went by boat. Incidentally, it takes three days to go by water (shelling along the way?), eight hours by car and about an hour by plane.

Beaumont Shell Show held March 18 and 19. More about this event later from Helmer as he was one of the judges.

Jean Riddle preparing for a trip to India.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Odé Mrs. Anne B. Speers

Family Terebridae

In Texas only one genus with several representatives. These shells are commonly called Auger shells.

Terebra dislocata Say 1822. A common species often found on the beaches especially near the outlets of bays. It can be collected alive on the mudflats near Bolivar Point and San Luis Pass, and on the outer beaches and within the passes around Port Aransas and Port Isabel. Listed in reference 17 with "inner shelf zone assemblage".

Figured in: 1, 3, 4, 5, 6, 11.
Previous references: 11, 12, 14, 17, 19, 20, 22, 23.
Localities: Common along the entire Texas Coast.

Terebra protexta Conrad 1845. Dead shells of this species are found regularly in beachdrift along the entire Texas coast. They appear to be most common at Galveston, where all material washed ashore is worn and fragmentary. Some fresher looking material has been collected at Port Isabel, (Odé), and was also obtained by diving from less than one mile offshore off Padre Island (Speers collection). The widespread occurrence of fragments in beach drift suggests that this species lives close to the shore along the entire Texas coast.

Figured in: 1, 4, 5, 6.
Previous references: 11, 19, 20, 22, 23.
Localities: Galveston, Freeport, Sargent, Port Aransas, Padre Island, Port Isabel.

Terebra concava Say 1827. This species is rare on Texas beaches, but not uncommon in deeper offshore waters. So far only two specimens were collected on Galveston West Beach (coll. Odé) and several in beach drift at Port Aransas (Coll. Speers) and a few at Port Isabel (coll. Speers). We have no record of live beach specimens.

Figured in: 1, 4, 6, 7.
Previous references: 11, 12.
Localities: Galveston Island, Port Aransas, Port Isabel.

Terebra taurinus Solander 1786. Specimens of this large Terebra are rarely found on Padre Island and Matagorda Beach. Unknown from the Galveston area. Three live specimens were reportedly collected at Port Isabel following hurricane Carla.

Figured in: 1, 3, 6.
Previous references: 11, 19.
Localities: Matagorda Beach (6), Padre Island, (Speers and other collectors).

Terebra cinerea salleana Deshayes 1859. Under this name we group together the shells which have been named T. cinerea, T. salleana and T. Maryleeae. The latter was recently described from Freeport (ref. 60). The complex contains highly variable shells and especially the color may vary from a deep black purple to pure white. They live in colonies, often in the intertidal zone of the beach. Most colonies show a predominance of one form, but almost always intergrade with the usual grey specimens, which can be collected in adjacent colonies. Whereever it occurs, the species shows great variation. During the summer the species is frequently found alive at the low tide line. In Ref. 17, it is stated to occur with Donax communities and said to be a typical surfzone species.

Figured in: 3, 11, 17.
Previous references: 11, 17, 19, 20.
Localities: Along the entire Texas Coast, but perhaps most common towards the south.
Remarks: Terebra dislocata rudis Gray 1834 has been listed in 17 for the upper continental slope.

PROPER LABELS

by Dr. Helmer Odé

In a previous issue we discussed some sources helpful for the identification of Texas marine shells. Next arises the problem: In what manner should the name be affixed to the shell and what information should be given on a label. To know its name and nothing else robs a shell of much of its interest. A mere indication such as Atlantic Ocean, or Gulf of Mexico or even Texas or Brazil, is not significant. The true collector will want to have a permanent record of the precise location, the date, the surroundings and many other data. It is important to know whether the animal was collected alive or dead, whether in beachdrift or obtained by diving or dredging, whether there were many or only a single specimen. Moreover, the label should carry some information which facilitates easy retrieval from the collection. As a collection grows, the problem of locating the box, jar, slide or drawer in the storage system, which contains the shell one wants to see, increases proportionately.

The following system I have found quite successful in the past. All shells which have been collected on the same date and at the same location, and which, I believe, belong to the same species are given a number, which is either written in an inconspicuous place on a big shell (such as inside the lip of a gastropod) or a number written on a slip of paper and put with the shells in the glass jar or written on the microslide. Instead of a slip of paper, one may use a standardized printed label which provides space for more information. The essential point is that a number should be affixed. A name can -- but need not -- be written on the slip. The shell or shells are then stored in a box, drawer or tray. At the same time an entry is made in a ledger book, where after the number, the date, the precise location and such information as is deemed important is given. This

information may be of the following type: Many specimens alive on rocks, a few specimens obtained alive by scuba diving at a depth of 15 feet, etc. All the shells designated by the given number constitute a "lot" and the number is called the "lot number". Once a shell or several shells have been assigned a lot number, they should under no circumstance be allowed to get mixed up with shells carrying another number. Lots must be kept apart! Lots may consist of a single valve or even a fragmentary shell, up to any number of shells. Lots of very small but common gastropods easily contain a thousand or more specimens. Lots should receive numbers as soon as possible after having been collected, but then can stay in the collection for many years before an effort is made to identify them. Many of my lots carry the name: "unknown turrid, unknown vitrinellid", etc. However, in the ledger book all pertinent information is given: date, location and otherwise. Only very slowly these unknowns acquire a name. It may be pointed out that lots not necessarily need consist of one species. All shells collected at the same location on a certain date may be given the same lot number. However, I prefer to split them as soon as possible.

In order to find all lots of a certain species, a second tabulation must be made of all lots of that species. This also can be done in a ledger book, or in a loose leaf binder or card system. Once this is done all shells of a single species are easily retrieved from one's collection by simply looking up the lot numbers. Of course, all lots must be stored according to a fixed system. I prefer to store my shells consecutively according to lot number. Storage of shells in sequence of the biological classification as given in most books is also possible. However, I found that sequential storage according to lot number makes for quicker retrieval although it is by far the least impressive looking wat of storage. There is another advantage to storage according to lot number. If ever a tray is jarred or upset, and some labels and shells should get mixed up--a calamity which always might happen--sorting out is far easier and only safe if the mixed-up shells are quite different and not all similar.

It cannot be argued too strongly that the scientific value of a collection arises largely from the care exercised in labeling. The name on the label is irrevelant. It is often incorrect or superseded by another. However, date, location and other data of biological interest never change and can only be supplied by the collector . Only carefully labeled collections are of interest to museums. Improperly labeled shells, no matter how rare or how perfect, are largely devoid of interest to scientific institutions and in the past collections of perfect and rare shells have been discarded by them because of faulty labeling. Even if the collector's interest is more in the beauty, color or shape of his shells, or if he is an avid "family man", interested in world wide collecting of a special family, still proper labeling will increase the value of his collection. When exchanging shells or when buying, he should insist on getting all proper information and make sure that it is reliable. Only then he can build a collection which is really valuable. If he is a "collect myself" type of collector the problem is much easier, so, why not do it properly!

Further information on this subject can be found in the following paper: R. Stohler, HOW TO BUILD A PRIVATE COLLECTION WHICH IS SCIENTIFICALLY VALUABLE, Veliger, Vol. 2 (2), 39-40; Vol. 2 (3), 67-68 and Vol. 2 (4), 98-100.

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Recently a most astonishing zoological discovery was made. Biologists in Japan have discovered a small bivalved gastropod. The left valve bears a very small coil at the apex of the valve. Study of the soft parts revealed clearly that the animal must be classified as an opisthobranch gastropod. Subsequently closely related animals were discovered in Australia, the Gulf of California and Jamaica. For further information see: Nature, (1960), Vol. 185, 749-751. Veliger, Vol. 3, 28-30, 80-82, Nature (1962), Vol. 195, (1), 402 J. Linn. Soc. (Zool.) 1963, 44, (302), 731-739.

MOLLUSCANA

by W. W. Sutow, M. D.

There was published in this column a short time ago a list of names that appeared with greatest frequency in relation to nomenclature of American seashells. Heading this list was the name of William Healey Dall, American malacologist (1845 to 1927). A valid recounting, in proper perspective, of the biographical facts about this scientist requires considerably more meticulous research than a single afternoon that I spent in the library of the United States National Museum.

Dall has been described variously as an Alaskan pioneer, anthropologist, coast pilot, malacologist, paleontologist, zoologist and systematic naturalist. The scope of Dall's activities perhaps can be deduced from a chronological summary of his professional appointments.

1865-1885 Naturalist, Scientific Corps, Western Union International Telegraph Expedition (to Alaska)

1869-1927 Collaborator in Malacology, then Honorary Curator of National Collection of Mollusks, Smithsonian Institution

1884-1927 Malacologist and Paleontologist, U. S. Geological Survey

1893-1927 Professor of Invertebrate Paleontology, Wagner Institute of Science

1899-1915 Honorary Curator of Mollusks, Bernice P. Bishop Museum (Honolulu)

Dall concerned himself with all aspects of malacology - marine, fresh water, and, land molluscan fauna. He authored the "Blake" and "Albatross" reports on deep water mollusks of the Western Atlantic and Eastern Pacific Oceans. Dall described (or was the senior author in descriptions of) 354 genera and subgenera (240 recent mollusca), and, 3959 species and subspecies (2387 recent) of mollusks. By 1921 some 2000 molluscan species and subspecies had been described from Alaska to Southern California. So extensive was Dall's activities that almost half (47%) of them bore his name. Dall also is credited with the design and introduction of the system of fitted cardboard trays, vials and printed labels of standard size.

According to Dance (Shell Collecting: An Illustrated History, University of California Press, 1966, p. 119) Dall stirred up consternation among the conchologists by resurrecting many shell names proposed by P. F. Röding. Copies of the Bolten Catalogue (published by Röding in 1798 before Lamarck's publications on molluscan genera appeared) had been so scarce that new names appearing therein "remained practically unknown for over a hundred years". Following initial opposition to Dall, this replacement of many Lamarckian names by those proposed earlier by Röding became generally accepted.

* * * * *

The name-bearer, or the single originally described specimen of a species or subspecies, is the holotype. Stohler ("The Disposition of Type Specimens", Veliger 5:95-97, 1963) restates the importance of such type specimens which should be properly safeguarded and deposited in a recognized accessible public museum. In addition to the holotype, there are, according to Abbott, some 230-odd various "type-terms" which describe important relationships to the holotype ("Use of the Term "Hypotype", Veliger 5:93-95, 1963). However, he recommends the following six terms as being the most useful and significant: holotype, paratype, syntype, lectotype, neotype, and topotype. Keen ("Comments on a Paper by R. T. Abbott", Veliger 5:95, 1963) agrees with the first five terms but substitutes hypotype for topotype.

(to be continued)

SOME REMARKS CONCERNING ODOSTOMIA FROM TEXAS ...by Helmer Ode

Members of the family Pyramidellidae are quite widespread through all the seas of the world. In the last fifty years hundreds of new species have been described and the number is steadily increasing. It is not impossible that careful collecting along the Texas Coast will turn up a number of as yet undescribed species. The large number of species and the involved and complicated taxonomy make it virtually impossible to identify many of the Texas species with any certainty.

There are several well defined groups of genera in the Pyramidellidae. Of these we will now only mention the Genus Odostomia, which is represented in Texas by many species. As so many species of the Pyramidellidae, most Odostomias are parasitic animals, but unfortunately, for most species the host is unknown. Here the amateur collector can contribute significantly to the science of malacology by noting carefully on which hosts several species occur.

The genus Odostomia is by no means a uniform group; quite the contrary. There are several easily recognized general types of shell. First there is the group to which belongs Odostomia impressa, a quite common species in the bays, where it lives on oysters. It is abundant at Port Aransas, but is quite less common around Galveston. Some shells resembling O. trifida which may be merely a variant of impressa have been collected at Galveston and near Port Aransas. Very closely related to these, although classified in a different subgenus is a number of species which shows a different kind of surface sculpture. They are not only spirally striated but the spirals are each broken into separate parts so that a blocked or reticulated sculpture is generated. However, the shell structure in both groups is heavy and chalky and the position and structure of the tooth in the shell is quite the same. To this group belong in Texas several species, which have to be investigated more closely before their names can be stated with certainty. It probably would be more logical to classify the impressa and seminuda groups under the same subgenus.

To quite a different group belongs the most common Galveston Island Odostomia. This species resembles closely the figure of Odostomia gibbosa as shown in Abbott*s American Seashells, but whether it is really this species we cannot tell. Several other species which are probably also in this group of unadorned shells, and which are in general thinner than those of the impressa group have been collected on the Texas beaches.

Totally different from these shells are those to which Odostomia laevigata belongs. These shells are much glassier, thinner and in general are brown in color when fresh. Also quite different is the structure of the tooth in the opening. This is quite clearly shown in the figures 2, 3 and 4 of Plate 40 and figure 5 of Plate 41, of Clench and Turner's paper on the type specimens of species described by C. B. Adams. (Occasional papers on mollusks, Vol. 1, No. 15, 1950, Dept. of Mollusks M.C.Z. Harvard Univ.). Fig. 5, Plate 41, shows O. seminuda which is not uncommon around Port Aransas. The chalky nature of the shell and the high position of the tooth indicate the close relationship of the Odostomia seminuda group with Odostomia impressa. (Also compare Plate 40, Fig. 1, which shows a related species, so far not found in Texas.) Plate 40, Fig. 3 shows another shell of this group which is occasionally found at Galveston and Port Aransas. We note the absence of ornamentation but a high position of the tooth. Quite different however are the figures 2 and 4 of Plate 40. From the figures, it can be seen immediately that the position of the tooth is much lower and also that it has the

appearance of a fold rather than a ridge. Unfortunately the figures do not convey the difference in shell appearance as it exists for Texas specimens. The shells are thinner and when fresh are colored brown. I suspect that they are related to Pyramidella fusca and Pyramidella producta, and should not be placed in Odostomia, but rather belong to a genus called Syrnola, which possibly may be synonymous with Sayella, a genus which Dall originally placed in the completely unrelated family of the Ellobiidae. The different type of tooth structure of this group is also well indicated in the sketches for O. laevigata on page 105 of Abbott's monograph of the Marine Mollusks of the Grand Cayman Island. (1958).

Finally one can find around Port Aransas a group of very small and slender Odostomias which so far could bot be identified. They are definitely not related to any of the groups discussed above, but may be allied with some forms which Bartsch has described from Florida. It is, however, too early to state anything definitely about these shells.

DO YOU REALLY KNOW THE SQUID AND OCTOPUS???? by Helen Denny

So many legends and sea yarns have risen around the squid and octopus that most people regard them almost with aversion, but they are really wonderful and fascinating creatures. They can teach us much even in this scientific age in which most of our thinking is in terms of supersonic speeds, jet propulsion and atomic energy. It is seldom realized that the squid was the very first jet-propelled object in the world. It has fin-like extensions on its pointed tail which serve as equalizers and elevating rudders. The body is long, perfectly streamlined and built for speed. The jet propulsion locomotion is by means of water quickly drawn in through the wide mantle opening and then ejected with great force from the siphon, like the jet of a rocket. There are also side fins for stabilizing and planing up and down. In fact, the entire structure of the squid's anatomy seems to follow the rules and laws of hydraulics and other modern sciences. Also, it is not too generally known but the specific structure of the two eyes has been duplicated but twice in the course of evolution on the planet. Once in the race of the iron-blooded--man and once in the race of copper blooded--the squid.

Even more amazing than the locomotive powers, the body construction and the truly remarkable eyes of these creatures, is their ability to display glowing lights and change their colors. Many deep sea squid are phosphorescent and photographs have been taken which show bodies that appear to be adorned with a jeweled diadem. Sky blue, ruby red, ultramarine and pearly sheen, glow about these otherwide repulsive looking creatures. However, the real miracle of the squid is not in its speed as it shoots through the water like a living arrow, or that it has many reatures of the 20th century science, but that its origin so far back in time among the crawling, heavy-shelled, sluggish snails of the primeval seas.

* * * * * * *

Anyone wishing to read shell papers from other clubs, contact Helmer Odé.
Our exchangers are:

Jacksonville Shell Club
Jacksonville, Fla.

Gulf Coast Shell Club
Beaumont, Tex.

San Antonio Shell Club
San Antonio, Tex.

OVER THE UNDERWATER FENCE by Ed Woods and V. Lee

"I may be a CRAB -- but this business of tearing up islands, bays and beaches is going too far. It's intolerable! A friend says this is a serious matter and we've been fiddling around long enough." "That expression 'tight as a CLAM' may be humorous to the 2-legged ones -- but we have to open up mighty often and a siphon full of silty water is no laughing matter. I doubt if any of us can live through it -- those not completely smothered - that is. There is a limit to how much silt my cilia can clean out in a day and I'm sure this applies to the rest of the Pelecypods too. Moving is out of the question, guess we'll have to hope that SHELLERS GET BUSY AND PETITION to stop this foolish dredging and filling idea before it is too LATE." "Us TUBE WORMS aren't exactly collector's items, but even we have our place in the ecological scheme of things. We'll sure enough come to the 'end of the line' if they nourish beaches around Bear Cut." "Some of you talk of moving; that's fine, but what of us SPONGES? We chose this place for a home, and SHRIMP and CRABS chose us, but we can't pick up and leave at the drop of a dredge line." "Some of us FISH overhear the CORALS talking; they will be hard hit and are certain they will not survive the dirtied water. Those who live among them were told to move but most of 'em pointed out that there was no place left to go or they weren't able." "Being a 'sneaky SNAIL' I heard some of the 2-legged ones say they were going to dredge and fill 'carefully' and I practically died laughti ng. Excuse me, the word DIED is most unpopular around here. Who ever heard of KILLING carefully? Sounds like the making of a BLOODY MARY joke. At best we'll be killed quickly. There is no safe place any more. I have ducked SHELLERS for years, but see no way out of this mess. MAYBE the SHELLERS will get mad enough to do something. I know the Audubon Clubs and several conservation agencies are at work on this. Enough PUBLIC UPROAR might stop the DESTRUCTION." "That last remark was a lot of talk for a Gastropod, but isn't it a strange twist of fate that here we ECHINODERMS were wondering if Castro or Communists would finish us off with a bomb and now this! It just proves that it's your FRIENDS you have to watch lest they let dredges and suction-pipe-lines come sneaking in on our breeding grounds."

* * * * * * * * * *

Don't look for an April Conchologist of Volume III as our ninth paper will be a combination April-May issue. We publish nine issues a volume sometimes combining months. This is slightly confusing to new members or those people ordering back volumes. We try to publish our first issue in August each year as our first meeting for the coming season is during that month. Membership dues from August of one year through May of the following year. New members paying dues in January or February or any other month throughout the year receive back issues of the paper beginning with the August issue.

Issue 9, Volume II, will contain membership slips for those desiring to mail in their 1967-68 dues. We will send two papers, August and September issues, to those members delinquent in dues and then no more will be mailed until remittance is received. This is done as our expenses are sometimes rather heavy.

Please remember to give or send Louise Bland your zip code number. The post office has announced that they will not deliver mail that does not contain these numbers so please take time and check your last Conchologist envelope to see if your zip code was on it.

The list of members and subscribers mailed to you last month is not complete but was made up in November. Don't feel badly if your name was omitted.

Texas CONCHOLOGIST

Volume III, Number 9 April - May 1967

NOTES & NEWS

All club members were saddened by the sudden passing away of Mr. I. K. Sheffield. "Ike" was one of our most enthousiastic collectors and had been a member since the formation of the shell club, in which he played an important part. There is hardly a Texas beach which he did not visit and in the past years he and his wife, Nita, extended their collecting trips to Florida and the Pacific beaches of Mexico.

May 24, 1967, regular monthly meeting at Southwest Service Center, 4503 Beechnut. This is our final meeting until August 23, 1967, and promises to be a good one. MARSHALL ISLANDS - SHELLING AND SEASHELLS will be the featured program conducted by Dr. W. W. Sutow. We will also discuss the recent shell exhibit held in Sharpstown. All members are urged to attend as new officers will be installed for the coming season and plans for the coming year will be discussed. Everyone who has special wishes for trips and shelling expeditions should make them known.

Dr. Helmer Odé led the discussion on pelagic shells at our March 22, meeting. Helmer has been collecting shells since the age of 10 and before leaving Holland gave his collection of West European land snails and Pliocene fossils to the University Museum at Leiden. Now a collector and authority on Western Gulf mollusks, Helmer is in the process of trying to get an insight into complete Texas fauna.

Members present at this meeting received a mimeographed list of TEXAS MOLLUSCA collected by J. D. Mitchell, Victoria, Texas. Dr. Tom Pulley presented a number of these lists to our group and we are taking this oppurtunity to thank him.

Connie Boone gave a report on her South Padre Island shell trip where she and Leola Glass picked up 70 live species.

A letter from the San Antonio Shell Club was read asking us to submit a shell name to the Texas Legislature, while this group is in session, in order that Texas will have a state shell. Tellina tayloriana (formerly alternata) was selected by our members.

Membership in the American Malacological Society has been renewed.

Dr. Robert Vines, science advisor for the Spring Branch School District, is asking for shells for school exhibits. This is a good opportunity for us to give good specimens to be seen and studied by thousands of school children.

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At our monthly meeting on April 26, a large crowd was gathered to see the slides Dr. W. W. Sutow had taken during his trip to the Marshall Islands. Together with our good friend, Ernest Libby, who, as most of us know, now lives in this shell paradise, Wat had prepared an explanatory tape, so that all had the pleasure of hearing Ernie give the comments on the shelling activities in his own inimitable style. Thank you, Ernie!

Wat reported for the library committee that the first purchases for a Club Library are being made, with the proceeds of last year's shell show. The first books to be acquired will be in the general interest catagory. More specialized works and subscriptions to technical journals will come later. (Ed.'s note: Wat informs us that inspection and loan distribution of books will be available by the May meeting.) Also, rules and regulations regarding books will be made known.

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NOTES CONCERNING TEXAS BEACH SHELLS

Helmer Ode' Mrs. Anne B. Speers

For the convenience of our readers we shall present in this last issue of Volume III an index of all beach species discussed so far in this column. Because our own investigations during the last two years have shown that offshore species have been very insufficiently reported in available literature we will omit offshore species from this index. Included in the list, however, will be several species, not yet treated, which were collected on the beaches and which we reported in Volumes I, II, and III. Volume numbers are given in Roman numerals, the issue number in standard numerals. Species discussed in the regular column are referred to without brackets, whereas species not yet discussed in our column are given by bracketed numerals.

Because it was too time consuming an undertaking to bring the whole list up to date, by adding several new species, and including more complete references, we postpone this, until more families have been treated a first time.

Abra aequalis I, 2; II, (6)

Acteon punctostriatus I, u; II, (6)

Aequipecten irradians amplicostatus I, (7)

Alaba incerta II, 6

Alabina cerithidoides II, (1)

Amaea mitchelli I, (3) II, (a); III, (9)

Anachis avara I, (7); III, (5)

Anachis avara semiplicata II, (1)

Anachis avara similis I, (8); III, (9)

Anachis floridana I, (3); II, (1)

Anachis obesa II, (1), (6); III, (9)

Anadara brasiliana III, 3

Anadara chemnitzi III, 3

Anadara lienosa floridana III, 3

Anadara notabilis III, 3

Anadara ovalis III, 4

Anadara transversa III, 3

Anodontia alba III, 6

Anodontia philippiana III, 6

Antigona sp. II, (5)

Aplysia sp. II, (8)

Semele bellastriata I, 2, (4):II, (1)

Semele nuculoides I, 2, (4):II, (1)

Semele proficua I, 2

Semele purpurescens I, 2

Siphonaria pectinata I, 9

Smaragdia viridis viridemaris III, 2

Solecurtus cumingianus II, 2

Solen viridis I, (8):II, 2

Spisula solidissima similis I, 3, (7):II, (8)

Spondylus americanus II, 1

Strigilla gabbi II, 1

Strigilla mirabilis II, 1

Strombus alatus II, (2)

Tagelus divisus I, 7

Tagelus plebeius I, 7

Tectonatica pusilla II, (6)

Teinostoma c.f. cryptospira III, (9)

Teinostoma sp. II, (1)

Tegula fasciata II, 9

Tellidora cristata I, (7):II, (8)

Tellina alternata II, (8)

Tellina iris II, (6), (8)

Terebra cinerea salleana III, 8

Terebra concava III, 8

Terebra dislocata III, 8

Terebra taurina III, 8

Thais haemostoma I, (7): II, (6)

Tonna galea I, 8; II, (6)

Trachycardium isocardia II, 8

Trachycardium muricatum II, 8

Tricolia affinis cruenta III, 1

Trivia suffusa II, (1), 9

Truncatellina pulchella III, (9)

Vitricythara metria III, (9)

Vitrinella c.f. helicoidea III, (9)

Vitrinella sp. III, (9)

Vitrinella texana I, (8)

Because we have no space to print in this issue a repeat of the first fifty references, we will postpone this to another issue.

SOME GALVESTON RECORDS OF NEW AND UNUSUAL SHELLS.... by Helmer Odé

On January 12, 1967, Mrs. Connie Boone collected a beautiful full grown specimen of Cochliolepis striata on the beach at San Luis Pass (Freeport side). This species which is classified in the Vitrinellidae, is quite rare in the Galveston area (one mature specimen was collected a few years ago by me on Galveston West Beach), but it occurs more commonly in the Port Aransas and Port Isabel areas.

Two specimens of Epitonium sericifilum were obtained from beachdrift at Galveston by Mr. Richard Rosencrantz. In my opinion this is the most beautiful member of this family on the Texas coast. Because it usually does not exceed 1/4 inch in length (although rare specimens may reach 1/2 inch) it is not often noticed.

During a shelling trip on January 21, I collected some interesting shells some of which constitute a first record for the Texas beach, while others are "firsts" for Galveston. Several specimens of Pedipes mirabilis were obtained from the high tide line. They look fresh and are undamaged. This species, never before

reported from Galveston, (it lives at Port Aransas and Port Isabel), may have established itself somewhere nearby. A single specimen of the same species was obtained also by Mrs. Boone at San Luis Pass. From the same sample several other rarities were obtained, among which the most remarkable were two Turrids. One, Vitricythara metria has so far as I know never before been reported from the beach, but it is not uncommon offshore below the twenty fathom line. The second species is unknown to me but belongs probably to the genus Pyrgocythara. The specimen shows a regular reticulated sculpture, without the vertical ribs, resembling thus somewhat that of Vitricythara metria which however is a smaller species and quite different in other respects. Its lip (Pyrgocythara sp) is thickened and possesses a deep and prominent anal notch. The sample also yielded an old and worn small Melampus like shell, much more slender than the common Melampus coffeus. Other shells of interest in the sample were: a small Amaea mitchelli, a single specimen of Truncatellina pulchella and several specimens of Assiminea sp. (probably A. succinea Pfeiffer). Dead shells of Truncatellina pulchella are rarely found in beach drift around San Luis Pass; undoubtedly the species must live at some locations along Galveston West Bay. The shells of Assiminea constitute new record for Galveston and probably Texas. The genus is classified with the Hydrobiidae, and most members of the genus live among the vegetation in the brackish water zone along coastal regions. It is probably that the species lives along Galveston West Bay. Unfortunately, brackish water species have been inadequately studied in Texas, (as they have almost everywhere else) and in general it is most difficult to name many of the hydrobiid snails which turn up in drift. A publication by a specialist concerning these shells would be most welcome to many collectors. The most common gastropod in the sample was the little snail Cyclostremella humilis. Countless shells, white in color and less than one twentieth of an inch in diameter were present in the sieved drift. This is the 3rd January in succession that I have noticed its abundant occurrence in beachdrift at Galveston. Apparently innumerable shells of the species wash ashore during winter time. These little shells were not the only Vitrinellids in the sample. A goodly number of Cyclostremiscus trilix, all worn and old and several beautiful and shiny Teinostoma's (c.f. cryptospira Verrill) were picked. These little shells unknown to most Texas collectors are never uncommon in the small beachdrift at the upper tide line at Galveston. It only requires patience to pick a sufficiently large sample to find them. Much more remarkable than these two species was a large somewhat worn specimen of Anticlimax (calliglyptus)? of which I previously collected only two specimens at Galveston; a beautiful, shiny, unusually flat Vitrinella of a species unknown to me, and a rather globose Vitrinella (helicoidea?) which I have seen in material dredged offshore, but so far had not yet obtained from beachdrift.

On January 28, Harold Geis discovered a live population of Lyonsia hyalina floridana in Galveston West Bay. Previously only a few scattered dead specimens were known from Galveston. At the same location also many live specimens of Odostomia impressa were taken on oysters. In spite of its relative common occurrence in beach drift, I believe that this species has not often been collected alive in the Galveston area. Abundant specimens can be collected farther south along the Texas Coast. During the same trip Harold obtained many live specimens of Anachis obesa and Anachis avara similis. A handful of live specimens of Nassarius vibex confirms the live occurrence of this species at Galveston. Previously one live shell (Bolivar, coll. Odé) and scattered dead shells on the mud flats were known from the Galveston region. Very curious and quite new to me was an observation of Harold with respect to a large live population of Diplothyra smythi, the oyster piddock. By breaking open many of the infested oyster shells, Harold obtained two easily separate forms of this species. In one type the shells stick strongly together and the valves end in

a rather untidy lamellose tip. In the other type the shells are quite loosely connected and the posterior points of the valves are regularly formed and rounded. The valves in the strongly connected form seems held together by an extra yoke along the underside of the valves.

Because this year's show in the Sharpstown Shopping Mall will be over before this issue appears in print, no detailed report of the discussions concerning this show is necessary here.

Mildred Tate showed two new and very rare additions to the Texas shell fauna, obtained offshore at Freeport. One was a large specimen of Umbraculum plicatulum Martens obtained alive in 23 fathoms. The other was a perfect dead specimen of Morum dennisoni Reeve, dredged in 34 tathoms, also from south of Freeport.

The editor reminds all members that more copy for the coming year's issues of THE TEXAS CONCHOLOGIST is needed. At meetings he always hears interesting news and facts, but seldom sees it in typescript on his desk. HAVE YOU ALL LOST YOUR BALLPOINTS?????

REPORT ON THE GULF COAST SHELL CLUB'S EXHIBITION.....by Helmer Ode

On March 22 and 23, 1967, the Gulf Coast Shell Club, Beaumont, Texas, had its yearly exhibition of shells. Several very beautiful and instructive exhibits were shown and also many of the exhibits which did not get a blue ribbon were of excellent quality. The judges had a difficult time, but enjoyed their work! The Academy award went to Mrs. Anne Speers for her entry "Evolution in Action". The shell of the show award went to Joe Varnado's Niso hendersoni, obtained from dredged material off Florida. The award for the best collection was won by Mrs. Grace Broussard. Members of our club who won ribbons included Mr. Jas. Bender and Mrs. Hollis Q. Boone. Owing to my own preoccupation with the local Texas marine fauna, it struck me that very few collections of Texas beach or offshore shells were shown. I hope to see more of those next year!

REPORT OF THE SEVENTH ANNUAL SOUTH PADRE ISLAND SHELL FAIR
by Mrs. Connie Boone

Mrs. W. Berkeley Glass was awarded a blue ribbon for her exhibit of freak, albino and repaired shells at the South Padre Island Shell Club Seventh Annual Fair on February 26, 1967. She also won a third place ribbon for her display of pectens from the Panama City, Florida, area. Mrs. Hollis Q. Boone received a second place ribbon for self-collected shells from Marathon, Florida, and a fourth place ribbon for the fresh water snails (Marisa cornuarietis) collected in the drainage ditch near Fort Myers, Florida. Several out-of-town members of our club attended and exhibited successfully. Mrs. Mildred Tate of Lake Jackson received an appreciation ribbon for bringing some of her special shells. Joe Varnado of Beaumont won a first place ribbon for his exhibit of shells taken from Florida dredgings. Mrs. Betty Allen of Port Isabel won the Hall of Fame Trophy for the best former blue ribbon entry. Mrs. Ann Speers received an award for her special entry on the ecology of Texas shells.

The famous "Blake Reports" by W. H. Dall, (1886 and 1889) will be reprinted by Kraus Reprint Corp. A note from Richard E. Petit (successor to J. Q. Burch) informs us that these reprints can be ordered from him for $12.50 per volume. They will be available in July of this year.

Part I	Brachiopoda and Pelecypoda	$12.50
Part II	Gastropoda and Scaphopoda	$12.50