

QL 401

T4

V.17:1

Texas

CONCHOLOGIST

VOLUME XVII NO. 1

CALIFORNIA
ACADEMY OF SCIENCES
FEB 20 1981
LIBRARY



OCTOBER, 1980

The TEXAS CONCHOLOGIST is the official publication of the Houston Conchology Society, Inc., and is published quarterly at Houston, Texas. It is distributed as part of the dues to all members.

The Society holds regular meetings the fourth Wednesdays of the following months: August, September, October, January, February, March, April and May. The meeting is held the third Wednesday in November. Meetings are held at the Houston Museum of Natural Science, Caroline Street in Hermann Park, beginning at 7:30 p.m.

The TEXAS CONCHOLOGIST is published October, January, April and July. It is mailed postpaid to regular members in U.S. postal zones. Overseas members will be charged additional postage. Only one copy will be mailed a family membership.

Dues extend from the beginning of the fiscal year of June 1 through May 31. However, the July issue of the TEXAS CONCHOLOGIST each year is the fourth quarterly due on the regular dues year beginning June 1 of the previous year. Memberships will be accepted throughout the year but will receive the quarterlies of that fiscal year. Members receive meeting Newsletters and have all other privileges provided by the Society's by-laws.

RATES AND DUES

Family membership	\$6.00
Single membership	\$5.00
Student membership	\$2.00
Single Issues	\$1.50
Extra sets mailed members	\$5.00
(Postage for overseas members required)	
Subscription	\$6.00
(Seamail \$2.00, Airmail outside U.S., \$3.00)	

EDITOR

Constance E. Boone
668-8252
3706 Rice Boulevard
Houston, Texas 77005

CIRCULATION

Mr. Grytch Williams
664-2809
6644 Belmont
Houston, Texas 77005

EDITORIAL STAFF

Helmer Odé 664-9942 4811 Braeburn Drive Bellaire, Texas 77401	W. W. Sutow 748-7233 4371 N. MacGregor Way Houston, Texas 77004	Herschel S. Sands 772-6613 8902 Cadawac Road Houston, Texas 77074
--	--	--

The TEXAS CONCHOLOGIST accepts contributions for publication from amateurs, students, and professionals, subject to approval by the Editor. Manuscripts should be typed, double spaced and should be in the hands of the Editor the first day of the month preceding publication dates. Photos accompanying such material are welcomed.

SEARCH AND SEIZURE

By Constance E. Boone

Some recent comments by fellow members of HCS that we need to "help," "encourage," "teach," etc. more to keep our new members has prompted some soul searching and also some review of what this club has done in the past to stimulate beginning shellers.

We have helped sponsor several "collecting seashells" courses taught by Dr. T.E. Pulley, our honorary member and professional malacologist. These were part of the University of Houston and Houston Museum of Natural Science Continuing Education Series. We have had innumerable programs featuring hints and instructions on how to clean shells and how to find shells. We have had movies demonstrating habitats, and our many slide programs have shown live mollusks on collecting trips to Texas shores as well as to other shores in many countries. We have had fine exhibits brought of local shells and gorgeous exhibits brought from other countries. Members have brought their favorite shells and talked about them. We've had our own teaching sessions at both the meetings and at home meetings. We've sponsored many displays of shells and sea life in malls and one huge one at the Museum throughout the years. Many of us continue to answer questions posed to us by telephone and at the meetings. We have had identification sessions; we have had sessions on specific families of shells. Some of us try to help identify shells at meetings and point out where identifications for such shells may be found in books. We have built up a really fine library of books on shells and sea life and continue to urge members to use these books. We subscribe to a number of popular and scientific quarterlies that impart current information about shells. We receive on exchange basis many reports from other shell clubs telling about tides in other areas and discussing field trips in other area. We urge you to check out these reports and familiarize yourself with the world of shells in literature.

We have field trips several times a club year and urge members to participate. On these field trips members point where shells live, lead new members to trails, holes, crevices in walls, rocks, etc., where we find live shells. We talk about life habits of the shells; for instance, we pick up egg cases and point them out to members. We help dig angel wings; we show new members how to shuffle through grasses to "toe" shells. We haul up shovelfuls of bottom and demonstrate sieving for mollusks; we tell members how to handle cleaning and preservation of animals. We recommend techniques for traveling with mollusks. We offer hints on maintaining aquariums, a fascinating hobby in itself. Many members are in to photography of mollusks and there have been some excellent courses at the Museum on photography.

The true sheller really never forgets the thrill of finding his first live shell. He wants others to share the experience and is usually happy to lead new members to likely spots for such discoveries. However, the field trips are subject to success only with permission from Mr. Weatherman. It is something we regret but we cannot help it if your first field trip is a real dud because it turned rainy and blustery with resultant high tides although minus tides were charted. Sometimes the whole club year's field trips are bombs due to such factors we cannot control. Perseverance is definitely the name of the game. You don't acquire jewels of the seas yourself without trial and error and a lot of determination. The average sheller experiences cold and heat, endures getting soaked and sunburned (until he learns to go completely clothed and covered no matter what!), gets blown off the beach and gets sand in his eyes----and still tries again and again to ring that bell of good finds.

No matter how much one tries, I think, you can't force anyone to learn about shells if all they want to do is enjoy the beauty of shells and come to meetings and be entertained. I don't knock this; we are hobby oriented. We encourage membership of any form. We aren't going to make you dig in the mud to find your first angel wing if you don't want to. We aren't going to make you learn that the angel wing's scientific name is Cyrtopleura costata. We aren't going to make you collect shells, identify them yourselves and catalog them all properly if you don't want to. However, we will explain to you why you should do all this. We WILL HELP YOU IF YOU WANT TO LEARN MORE. But PLEASE LET US KNOW YOUR DESIRES BY ASKING QUESTIONS AND TELLING US WHAT YOU WANT TO DO.

In order to make asking questions easier, you may now write out questions you want answered and send them to the Editor, Constance Boone, 3706 Rice Blvd., Houston, Texas 77005. You may do this without your name, if you wish, but if you give your name, address and telephone number, we will use that in replying. Some response will be made in this column or by personal contact by a member of the club. There is no guarantee that we will be able to answer all your questions, but we will try to find answers.

AND, if you are a new member and you come early for coffee hour at the meetings, introduce yourself to any member you see, even if a group of "old" members is busy in a tight little knot of conversation that seems Greek to you. One of our newer members told me recently that she had hesitated about joining the Houston Conchology Society because she was told she would be expected to work in the club and she wasn't sure she could since she lives some distance from Houston and also works. I don't know how this rumor about our club was spread, but it is nice to know that others do think our club DOES THINGS. Our President has urged you to assist in our projects. He'll appreciate your efforts to make yourself known. Tell us what you'd like us to do to help you enjoy shelling. Don't hesitate to send us questions----and make suggestions. Planning programs to please all members isn't easy. We're a mixed up lot of shell nuts of all ages from many backgrounds and interests in shells.

Meanwhile, dip in that great library of ours and try out a few books and publications. You'll be surprised how much you can learn on your own. There are certainly plenty of picture books with photos of shells rare and lovely to seek from dealers' lists and we even have price guide books. There are books on cooking shells to enjoy eating them, there are books for making pictures and bouquets from shells; there are books for children and beginners. And there are many popular identification books and serial publications. When you've progressed a bit you'll find we maintain a good listing of scientific books also.

If you feel we need to repeat some of the things we have done in the past, let us know that also.

About the only area I feel we are remiss, perhaps, is in working out transportation for field trips or arranging bus trips for such trips. This can be a real chore for any chairman and involves money collection.

This article began because some members who are friends felt that we should take members under our wings more closely. We once did have a "buddy system" set up but we live in so many areas of the city and out of the city that the system didn't really work. We also once had hosts at the door greeting members, and I do think this helps.

SOME ARTICLES TO READ IN CURRENT PUBLICATIONS:

Most of you have certainly seen at least one TV presentation of the fabulous finds

in the hot vent areas in deep water off the Galapagos and off Punta Mita, Gulf of California. Remember those huge clams that were seen through the windows of the deep sea diving sub, the Alvin?

Those great white clams excited almost everyone in the marine biology field, and I have anxiously awaited more news about these animals that reached 240 mm in length, 110 mm in height and 60 mm in width.

Kenneth Boss and Ruth Turner have named the species Calyptogena (Ectenagena) magnifica in a paper in Vol. 20, No. 1 of Malacologia, which we have in the library. You will enjoy this article and the story of finding and studying the shells.

Among the papers in The Nautilus, Vol. 94 (3), July 30, 1980, that should interest you are two involving new species from the Caribbean.

Edward J. Petuch has named a new Volute and a new Cone from Roatan Island, Honduras. Falsilyria morrisoni and Conus kulkulcan are named, and there are good black and white photos.

In the same issue, M.G. Harasewych and E.J. Petuch have named a new Cymatium from off Contoy Island, Quintana Roo, Mexico. Sassia (Sassia) lewisi is also known from the Barbados area, they stated.

This issue is in our library, as well as other issues of the quarterly.

How many of you caught the reference to our auction in the July, 1980, issue of Hawaiian Shell News? I howled when I saw the headline "Where The Money Is" above a boxed story about the fabulous amount we raised at our auction last spring. This boxed story was placed in the middle of the page and under a larger headline relating to the other story on the page. That overall headline stated "The Trouble With Malacology". The story was on the species concept, not auctions.

When I was a beginning sheller I was loaned several years' issues of Hawaiian Shell News and spent a week end devouring every article because I was hungry for shellling information. That wouldn't be a bad idea for any sheller----checking out copies of HSN or any other popular magazines on shells and reading through them some week end when the weather says you can't go to the beach.

Hawaiian Shell News comes to us monthly and has many articles on shellling from around the world. It's in our library, members!

While you are about it, why not check out our bound copies of earlier issues of Texas Conchologist. Many articles we've published in the past would help you today.

The 1979 Bulletin of the American Malacological Union is now in the library and we urge you to read the report by Donald R. Moore on "Molluscan Exploration and Research in and Around the Gulf of Mexico," an account of exploration and study of shells dating from the first entry of Europeans to the Gulf around 1500.

We are very proud to note that Dr. Moore included the following statement: "The Texas Conchologist has published a large amount of information on marine molluscs in the northwestern Gulf. Most of this has been written by Helmer Odé over a

fifteen year period (1967-1979)." (Ed. Note: And certainly is continuing).

Several new Murex have been named in the July 1, 1980, issue of The Veliger (Vol. 23, No. 1) which should be of interest to our many members who like muricids. I think members would find the review of the muricid Genus Acanthotrophon by Emily H. Vokes interesting also.

Dr. Vokes and Anthony D'Attilio have named a new species of Favaritia (Cariabiella) from the Galapagos Islands, and B.M. Olivera has named Murexiella peregrina from the Philippines, a tiny muricid very like the Atlantic M. levicula we got from dredgings we bought from off Florida.

There are excellent black and white photos.

How about checking out this issue of The Veliger and taking a look at other issues of this quarterly. We have gone to considerable expense to complete the set of The Veliger. Don't let the issues just sit on the shelves.

CLUB LIBRARY NOTES

By Jim Sartor

Your club library has books, pamphlets, scientific papers, etc. covering many specialized areas of shell collecting. From time to time new titles are added and we want to let you know what is new and what plans are afoot for future additions. So far this year we have added 4 publications, which are:

- "Catalog of Dealers Prices For Marine Shells: (1980): Tom Rice
- "Hawaiian Marine Shells. Reef and Shore Fauna of Hawaii": Section 4,
Mollusca: E. Alison Kay
- "Rare Shells of Taiwan": T.C. Lan
- "Shells on Postage Stamps Around The World": Karl Emmerich

Also, we plan to add the following publications to the library:

- "British Bivalve Seashells": Norman Tebble
- "Conchs, Tibias and Harpas": Jerry Walls
- "Field Guide to Australian Shells": Barry Wilson and Keith Gillett
- "Mitra Shells of The South Pacific": Walter O. Cernohorsky
- "New Zealand Shells and Shellfish": Glen Pownell
- "Preparing Sea Shells For Display": R.D. Coale
- "Review of The Erotoidae": Crawford Cate
- "Review of The Triviidae": Crawford Cate

Use your library to learn more about your favorite family of shells - or just to expand your field of interest. Books may be checked out now on meeting nights from 7:30-8:00 p.m. They are housed in the Information Office, main floor of the museum. You may check out or return books at other times also by presenting your membership card at the museum information office. Books may now be kept one month.

The society has voted \$300.00 for additions to the library this year.

These paragraphs continue a general overview of the fascinating hobby of conchophilately or malaco-philately. There is strong evidence that this topical field is attracting mounting interest and participation. More and more countries are issuing increasing numbers of stamps in which the mollusk is either the central or a major feature of the stamp design. This installment of the conspectus will examine the sources that the hobbyist (using the author himself as an example) might explore for information on new shell stamps. Four basic types of publications can be mentioned.

(1) One of the four would be a general broad-coverage stamp newspaper such as LINN'S STAMP NEWS (a weekly). The newspaper provides notices and news stories of recent and scheduled stamp issues. Periodically and regularly, detailed (an official) descriptions of stamp sets scheduled to appear are printed. Such publicity releases are usually accompanied by pictures and include information (often quite substantial) of the subject matter depicted on the stamps. Although it is manifestly impossible to publish details of all new issues, the coverage (when published) includes considerable background material that is pertinent, interesting and important. This is the type of data that can be retrieved later only if they are recognized initially and filed systematically. (For example, how many of the readers can put his/her fingers on the immensely interesting hullabaloo that resulted from one of Taiwan's sets of shell stamps?) In addition, LINN'S STAMP NEWS publishes regularly (in a feature titled "World of Stamps") listings of new stamps with date of issue from all parts of the world. The condensed information section includes the designs shown on each stamp.

(2) The second source of leads to new stamps is SCOTT'S MONTHLY STAMP JOURNAL, published by the company that puts out the SCOTT CATALOGUES. The new stamps are described in the same manner as they will be shown in the Catalogue. In fact, catalogue numbers are assigned and (with few changes) are reproduced in the following year's catalogues. In essence, these are "previews" of forthcoming catalogue pages. Selected stamps are pictured just as they would be reproduced in the catalogue. Most helpful is the compilation by topic of the stamps listed in the issue. Mollusks are classified under "marine life" in the major category of "ZOOLOGY". Seashell stamps are identified by the design, country and Scott number. Other philatelic magazines of similar scope and usefulness are available.

(3) The third practical source for knowledge about shell stamps is TOPICAL TIME, the official organ of the American Topical Association published bimonthly. This periodical contains a section titled "Topical New Issues" that lists the new stamps under various topical classifications. Seashell stamps are put in a category by itself under "Seashells". This magazine also features a continuing section on "Clearing House of Knowledge" in a question and answer format. The section provides bits of miscellaneous information. From time to time, they concern seashells and seashell stamps.

(4) The fourth useful (and specialized) publication is BIO-PHILATELY, the official, quarterly journal of the Biology Unit of the American Topical Association. A regular feature is a listing of Zoological New Issues where seashell stamps would be shown. Periodically, the journal published updated lists of stamps pertaining to specific topics. An example is the discussion of "marine fossils" by George A. Bearse in Vol. 28, No. 2 issue of this journal. Of even greater interest are the research articles dealing with less well known aspects of certain issues. A striking example is the article entitled "notes on some supposed shell stamps" by Richard E. Petit. Petit gives several examples of stamps cited as "shell

stamps" in one or more of the recent publications by Rice, Emmerich and ATA. He suggests the actuality of any mollusks being pictured on these stamps might be questioned. Such provocative inquiries furnish in-depth background information that is truly stimulating. This type of observation is probably not documented anywhere else. (Reference to above is Vol. 29, No. 2). A regular feature is a listing of Zoological New Issues where seashell stamps would be included.

The four periodicals mentioned above should provide information on most new shell stamps as they appear. If the stamps that are to be issued (or just released) are known, their acquisition is very much facilitated. The stamps can be readily identified at the stamp shops. If the identification includes a catalogue number (such as Scott's) they will be universally recognized. Such numbers constitute stable handles by which the stamps can be traced. The four publications listed by name above are by no means the only sources of information. They happened to be the ones most often consulted by the author. There are other philatelic newspapers (weeklies and monthlies) and other stamp magazines and society organs (such as AMERICAN PHILATELIST) that regularly publish lists and comments on new issues.

The mail order firms can also be extremely helpful. I have ongoing commitments with two dealers - one specializing in British Commonwealth stamps and the other in topicalics. They put aside for me from the new issues they process the ones with seashell designs. The two keep me pretty well current. Best of all, they provide me with only the seashell stamps from sets that may include other subjects. Many issues are sold elsewhere as complete sets which contain unwanted stamps with expensive price tags.

In working with dealers, it is important that the dealer has prior and specific instructions as to the countries and the types of stamps one wants as well as the amount of money one will spend on the stamps for each time period. Very frequently, the dealer will exhaust his supply unless he has been alerted to the needs. For example, few dealers will know that nudibranchs and cephalopods are mollusks and may fail to put them aside. (Even current stamps are hard to replenish. The author ran into unbelievable problems in trying to obtain the set of stamps showing Caribbean shells issued by Belize in Central America). The dealer needs to know also the depth of one's philatelic interests. Overprints and changes in monetary denominations represent new philatelic items but actually the stamps display the same seashell. Similarly the same shell design may appear on a number of different values - philatelically of considerable importance but conchologically of relatively minor interest.

To Be Continued

"Molluscan Distribution in Copano Bay, Texas," Report of Investigations #103, author Thomas R. Calnan, has been published by the Bureau of Economic Geology, University of Texas, Austin 78712.

The Houston Conchology Society, Inc., recently presented a check for \$500.00 to the building fund of the Houston Museum of Natural Science.

"Provo", situated in the Turks and Caicos, is one of the few unspoiled islands I have ever visited. Kirk Anders chartered a DC 3 to fly our shelling group the approximate 600 miles out of Miami. This tour was arranged to begin August 10, the day after the end of the COA 1980 Convention held in Key West, Florida.

We landed on the only paved spot on the island in a light rain storm. The taxi driver informed us that the last rain had been almost three months ago. As we roared along the hilly, dirt-rutted road, and I mean roared as the only fuel is aviation for cars, I began to compare this island to my home state - Arizona. The views looked the same with scrub brush, prickly pear, organ pipe (cerus) cacti, plus a few small palms dotted here and there. Of course, observing closely, the plants were not the same.

The population is little over 600. The people are mostly black slave descendants speaking English since this is a crown colony. I did hear a little French also. U.S. money was used but they do have their own stamps and this year fishes were featured.

Deep well water was discovered only recently so most of the houses still have cisterns to catch rain water from the roofs. This new well water is extremely sulphur smelling and tasting. Because of the dryness nothing is grown here; everything is imported from Haiti and U.S. and only lobster is exported. We stayed at the Island Princess, a hotel being built by an American family ousted from Iran. Our group took up the complete 15 rooms available. We had ceiling fans, no hot water and no door keys. All this was easy to do without, except it was hard to live daily not having to lock up or protect yourself as we moved about the island. There is no crime, drugs, etc. here!

Directly in front of the hotel was the reef. By walking 200 yards down the beach and not more than FIVE feet into the water the coral clumps began. By the time you were neck deep, the clumps became more massive. Therefore it was possible for the nonswimmer to take a glass bottom pail and view all the splendors of black, purple and yellow sea fans with beautiful colorful fishes darting here and there. Within an arm's reach one could pluck a "Flamingo tongue" from near the bases of the gorgonians. We kept a few in jars in our rooms to enjoy their colorful bodies. However the beaches mostly were swept clean and there was not much for the beach comber. One day we took a boat to another small island and found hundreds of queen conchs in less than waist deep water. Most of them had yellow lips but how many would one be able to carry home? This being my first trip to a coral reef in shallow water where I too could snorkle and enjoy myself, I spent days like "Alice in Wonderland" but found I really came home with few good shells. The more experienced the diver the better the shelling was. Gerrie Walklet found a large triton snorkling in about ten feet of water.

Richard Goldberg could be found just back from the beach in the broad-leaf plants along with the crawling land hermit crabs investigating land snails. There were many color variations of Hemitrochus gallopavonis Pfeiffer, 1842. The peanut snail Cerion lewisi Clench, 1961 was found at the base of shrubs under leaves or glued to the stems. The weather was in the 90's and it was hard to believe that all these land snails were living along with the bromeliads and orchids (mostly dormant) attached to the scrub brush. Arizona was never like this!

Again I must point out that we had to hunt to come up with living shells plus pay for our boats and taxis to get us there. I am the proud owner of an \$8.00

tulip, which was the cost of the taxi to take us to a lagoon one morning. This tulip normally would cost \$2.00 from a dealer.

The cost of food and drink is another story as we really lived like kings and queens. And it was really hard to believe that no one pestered to sell you something and believe me there was nothing to buy.

Besides the bivalves, below is a list of the nicer shells found:

<u>Strombus gigas</u>	<u>Livona pica</u>
<u>Strombus pugilis</u>	<u>Calliostoma pulchrum</u>
<u>Strombus costatus</u>	<u>Astraea caelata</u>
<u>Strombus raninus</u>	<u>Cassis tuberosa</u>
<u>Murex pomum</u> with rose lips	<u>Phalium granulatum</u>
<u>Conus spurius</u>	<u>Fasciolaria tulipa</u>
<u>Charonia variegata</u>	<u>Xenophora conchyliophora</u> - dead
<u>Cymatium pileare martinianum</u>	<u>Vasum muricatum</u>
<u>Cymatium femorale</u>	<u>Cyphoma gibbosum</u>
<u>Nerita peloronta</u> - over 1" in size	

P.S. We had a "Show and Tell" study meeting each day - that is how I know all about these good finds as all of these weren't mine.

Dr. Douglas Jones, a University of Florida geology professor, reported in a UPI newsstory (Houston Post, June 26, 1980) that he had quit eating clams and clam products out of respect for their age. He has been working on the age of the Atlantic surf clam and "the mahogany clam" to determine their age and to discover new facts about the sea environment in which they grow. He is concerned with the lines on clams which he relates to the age of these animals, discussing the fact that wide bands may indicate the year was good for growth and thin bands may indicate bad years.

"Some days they (the clams) might not grow because they're sick or unhappy or they just don't feel like doing anything that day", he said.

A storm or the sea's temperature are thought to affect the clam's growth. Present studies indicate clams can live on ocean floors for up to 150 years.

"The colder the sea surface temperature, the better clams grow", he said.

Some guides for determining the maturity of bivalves were listed in a paper describing new minute Nuculidae by Dr. Donald R. Moore of the University of Miami (The Nautilus, Vol. 91 (4), October 27, 1977).

".....signs of maturity to look for in bivalves. These are: Thickening of the shell, sunken adductor muscle scars, rugosity of the interior surface, thickening of the hinge line, and, sometimes formation of denticles along the ventral margin. Even with these guides, one must exercise caution, as there is considerable variation in the appearance of the adult from one species to another."

MOLLUSCANA

By W.W. Sutow

Although my trip to Japan this summer included professional and academic responsibilities which necessitated a number of lectures and visits to Osaka, Himeji, Fukuoka, Nagoya and Tokyo, there were moments of conchological relaxation. The first of these occurred on the way to Japan.

Because of my increasing sluggishness in adjusting physiologically to the time zone changes, an overnight stop in Honolulu had been scheduled. As usual this meant a reunion with Elmer and Marion Leehman. Elmer collects all sorts of rarities but bears down heavily on the volutes. Although Elmer will show off those unbelievably rare cowries, the shells, in actuality, belong to Marion. And as usual we spent several hours going over the contents of the boxes that line Elmer's study.

The second conchological event was a visit with another long-time friend, Taizo Ninomiya. Here, too, was a collection of some of the rarest shells in the world. Since the last time I saw him in 1978, Taizo had been to the Philippine Islands several times. He mentioned, too, that there had been a flurry of excitement in Japan over the dredging of deep-water rarities in a new area somewhere off the southern coasts of Kyushu. He displayed several color forms of the rare Japanese cypraea that he had acquired from this new area.

The third conchologically oriented activity was a repeat trip to Toba to see the Teramachi collection. Toba is a sea-resort town of 30,000 population, easily reached by electric train, from Nagoya 131 kilometers away. The town is situated in the Ise-shima National Park. Across a narrow strip of water from Toba is the Pearl Island which commemorates the place where Mikimoto first produced a cultured pearl in 1905.

The Teramachi collection is displayed in the Teramachi Collection Hall which occupies 210 sq. meters of space on the second floor of the Toba Aquarium. The Hall was opened in 1975. The collection represents the results of collecting activity for more than fifty years and constitutes one of the most complete assemblage of Japanese mollusks in the world.

The publicity brochure (reprint of an article by T. Kataoka entitled "A catalogue of the Teramachi collection", published in FISH MAGAZINE, November, 1975) indicates that many type specimens of seashells were kept at this museum. It might be informative to list the species here, since the original publication used only the Japanese names.

- Kira dorcus Kira et Habe, 1949
- Kira teramachii Kira et Habe, 1949
- Neoxylophaga teramachii Iwao Taki et Habe, 1950
- Cranopsis tosaensis Habe, 1951
- Scutus (Avinculum) virgo Habe, 1951
- Neilonella coix Habe, 1951
- Pionotoma pyrum Kuroda, 1952
- Pionotoma teramachii Kuroda, 1952
- Oocorys japonica Kuroda et Teramachi, 1952
- Ceratoxancus teramachii Kuroda, 1952
- Vesicomya katsuae Kuroda, 1952
- Vertambitus cuneatus (Kuroda, 1952)
- Haliris pygmaea Kuroda, 1952
- Euciroa (Euciroa) cistagemma Kuroda, 1952

Eucirosa (Eucirosa) millegrammata Kuroda et Habe, 1952
Adamsenida galea Habe, 1953
Emarginula hosoyai Habe, 1953
Emarginula tosaensis Habe, 1953
Emarginula teramachii Habe, 1953
Emarginula compta Habe, 1953
Emarginula okinawaensis Habe, 1953
Laevimarginula membrancea Habe, 1953
Tugali (Tugalina) radiata Habe, 1953
Coralliofusus acus Kuroda, 1953
Rhizochilus teramachii Kuroda, 1956
Endemnoconus teramachii Kuroda, 1956
Kurodaconus stupa (Kuroda, 1956)
Kurodaconus stupella (Kuroda, 1956)
Profundiconus profundorum (Kuroda, 1956)
Periploma (Periploma) otohimeae Ozaki, 1958
Latiaxis (Tolema) nakamigawai Kuroda et Teramachi
Adusta (Gratiadusta) katsuae Kuroda, 1960
Microfusus aspera (Kuroda, 1961)
Benthindsia turbinata Kuroda
Latiaxis (Tolema) teramachii Kuroda
Typhis (Typhis) teramachii Keen et Campbell, 1964
Typhis (Typhis) imperialis Keen et Campbell, 1964
Siphonochelus nipponensis Keen et Campbell, 1964

The translation of the Japanese names to more recognizable terminology was based on information in the following publications:

1. Azuma, Masao: A catalogue of shell-bearing mollusca of Okinawa, Kashiwajima and the adjacent area (Tosa Province) Shikoku, Japan. 1960. 102 p.
2. Higo, Shun'ichi (editor): A catalogue of molluscan fauna of the Japanese Islands and the adjacent area. 1973. 397 p.
3. Kuroda, Tokubei: A catalogue of molluscan fauna of the Okinawa Islands. 1960. 103 p.

When I left the Ninomiyas, Taizo handed me a "small present". It turned out to be a fine specimen of Conus crocatus collected on Guadalcanal. This was one of the species that I had filed away in the back of my mind as being rare. Sure enough, it is listed among the 50 "Rare Shells" described by Peter Dance (1969). He simply states that very few collections have included fine specimens of this species from the Western Pacific. The cone is pictured in color in Alan Hinton's "Shells of the New Guinea and the Indo-Pacific" (1972) with the notation that "C. crocatus is a great rarity; its true value is unknown as it seldom changes hands." Jerry G. Walls (in "Cone Shells - a Synopsis of the Living Conidae") does not list C. crocatus as a valid species. He considers that designation as a synonym for the variable Conus ermineus even though the mollusks occur at opposite sides of the world.

Despite the rain squalls and high tides, members of the society participating in the Port Aransas Field Trip September 26, 27, 28, 1980, were able to collect enough Argopecten irradians amplicostatus in the grasses at Bird Island on North Padre to have a feast on Sunday noon. A quick survey of the live mollusks collected shows a count of at least thirty-seven species. A total of seventy-five species, sometimes only valves, were observed and discussed for members.

MONOGRAPH

By H. Odé

DISTRIBUTION AND RECORDS OF THE MARINE MOLLUSCA IN

THE NORTHWEST GULF OF MEXICO

(A Continuing Monograph)

SUPERFAMILY LEPTONACEA

In the LEPTONACEA are brought together several families of mostly minute bivalves about which little is known. Some live attached by byssus (Mysella, Kellia), others live in some supposed relationship to Polychaetes (Aligena, see Harry, 1969), or attached to crustaceans. For the non specialist in this group, it is virtually impossible to classify most of the forms encountered in beachdrift or in dredge samples. I have followed here the classification given by Chavan (1969) in the "Treatise of Invertebrate Paleontology", which also was adopted by Keen (1971). According to that classification, there are five families: Leptonidae, Kelliidae, Montacutidae, Erycinidae and Galeommatidae, all of which are represented in the Texas faunal province. I had noted before that much of the material in the Texas faunal province hardly can be given a generic assignment when one uses the literature pertaining to the East coast of the U.S.A. and Florida. This is not surprising because the more detailed study, of which the following enumeration is merely the initial phase, clearly shows that many elements of the Leptonid fauna in the N.W. Gulf of Mexico are closely related to Panamic faunal elements. All identifications given here must be considered tentative. Most of our material is minute.

A few words may be said about the distinction between the several socalled families. These are defined largely on the basis of hinge characters. If one strictly adheres to these characters, species of shells which in many other aspects are closely similar end up in different families. I am therefore not convinced that the familial placement should be exclusively made on characters of the hinge, which in a group of bivalves of quite specialized mode of life could easily converge. More particulars will be given when the several genera are discussed.

The number of species in the LEPTONACEA is probably very large and I believe, will, when a systematic search is made for these small bivalves, surpass that of many other superfamilies of Texas marine bivalves. In the H.M.N.S. collection are a number of unidentifiable bivalves, probably as yet undescribed, which only came to light, because at least some of the "juvenile" bivalve material was looked at under the microscope.

Sources: Chavan, in "Treat. Invert. Paleont.", Vol. N, pt. 2
Keen, (1971), "Sea Shells of Trop. West America"
Dall, (1899), "Proc. U.S.N.M.", Vol. 21, p. 873-897.

FAMILY MONTACUTIDAE

Small, white, often somewhat quadrate bivalves, without cardinals, but with thickened laterals. In Texas, two genera, Mysella and Pithynella. It should

be noted that we allied Aligena and Orobittella to the Kelliidae.

Genus Mysella Angas, 1877.

Characteristic are the two teeth (not cardinals) in the right valve which form a kind of inverted V-structure. A brown epidermis is often present. This genus is rich in species in the N.W. Gulf of Mexico, but I find it impossible to identify any species except one. Probably further comparative studies will show that all species can be arranged in two main categories, one in a group with "normal" umbo's such as M. planulata Stimpson and the others in a group of which Mysella umbonata Carpenter of the Panamic fauna is a representative. Keen (1971) assigns this species only questionably to Mysella. I believe that no less than ten species of the genus Mysella in the Texas-Louisiana faunal province can be distinguished.

390. Mysella planulata Stimpson, 1851.

Kellia planulata Stimpson, "Shells of New England", 1851, p. 17.

This widespread bay species is common throughout all Texas and Louisiana coastal bays and is often found in beachdrift. It is a rather flattened somewhat triangular species, which when collected alive is covered by a glistening brown epidermis. It lives attached by byssus to underwater objects such as shells and rocks. Dall already reported this species for the Texas faunal province.

Previous records for the Texas faunal province are: 27, Corpus Christi, Texas; 28, listed, p. 1161, recent from Massachusetts Bay to Cape Hatteras and on the coast of Texas (var. fragilis) and from Wood's Hole, Massachusetts to Cape Hatteras, North Carolina (var. tenius); 45, Corpus Christi; 56, Nova Scotia to Texas, 0-48 fms.; 164, listed for the Rockport, Texas area in various environments, (figure incorrect); 206, "Tex. Conch.", Vol. V, p. 96, Vol. IX, p. 51; 236, Galveston; 261, offshore Galveston; 269, figured on page 178.

Records H.M.N.S.: 47 lots of which 14 contain live collected material.

Depth Range: Alive: 0-1 fms. A sample from 23 fms. is no doubt a pleistocene fossil.

Geographical Range: East coast U.S.A., Florida, Gulf of Mexico, West Indies (Abbott).

Maximum Size: 4.0 mm.

Eastern Pacific Analogue: ?

391. Mysella sp. indet. A.

M. planulata is in offshore waters replaced by a much smaller, regularly oval, small, rounded species, which is common in the range of 15-30 fathoms. This may be M. casta Verrill and Bush, 1898; although their figure does not fit well, their description seems to fit our species. Also in the mudlump fauna.

Previous records for the Texas faunal province are: 206, "Tex. Conch.", Vol. IX, p. 79, Mysella sp. A.

Records H.M.N.S.: 29 lots of which 1 contains live collected material.

Depth Range: 0-70 fms. Normal is + 15-35 fms. One lot comes from Galveston West Beach, the other from an abnormal Louisiana location (70 fms.); alive 24 fms. in sandy mud.

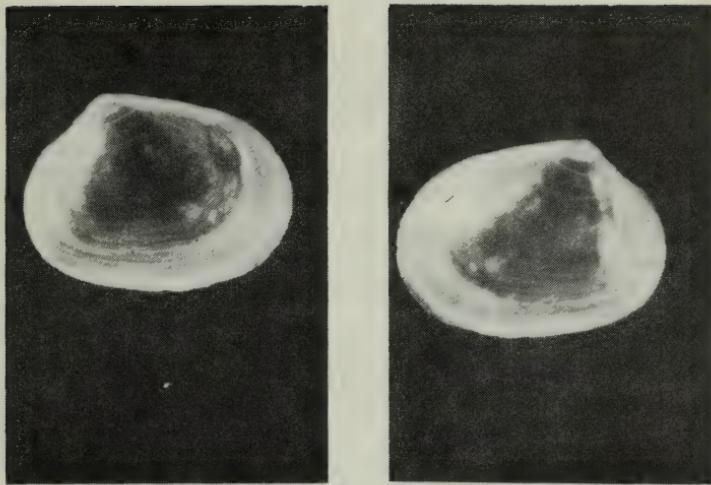


Fig. 1. *Mysella* sp. indet. A, 1.5 mm, dredged by Gus III, Bureau of Commercial Fisheries, from 25 fms 55 miles SE of Freeport, Texas, December 7, 1966.

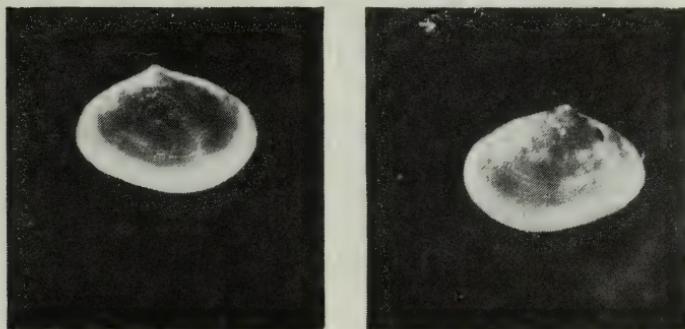


Fig. 2. *Mysella* sp. indet. F, 3.05 mm, trawled by Gus III, Bureau of Commercial Fisheries, from 12 fms, 32½ miles North of Port Isabel, Texas, BFC trip of Aug. 10-25, 1965.

Geographical Range: Unknown; if M. casta also N. Carolina.
Maximum Size: 2.5 mm.
Eastern Pacific Analogue: None.

392. Mysella sp. indet. B.

Only two lots from beachdrift were collected on Mustang Island. The species resembles closely small specimens of Semele nuculoides, but the hinge of course, is different. Growth incrementals are rather strongly developed.

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: 2 lots, none alive from beachdrift at Port Aransas (Mustang Island).
Geographical Range: Unknown.
Maximum Size: 3.4 mm.
Eastern Pacific Analogue: Unknown.

393. Mysella sp. indet. C.

This large Abra shaped species is only known from offshore waters and may be confined to calcareous algal faunas off the Texas and Louisiana coast.

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: 2 lots, none alive, from algal reefs.
Depth Range: 26-55 fms.
Geographical Range: Unknown.
Maximum Size: 5.4 mm.
Eastern Pacific Analogue: Mysella negritensis Olsson, 1961, resembles this species somewhat, but is much larger. "Negritos, Peru" (Keen, 1971).

394. Mysella sp. indet. D.

This is a small species with a prominent umbo, closely resembling, if not the same, as Mysella umbonata Carpenter, 1857 from the Panamic province (Mazatlan, Mexico). Our specimens all come either from the beach (Galveston, Matagorda) or have been dredged in the bays (Christmas Bay and Matagorda Bay).

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: 12 lots, no live material.
Depth Range: 0-8½ fms. (normal range is 0-1 fm.). A single valve from 8½ fms. probably was washed into the sea.
Geographical Range: Unknown.
Maximum Size: 4.0 mm.
Eastern Pacific Analogue: Mysella umbonata Carpenter, 1857. "Mazatlan, Mexico" (Keen, 1971).

395. Mysella sp. indet. E.

The offshore equivalent of the previous species has been obtained at only a single location. It is a sturdier shell, with strongly concentric ridges and in that respect, quite different from sp. D. Both this and the previous species (D) are perhaps not true Mysellas.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 1 lot, none alive.
Depth Range: 100 feet, Clay Pile Shale Dome, off Louisiana.
Geographical Range: Unknown.
Maximum Size 3.8 mm.
Eastern Pacific Analogue: None.

396. Mysella sp. indet. F.

This is a small species in the *M. planulata* group of species. It is very much Tellinid in shape, with an umbo almost in the middle of the valve.

Previous records for the Texas faunal province are: 206, (*Mysella sp. B*), Tex. Conch., Vol. IX, p. 79, 1973.
Records H.M.N.S.: 5 lots, none alive.
Depth Range: 6-12 fms., and one abnormal location at 40 fms. off Louisiana.
Geographical Range: Unknown.
Maximum Size: 2.8 mm.
Eastern Pacific Analogue: None.

397. Mysella sp. indet. G.

This is the second smallest species of the genus along the Texas-Louisiana coast and also the one that inhabits the deepest water. Its hinge is different in the sense that a kind of lateral fold shows up far along the dorsal margin from the umbo.

Previous records for the Texas faunal province are: 206, (*Mysella sp. C*) Tex. Conch., Vol. IX, p. 79, 1973.
Records H.M.N.S.: 5 lots, none alive.
Depth Range: 75-450 fms.
Geographical Range: Unknown.
Maximum Size: 1.8 mm.
Eastern Pacific Analogue: None?

398. Mysella sp. indet. K.

This is the only species among the ones enumerated here about whose identity as separate species there might be some doubt. It is somewhat reminiscent of *sp. B*, but it is completely smooth, without any growth incrementals, unless viewed under strong magnification. However, its depth range is so different that it almost must be different from B.

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: 2 lots, none alive.
Depth Range: 60-150 fms.
Geographical Range: Unknown.
Maximum Size: 3.3 mm.
Eastern Pacific Analogue: None?

399. Mysella sp. indet. M.

A single valve of a very small species is the only evidence for this species. It is improbable that this valve is a juvenile of another species which can reach a size in excess of 1.1 mm., because the valve



Fig. 3. *Mysella* sp. indet. G, 2 mm, collected from 170 fms by orange peel grab, 98 miles SE of Freeport, Texas, by H. Geis and S. Stubbs, July 18, 1967.



Fig. 4. *Mysella* sp. indet. K, 3.5 mm, dredged from mud, 150 fms, 85 miles SE of Freeport, Texas, by H. Geis and S. Stubbs, July 18, 1967.

is quite convex and gives the impression of being well developed. Growth lines are quite dense and regular. It is possible that this minute species is a Pythinella rather than a Mysella. However, more material is needed for study before this can be decided.

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: 1 lot, none alive on sandy bottom.

Depth Range: 8½ fms.

Geographical Range: Unknown.

Maximum Size: 1.1 mm.

Eastern Pacific Analogue: None?

Genus Pythinella Dall, 1899.

Somewhat elongate, triangular. Close to Mysella.

400. Pythinella c.f. cuneata Verrill and Bush, 1898.

Unfortunately of the two specimens of this rather characteristic species one was crushed during photography. The remaining species clearly is a Pythinella. More material must confirm its identification as P. cuneata Verrill and Bush, 1898.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 2 lots of one single valve (one valve lost during photography and a small valve from mudlump fauna).

Depth Range: 9 fms.

Geographical Range: Unknown.

Maximum Size: (Remaining somewhat smaller specimen): + 1.5 mm.

Eastern Pacific Analogue: Pythinella sublaevis Carpenter, 1857 may be close

FAMILY GALEOMMATIDAE

Somewhat squarish, small shells, with radial surface sculpture. In the N.W. Gulf of Mexico, the genera Aclystothyra and Cymatioa, the latter of which is probably not of Galeommatid affinity but Kelliid.

Genus Cymatioa Berry, 1974.

It is unfortunate that the very expressive name by which this genus was originally named, Creminargo, was found to be preoccupied. Mature valves show a slight sinuoidal folding of the ventral margin. Although placed by Chavan and Keen in the family Galeomatidae on the basis of the hinge, I doubt whether the genus should be kept in that family, and would prefer, at least for one species, a closer relationship with the Kelliidae not reported before from the Western Atlantic, Cymatioa is fairly common the N.W. Gulf of Mexico in deeper water where it replaces the genus Aligena.

401. Cymatioa sp. indet. A.

The Texas-Louisiana species is, except for size, quite close to the Panamic Cymatioa electilis Berry, 1963. Remarkable is the feature mentioned by Keen for this species (#304), that the adductor muscle scars which are high up on the valves show through to the outside of the milky translucent shell. The same feature is observed in such



Fig. 5. *Cymatioa* sp. indet. A, 5.6 - 4.5 mm, collected from 23 fms by orange peel grab by the Bureau of Commercial Fisheries 56 miles South of Galveston, Texas, April 17, 1966.

Photos by Harold Geis

"montacutid" genera as Aligena and Mysella. Cymatioa is further characterized by a very fine and regular radial striation on the shell surface giving it a finely reticulated appearance.

Previous records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 79 (as Lasaea sp. A, B, C.).

Records H.M.N.S.: 28 lots, no live material.

Depth Range: 8½ - 16 fms. (optimal range: 25-70 fms.).

Geographical Range: So far only known from N.W. Gulf of Mexico.

Maximum Size: 5.6 mm.

Eastern Pacific Analogue: Although C. electilis Berry, 1963 is a much larger shell (16 mm), it appears close to our species. "Guaymas, Mexico and southern end of the Gulf of California in depths to 45 m., Manzanillo and south to Galapagos Island." (Keen, 1971).

402. Cymatioa sp. indet. B.

With considerable hesitation two lots of a rather smooth and thin bivalve are assigned to this genus. However, I would judge it to be generically different from C. sp. A, but I am at a loss whereelse to place it. The hinge is quite narrow and weak but a small toothlike projection is present. In shape it somewhat resembles the Panamic C. dubia Deshayes, 1856, but it is much smaller than that shell. I can not see any evidence for the marginal crenulations which are supposed to be a characteristic feature of the genus Cymatioa.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 3 lots, none alive.

Depth Range: 60-140 fms.

Geographical Range: Unknown.

Maximum Size: 3.8 mm.

Eastern Pacific Analogue: ? Cymatioa dubia Deshayes, 1856. "Guyaquil, Ecuador" (Keen, 1971).

403. Cymatioa sp. indet. C.

This is a rather surprising species characterized by an attribute I have never seen in any other species of bivalve. When looking down on the shell, convex side up, the hinge line near the umbo carries two small spines, pointing forward - not up - on both sides of the umbo. Both valves have these spines placed in juxtaposition. This I would believe, should interfere with the opening and closing of the shell.

Previous records for the Texas faunal province are: None.

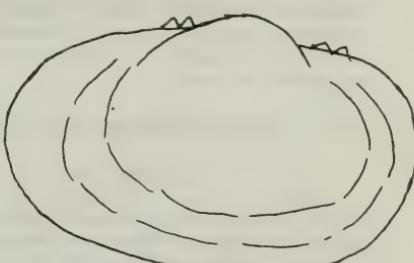
Records H.M.N.S.: 2 lots, none alive.

Depth Range: 23-67 fms.

Geographical Range: Unknown.

Maximum Size: 2.4 mm. (Broken).

Eastern Pacific Analogue: None.



Genus Aclistothyra McGinty, 1955.

Very flat, gaping with minute granulations. A single species off Texas.

404. Aclistothyra atlantica McGinty, 1955.

Proc. Ac. Nat. Sci., Phila., Vol. 107, p. 84-85; pl. 2,
figs. 11, 11a.

Of this very curious and rare bivalve, two somewhat defective valves were dredged from Stetson Bank. Whether the species still lives in Texas offshore waters is anybody's guess.

Previous records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 79.

Records H.M.N.S.: A single lot of two valves from Stetson Bank. No live material.

Depth Range: Dredged between 10 and 50 fms.

Geographical Range: Only known from off Palm Beach, Florida.

Maximum Size: In excess of 6.6 mm (broken).

Eastern Pacific Analogue: Not in Panamic Province.

FAMILY KELLIIDAE

Small bivalves with 2 cardinal teeth and strongly developed posteriors and wide gap in the hinge plate below the umboes. The assignment of certain genera to this family depends on the interpretation of the hinge. There is some doubt with regard to the placement of Aligena in this family. Chavan places it in the Kelliidae, a choice based on topotype material from Virginia. I will follow Chavan and not adopt the more conservative course of Harry (1969) and Keen (1971) who align Aligena with the Montacutidae. My reason for doing so is that in many characters other than the hinge Kellia and Aligena almost seem to merge and are often quite difficult to separate. But if Aligena becomes Kelliid also Orobitella whose distinction from Aligena is at best tenuous should be transferred. The genus Orobitella has "stronger teeth and a wider hinge plate" (Keen, 1971). Perhaps the most ironic result of our choice is that the shell originally described as Montacuta floridana Dall, will end up in the Kelliidae. I fail to see any significant generic difference between it and other species of Aligena in the Texas faunal province, and consequently will consider it an Aligena and thus of Kelliid affinity. This argument may suffice to show that familial relationships in this group of bivalves are as yet poorly understood.

Genus Aligena Lea, 1846.

Small, white shells, with a hinge of Montacutid and not Kelliid affinity, (apparently no cardinal teeth), otherwise close to Kellia. After Mysella, Aligena (together with Orobitella) appears to be the most diversified group of Leptonids in the N.W. Gulf. Unfortunately of most species, probably undescribed, the material is scant.

405. Aligena texicana Harry, 1969.

Veliger, Vol. II, (3), p. 168-170, figs. 10, 11, 12.

This abundant bay species is surprisingly seldom dredged alive, but dead shells are common in most Texas bays and in beachdrift along the Texas and Louisiana coast. It was first reported in 1942 by Harry as Aligena sp. from Barataria Bay (La.). We have specimens from Timbalier Bay (La.). Contrary to the statement by Harry (1969), the

species is quite common in Galveston and Matagorda Bays, meaning that in well over 50% of all bay samples dead valves can be found. Live specimens are much less common. In my opinion, confusion with Mysella planulata Stimpson is out of the question because both species are quite different in shape and hinge characters. Juvenile specimens are much less quadrate and inflated than mature specimens. Offshore this species may be replaced by the genus Cymatioa, which belongs in a different family.

Previous records for the Texas faunal province are: 74, (Aligena sp.), listed for Barataria Bay; 164, figured on pl. 2, fig. 21, but erroneously labeled Mysella planulata; 206, Tex. Conch., Vol. V, p. 86, and Vol. IX, p. 50; 236, Galveston; 241, original description; 269, figured on page 179.

Record H.M.N.S.: 45 lots of which 2 contain live collected material.

Depth Range: 0-9 fms.; alive 0-3 feet, in mud bottoms of the bays.

Geographical Range: Louisiana, Texas and probably Mexico.

Maximum Size: 6.2 mm.

Eastern Pacific Analogue: There seems to be no close Panamic relative (Harry cites A. nucea Dall) and the closest probably is the western Atlantic A. elevata (Stimpson).

406. Aligena floridana Dall, 1899.

Montacuta floridana Dall, Proc. U.S.N.M., 21, p. 893, pl. 87, fig. 10.

It is possible that also M. (Orobitella) floridana inflata Olsson and Harbison, 1953 is the same.

I cannot see any significant generic difference between this large species and A. texaniana Harry, although Harry does not include it in his discussion of the genus Aligena. It is considerably larger than A. texaniana, quite inflated, and much heavier structured with incremental growth lines. Its occurrence on the Texas coast is only documented by material from beachdrift. Neither bay samples nor offshore dredge material has yielded any specimens. In all likelihood the species lives at the base of artificial structures such as jetties, because these are the locations where all our material has been found. In our material many valves show the characteristic sulcus of the genus Aligena.

Previous records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 50.

Records H.M.N.S.: 8 lots, no live material (Galveston Island, Port Aransas, South Padre Island).

Depth Range: All material from beachdrift.

Geographical Range: (?).

Maximum Size: 13.7 mm.

Eastern Pacific Analogue: None close.

407. Aligena spec. indet. A.

Very little can be said about this species, of which only a single valve was obtained from the offshore coral reef. More material must be obtained before I can add any significant details to the following facts: (1) the umbo is quite excentric: (2) quite inflated; (3) rather small size.

Previous records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 79.
Records H.M.N.S.: 1 lot, no live material.
Depth Range: 13-16 fms. on coral reef.
Geographical Range: Unknown.
Maximum Size: 4.1 mm.
Eastern Pacific Analogue: None?

408. Aligena spec. indet. B.

A single valve of this species was collected on the coral reefs south of Galveston (Flower Gardens). It differs from the others in the somewhat pad-like thickening of the anterior part of the hinge structure and its regularly oval shape, without sulcus in the middles.

Previous records for the Texas faunal province are: 206 (as Basterotia sp. A), Tex. Conch., Vol. IX, p. 79.

Records H.M.N.S.: One lot, none alive.
Depth Range: 60-80 feet, from coral rubble.
Geographical Range: Unknown.
Maximum Size: 5.7 mm.
Eastern Pacific Analogue: None.

409. Aligena spec. indet. C.

This quite difference species is present in the H.M.N.S. collection is a single, somewhat defective valve. Its hinge is very subdued and probably is that of Aligena. The circumferential shape is somewhat different from the other species in the genus.

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: 1 lot, none alive
Depth Range: 10-15 fms., coral reef.
Geographical Range: Unknown.
Maximum Size: 4.0 mm.
Eastern Pacific Analogue: None?

410. Aligena spec. indet. D.

A single rather worn valve was collected by me along the Old Port Aransas Causeway in 1963. It is a rather flat and thin shell, which only tentatively is assigned to this genus. It could be fossil. Although this is somewhat unlikely as the shell includes some organic material around which it grew. This gives the impression that it developed inside another organism. For the time being we cannot add more information.

Previous records for the Texas faunal province are: None.
Records H.M.N.S.: One lot, none alive.
Depth Range: From beachdrift.
Geographical Range: Unknown.
Maximum Size: 3.3 mm.
Eastern Pacific Analogue: None.

Genus Orobitella Dall, 1900.

Very close to Aligena, but with "stronger" hinge. Three unidentified species are here assigned to it.

411. Orobittella spec. indet. A.

A single unidentified valve was collected at the South Padre Island Coast Guard Station. It is rather elongate, but elliptical in form with the umbo placed somewhat excentrically. No trace of a periostracum is left. More material is needed to understand and evaluate this species.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 1 single valve from beachdrift at south Padre Island.

Depth Range: Unknown.

Geographical Range: Unknown.

Maximum Size: 2.6 mm.

Eastern Pacific Analogue: None close.

412. Orobittella spec. indet. B.

This species could with equal justification be placed in the genus Aligena, because its hinge is rather slender with a projecting hook like tooth. Its shape is different from any of the species in Aligena and Orobittella in the western Atlantic. Perhaps it comes closest to the eastern Pacific species Orobittella secura Olsson, 1961. Our species has a somewhat more blunted posterior end. Only a single specimen of this species remarkable also for its deep water occurence.

Previous records for the Texas faunal province are: 206, (Lepton sp. B) Tex. Conch., Vol. IX, p. 79, 1973.

Records H.M.N.S.: One lot, no live material.

Depth Range: 67 fms.

Geographical Range: Unknown.

Maximum Size: 4.5 mm.

Eastern Pacific Analogue: Orobittella secura Olsson, 1961.

"Secura Bay, Northwestern Peru", (Keen, 1971).

413. Orobittella spec. indet. C.

Two somewhat beachworn, but otherwise nicely preserved valves picked from beachdrift along the Causeway at Aransas Pass are the only evidence for this species in the N.W. Gulf of Mexico. The valves could be fossils, because channel dredging in the area has uncovered Pleistocene and perhaps older material. This species is probably an Orobittella and not an Aligena because it is much less inflated and coarser in structure of growth lines but the hinge is not strongly developed and remains subdued. In shape, it is unlike any of the species of Aligena or Orobittella reported here. It is quite evenly oval with the umbo placed somewhat out of the middle. Thus it resembles to a fair degree, the species Orobittella oblonga Carpenter, 1857, which Keen (1971) places with a question mark in the genus Orobittella.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 1 lot of two valves from beachdrift.

Depth Range: Unknown.

Geographical Range: Unknown.

Maximum Size: 6.6 mm.

Eastern Pacific Analogue: Orobittella oblonga Carpenter, 1857.

"Mazatlan, Mexico: (Keen, 1971).

Genus Kellia Turton, 1822.

Small, somewhat squarish, small bivalves, whose hinge resembles that of Aligena conspicuously augmented by a cardinal tooth. I am convinced that Aligena and Kellia are quite close. Apart from the difference in dentition the general habitus of both genera is surprisingly the same, in contrast to outspoken overall differences with Mysella. Too strong an adherence to the minutiae of the hinge line, disregarding other aspects of shell morphology could produce erroneous results.

414. Kellia suborbicularis Montagu, 1803.

The lack of records of this species for the Gulf of Mexico is surprising in view of its wide and abundant distribution throughout our area (entire Texas-Louisiana coast). The species is apparently considered to be of wide distribution in the entire Atlantic and Panamic Province. This is easily understood when one considers its mode of life; as a nestler in crevices in rocks, shells, and most important in wood. Beach specimens are usually found attached by byssus (?) in empty bore holes left by Martesia or Teredo, in driftwood. Sometimes these shells are still living. I have also found the species embedded very closely in the calcareous matrix of oyster shells. How it can live under such circumstances is unknown to me; all of the shells found in that way are immature. Possibly the very small juveniles settle in the pores of the oyster shell (dead) develop, but will not reach maturity.

The mode of life of this species produces, as can be understood, variable shapes. In the normal development, the shell is rather squarish and possesses when fresh, a light brown epidermis which can be beautifully iridescent. But sometimes the form is more rounded and the degree of inflation less. Juveniles are quite flat. Not only the shape is variable, but also the degree to which the hinge-line develops. It is unlikely that such forms, which deviate far from the average development represent different "species". I have here separated as Kellia sp. A and Kellia sp. B, two extremes in development of the hingeline. To be noted here is that Dall in 1899 remarked that U.S. material from New England looked different from European material and reported it as K. suborbicularis var. gouldii Thompson, 1867. Most of our material is obtained by crushing large porous old fragments of larger mollusk species.

Previous records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 49, 1973.

Records H.M.N.S.: 48 lots of which 20 contain live collected material. Depth Range: 0-55 fms.; alive 0-43 fms. (the "zero" record comes from live material collected from driftwood on the beach).

Geographical Range: Entire Northern Atlantic. Panamic Province.

Maximum Size: 5.9 mm.

Eastern Pacific Analogue: Same species in Panamic fauna.

To be continued

"Marine Mollusks of Easter Island (Isla de Pascua)" by Dr. Harald A. Rehder has been published by Smithsonian Institution Press as Smithsonian Contributions to Zoology #289. A number of new species is presented. There are 14 plates. One hundred and thirty three species of marine and halophilic mollusks are recorded from Easter Island.

HOUSTON CONCHOLOGY SOCIETY, INC.

Officers 1980-1981

President	David B. Green
Program Vice-President	Mary Ann Curtis
Field Trip Vice-President	Helen Cornellisson
Treasurer	Jim Sartor
Recording Secretary	Gladys Sheridan
Corresponding Secretary	Lucy Clampit

Directors

Charlie Azares	Max Finer	Paul Loughmiller
Cynthia Biasca	Luana Huggins	Herschel Sands
Editor, <u>Texas Conchologist</u>	Constance E. Boone	
Immediate Past President	Frank Petway	

Honorary Life Members

Dr. T. E. Pulley	Dr. Helmer Odé
------------------	----------------

QL 401
T4
v.17:2
Texas

CONCHOLOGIST

VOLUME XVII NO. 2



JANUARY, 1981

The TEXAS CONCHOLOGIST is the official publication of the Houston Conchology Society, Inc., and is published quarterly at Houston, Texas. It is distributed as part of the dues to all members.

The Society holds regular meetings the fourth Wednesdays of the following months: August, September, October, January, February, March, April and May. The meeting is held the third Wednesday in November. Meetings are held at the Houston Museum of Natural Science, Caroline Street in Hermann Park, beginning at 7:30 p.m.

The TEXAS CONCHOLOGIST is published October, January, April and July. It is mailed postpaid to regular members in U.S. postal zones. Overseas members will be charged additional postage. Only one copy will be mailed a family membership.

Dues extend from the beginning of the fiscal year of June 1 through May 31. However, the July issue of the TEXAS CONCHOLOGIST each year is the fourth quarterly due on the regular dues year beginning June 1 of the previous year. Memberships will be accepted throughout the year but will receive the quarterlies of that fiscal year. Members receive meeting Newsletters and have all other privileges provided by the Society's by-laws.

RATES AND DUES

Family membership	\$6.00
Single membership	\$5.00
Student membership	\$2.00
Single Issues	\$1.50
Extra sets mailed members	\$5.00
(Postage for overseas members required)	
Subscription	\$6.00
(Seamail \$2.00, Airmail outside U.S., \$3.00)	

EDITOR

Constance E. Boone
668-8252
3706 Rice Boulevard
Houston, Texas 77005

CIRCULATION

Mr. Grytch Williams
664-2809
6644 Belmont
Houston, Texas 77005

EDITORIAL STAFF

Helmer Odeé 664-9942 4811 Braeburn Drive Bellaire, Texas 77401	W. W. Sutow 748-7233 4371 N. MacGregor Way Houston, Texas 77004	Herschel S. Sands 772-6613 8902 Cadawac Road Houston, Texas 77074
---	--	--

The TEXAS CONCHOLOGIST accepts contributions for publication from amateurs, students, and professionals, subject to approval by the Editor. Manuscripts should be typed, double spaced and should be in the hands of the Editor the first day of the month preceding publication dates. Photos accompanying such material are welcomed.

Since our visit to Australia in 1967, I had the ambition to dive in the Red Sea, before trading my scuba gear for a rocking chair. When the Club-Med took over a resort 300 miles south of Cairo, we were on our way. On Air Egypt from Paris I got a nasty glance when inquiring about the possibility of purchasing a drink. It probably meant "You idiot should know that Moslems don't drink." Bad start for a vacation, but there is hope as no "Club-Med" would survive without booze and wine, no matter what the Koran dictates. A couple hours were wasted in Cairo airport before taking a small plane to Hurghada, a small fishing village on the Red Sea, across from the south point of Sinai. Flying over the red sands, red mountains, we learn that the reflections on the water contributed to the name to the "Red" Sea, but the water is as blue as the Pacific.

The welcome to the Club with music, handclapping and singing by the reception committee makes us forget the sleepless night. Clear blue sky, fresh winds, soon the fears of dreadfully hot climate of desert lands disappeared. September must be the best time to go. However, a catastrophic problem appeared just as soon as I visited the Diving Medical Department to determine if I was fit to go underwater. The answer was "NO" - due to extremely high blood pressure, quite a surprise - 170 instead of the 130 at my last checkup in Houston. Original excuse was the long flight from Paris without any rest, excitement, etc. It should be lower the next morning...after a good night of sleep...but it was 180 at 8 A.M. I soon found out that many applicants for the diving had been rejected for the same reason. We all believed the instrument was out of whack, then I pleaded old age...before being accepted anyway...what a relief as I only came to the Red Sea to DIVE. Ten days and 10 dives later upon arriving in Cairo, the pressure was a normal 120 - just different apparatus!

Second catastrophy: "Fauna Preserved" - this means no picking of shells - not even dead shells...and I came here just for that purpose. What to do...the trip, meal, wine are paid for. The decision is simple - you stay and smuggle the shells, and hope you don't get caught and your conscience does not hurt...I won on both points.

Now for the good news - first the weather...perfect, not too hot as one should expect in the desert - cool nights warranting a light sweater. Cloudless skies 24 hours a day...except once when panic developed because clouds did show up and alarmed the natives and the tourists...just like snow every 10 years terrifies Houstonians - was Hurghada threatened, was Moses' resurrection about to occur? Just a beautiful sight and not a drop of rain!

Also, we will remember the delightful meals, the good Egyptian wines (no limits).

Diving was strictly supervised, in beautiful waters requiring a light rubber suit. Tame colourful fishes in great abundance, varieties of corals everywhere; no currents or jelly fish to bother you, very few sharks.

Strange creatures such as crocodile fishes, extremely large moray eels, that we fed, not many shells except the famous seven footed Lambis lambis and large clusters of huge (10") pearl oysters.

However, I failed to find many of the unique animals I had hoped to locate, such as the 3 inch "flashlight fish" with very luminescent patches under the eyes, and finally the "shark proof" fish capable of repelling the most vicious predator by a mysterious poison. Curiously enough, the small flounderlike fish is tasty to

humans. Hurghada was in the center of a large military zone, with strict regulations such as no landing on any of the small islands or their beaches because they were mined. No night diving, no car rentals. Excursions by bus were possible, but a nephew of Sadat had driven from Cairo, and was kind enough to take my sister and me on "Shelling Expeditions" outside the military zone, to Safaga, where a large port exporting phosphates and other minerals is being constructed.

Winds made it difficult to play tennis, but other sports such as wind-surfing were most popular. The Club was not typical as Egyptians could come just for the week-end, but failed to participate in the most typical attractions, such as the bars, dancing, diving, etc.

After 10 days on the sea shore, we spent 4 days in Cairo, a bustling large city of 12 million, not always clean, perpetually under construction, booming due to American Aid, with ugly modern buildings replacing beautiful ancient villas.

Tourists by the thousands were rushing to one pyramid after the other one, day and night, as Gizah's "Sound and Light" program is excellent. The Papyrus and National Museums are fascinating. We had hoped to see old King Tut, but he was displaying his gold in Germany. Luckily the ugly 4000 year old mummies were available to the tourists, just before Sadat decided to hide them forever.

No, we didn't make the cruise to Luxor and Aswan; the people who did had to get up at 5 A.M. every morning to beat the heat...what a way to spend a vacation, for Art's sake. We did however, buy 2 Kuftans (long robes) to look as native as possible at the next Middle East reception.



MOLLUSCANA

By W.W. Sutow

The editor has suggested that it may be interesting to include a more detailed geographic orientation each time a museum is mentioned in these paragraphs. One such museum (in Japan) that has been described houses the Teramachi Collection.

Akibumi Teramachi was one of the best known amateur conchologists in Japan. He lived in Kyoto and for decades he was the central source for the rare (and for that matter, the common) seashells from Japan. He initially took up shell collecting as a recreational hobby for health reasons. Over time he virtually controlled the distribution of the deep-sea rarities brought up by the fishermen who dragged the bottom of the deep waters off the coast of Tosa. This kind gentleman was a friend to collectors abroad and many old-timers have had the immense pleasure of exchanging seashell specimens with him.

I last saw Mr. Teramachi alive on November 17, 1965. Dr. Tokubei Kuroda was the guide as we walked up the slope along narrow winding streets of Kyoto to the Teramachi home. A brief description of that visit has been recorded in Mollusca in the February-March 1966 issue of the TEXAS CONCHOLOGIST (Vol. II, No. 7). A part of the concluding paragraph may bear repeating.

"The room in which we sat served as the den, sitting 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." I have a prized specimen of Teramachia tibiaeformis Kuroda as a momento of that visit.

As mentioned a couple of times in these pages during the past two years, the Teramachi Collection was transferred to the Toba Museum where the major items are on display. Mr. Teramachi passed away in 1979.

Toba is off the main rail lines - but it is readily reached. Those planning to see Japan might well consider flying to Osaka instead of Tokyo. Nonstop flights are scheduled directly from Honolulu to Osaka. One can avoid potential problems in Tokyo where the airport is situated so far distant from the city.

Osaka is the second largest metropolis in Japan. Kyoto (the one place most visitors to Japan will want to see) is only 16 minutes by train from Osaka (compared to almost 3 hours from Tokyo). Toba can be readily reached by electric train from Osaka, Nagoya or Kyoto.

Toba is situated within the famous Ise-shima National Park. The park contains the Ise Jingu Shrines, the most venerated Shinto shrines in Japan. Also famous here are the "Wedded Rocks". The city of Toba (30,000 population) is a popular resort center with all sorts of facilities for the convenience of the visitors. The Toba Aquarium, itself a central attraction, houses the Teramachi Collection of Seashells.

Toba Harbor also contains another famous landmark - the Pearl Island. This is where Kokichi Mikimoto first succeeded in producing cultured pearls. The Mikimoto Pearl Museum is located in Toba. The seascape in this area is truly breathtaking. Anyone who plans to include Kyoto in the itinerary should think of visiting Toba (particularly if one is a conchologist and has an extra day). The Teramachi collection is probably the world's finest accumulation of marine mollusks of Japan - and, best of all, the shells are on display.

* * * * *

Another shell museum (in Japan) is located near the tip of the remote Nomo Peninsula. Nomo is a fishing village and a growing resort town. Nomo is about a 40 minute drive from Nagasaki and is the westernmost point of Kyushu and thus of the four main Japanese Islands. The Marineland there houses the museum. Nagasaki University has its marine biology laboratories nearby.

Nagasaki is situated on the island of Kyushu, the most southwestern of the four main islands of Japan. Kyushu itself is scenically attractive with a number of appealing tourist spots ranging from the active volcano Mt. Aso (said to be the world's largest volcano), Kagoshima (known as the Naples of the Orient) to Beppu (with its thousands of hot springs). Kyushu is considered to be the cradle of Japanese civilization. It was from this island that the Divine Wind ("kamikaze") helped to thwart the invasion of Japan by Kublai Khan's hordes in the 13th century.

Then there is Nagasaki. Long before the atomic bomb etched Nagasaki in the memory of mankind, the city itself was already well-known. It was through this seaport that foreign culture flowed into Japan. It is Japan's leading shipbuilding city and the center of Catholicism. Though relatively remote air transportation has made the city readily accessible to visitors.

The usual entry onto the island of Kyushu is thorough the city of Fukuoka, its largest city. Fukuoka is 1 hour from Osaka and 1 1/2 hours from Tokyo by air. The bullet train (which traverses a 18.7 km tunnel from the main island of Honshu) takes 6 hours 52 minutes from Tokyo and 3 hours 44 minutes from Osaka. Nagasaki can be reached by limited express train from Fukuoka in 2 hours 40 minutes.

I first visited Nagasaki in 1948 with the Atomic Bomb Casualty Commission. We commandeered four Piper Cubs and maneuvered our precarious way among mountain tops from Fukuoka (Itazuke AFB) to an abandoned baseball field near the hypocenter of the atomic explosion. Shortly thereafter I had made several weekend trips to Nomo on a jeep. This was no picnic. We had to maneuver our way along the sea-shore on a slippery and badly damaged roadway. Parts of the road were out of the water only at low tide. At that time there was only a small fishing village at Nomo with the fishermen living in houses supported on stilts over the water. The people discarded their refuse over the side of the platform into the water. I spent hours rummaging through the debris under the houses and came away literally loaded with all sorts of Japanese shells.

When I revisited Nomo a few years back, the road from Nagasaki had become a two-lane highway. The fishing village had been rebuilt. And at that time, Dr. Kosuge was the curator at the museum.

The museum was financed and built by the villagers and the local fishermen's association. Completed in 1973, the museum has on display more than 8000 species of mollusks from all over the world. However, the Japanese species (marine and land) predominate and the local and regional rarities are featured. At the museum, the visitor is greeeted in the lobby by the world's heaviest Tridacna gigas, a monster from Borneo that weighed 400 kg when collected.

While the museum does not contain quantities of startlingly new or unusual shells, the displays are arranged with typical Japanese ingenuity. The techniques of displaying shells (even by hanging them from the ceiling) are worth studying.

Thus, a trip to Point Nomo (Nomozaki) may well be a final touch to what could be

a delightful few days on the island of Kyushu. One must pass through one of the most historical and cosmopolitan cities in Japan - Nagasaki. This is the city immortalized in Puccini's Madam Butterfly. Glover Mansion, a tourist spot, in the city has been publicized as the setting for the story told in the opera.

If Dr. Kosuge is still the curator, one can anticipate an informative chat (in English) with a professional malacologist. If the tides are right, there are a number of spots for live shell collecting in several different types of habitats. (And as an aside, it could be mentioned that a chain of tropical islands stretch southward from here including Amami and Okinawa, the latter a mere one hour's flight from Fukuoka.

* * * * *

PHILATELIC CONCHOLOGY - A CONSPECTUS (Part 4)

By W.W. SUTOW, M.D.

The availability of several excellent publications concerning malacophilately, the appearance of various checklists, and particularly the issuance of colorful stamps featuring mollusks by many countries have made the hobby of collecting such shell-stamps attractive, interesting and productive. By setting various goals, all sorts of collecting activities can be initiated.

One such approach, the geographic or regional, can be undertaken readily in respect to stamps showing mollusks from the Caribbean Sea and the Gulf of Mexico. Another goal may be the collection of given families. For this author, one group of mollusks immediately comes to mind: the cephalopods.

Over the years a number of different countries have depicted cephalopods on stamps. The number of such stamps now available makes "teuthological philately" a viable undertaking.

While trying to verify the identities of the cephalopods pictured on the stamp designs, I looked for a simplified, systematic family tree for this group of mollusks. I wanted a clarification of the differences and similarities among the mollusks that have been variously called cephalopods, octopods, decapods, squids, cuttlefish, and octopus.

The classification schema begins with the all inclusive Class CEPHALOPODA, Cuvier, 1797. Within that class, two subclasses are generally listed: Subclass Nautiloidea and Subclass Coleoidea. Included in the Subclass Nautiloidea are the nautilus and the ammonites. (Some authors list Ammonidea as a separate Subclass).

Now, under the Subclass Coleoidea appear several Orders:

- Order Sepioidea Leach, 1817 ("cuttlefish kin")
- Order Teuthoidea Owen, 1836 ("squid kin")
- Order Vampyromorph Thiele, 1915 ("bat-like")
- Order Octopoda Refinesque, 1815 ("eight-footed")

From here, further classification within each Order at various levels identifies: suborder, family, subfamily, genus, subgenus and species. It is interesting to note that the term "decapod" does not seem to appear in Abbott's book on American seashells.

The checklist of "cephalopod stamps" presented here includes only those stamps on which the cephalopod is either the central item or constitutes a major component of the stamp design. Omitted are a number of stamps which show cephalopods as in-

cidental or minor items on the stamp. These types will be examined at a later time.

The information on the checklist has been arranged malacologically rather than philatelically. Thus, for each of two Orders, the main line items will be Family designations. Under each family, the genus and species will be listed. For each species, the philatelic data will be given in the following sequence: country of origin, Scott catalog number, year of issue and denomination of stamp. A few stamp issues may not be listed in the Scott catalogs. These apply to stamps, from countries with which U.S. has no diplomatic relations such as Cuba, North Korea and North Viet Nam. If such stamps, however, are included in the Stanley Gibbons catalog, the "SG" numbers will be given.

Since precise identification of cephalopods is difficult from simple examination of the stamp design, the reader is cautioned to accept the given designation as being merely the best "guess" of what the depicted cephalopod may be. (Unlike other pictured mollusks, the cephalopods are usually not identified by name on the stamps).

CHECKLIST OF CEPHALOPODS ON STAMPS

Family Nautilidae

Nautilus macromphalus

Aitutaki	83,	1974,	1¢
New Caledonia	C30,	1962	20 fr

Nautilus pompilius

Fiji	242,	1968,	2p
Fiji	261,	1969,	2¢
Fiji	286,	1970,	(261 overprint)
Kenya	44,	1971,	70¢ (name misspelled)
Kenya	52,	1974,	70¢ (misspelling corrected)
New Hebrides Br.	101,	1963,	30¢ (is this N. macromphalus?)
New Hebrides Fr.	117,	1963,	30¢ (is this N. macromphalus?)
Papua New Guinea	276,	1968,	40¢
Solomon Is.	324,	1976,	15¢

Family Sepiidae

Sepia officinalis

Dubai	2,	1963,	2np
Dubai	8,	1963,	20np
N. Viet Nam	SGN883,	1974,	50xu

Sepia pharaonis

Singapore	277,	1977,	\$5
-----------	------	-------	-----

Family Loliginidae

Loligo brasiliensis

Uruguay	C339,	1968,	50p (Illex argentinus?)
---------	-------	-------	-------------------------

Loligo vulgaris

Albania	1170,	1968,	15q
N. Viet Nam	SGN880,	1974,	12xu

Loligo sp.

Ajman	Carus	2230,	1972,	1.25r
-------	-------	-------	-------	-------

Family Lycoteuthidae				
<u>Lycoteuthis diadema</u>				
Congo People's Republic	119,	1964,	2fr	
Family Sthenoteuthidae				
<u>Sthenoteuthis scintillans</u>				
Japan	883,	1967,	35y	
Family Architeuthidae				
<u>Architeuthis harveyi</u>				
Australian Antarctic Territory	L31,	1973,	\$1	
South Georgia	3,	1963,	2p	
South Georgia	20,	1971,	(3 surcharge)	
<u>Architeuthis longimanus</u>				
Monaco	452,	1960,	40¢	
Family Ommatostrephidae				
<u>Ommatostrepes sloani</u>				
N. Korea	SGNK647,	1965,	5ch	
<u>Ommatostrepes sloani pacificus</u>				
Japan	870,	1967,	15y	
Family Octopodidae				
<u>Octopus bairdii</u>				
Monaco	348,	1955,	25fr	
<u>Octopus hongkongensis</u>				
Niue	147,	1972,	3¢	
<u>Octopus macropus</u>				
Afars & Issas	C81,	1973,	40fr	
<u>Octopus tehuelcus</u>				
Uruguay	C335,	1968,	15p	
<u>Octopus vulgaris</u>				
Cuba	SG 1528,	1967,	2¢	
San Marino	647,	1966,	5L	
Togo	467,	1964,	20fr	
Family Argonautidae				
<u>Argonauta argo</u>				
Jugoslavia	453,	1956,	15d	
Mauritius	348,	1969,	35¢ (see also 348a in 1973 and 348b in 1976)	

For some time I have been engaged in a taxonomic study of the Pyramidellidae. It is a good thing one never knows in advance the consequences of what one undertakes in this field, because otherwise I would not have been that foolish. As more and more data are assembled, I discovered to my dismay that nothing became clearer, but all information forms as it were an opaque fog. The least one can do in such a situation is to be sure that all data are reliable and therefore one must verify all references. Because there are more than 5,000 taxa of pyramidellids fabricated by about 450 authors while an additional 500 authors have in some manner reported on the group it is clear that the preparation of a fairly complete index is more than a major undertaking. Species range from the Cretaceous to the recent, are found in all types of marine environment, are usually of minute size and have often been described under inappropriate genera. In short, such a study requires patience.

In a sense such work is a journey of discovery and it is about a few of these discoveries that this short note is written. One finds new species in some of the most unexpected places. Lists such as the Zoological Record are soon exhausted and found to be for some years woefully incomplete. An interesting source is formed by the book discussions and reports upon pamphlets, etc., in the older foreign journals. This requires that one spends considerable time in libraries in order to read that type of material. In the course of that detective work surprising and not always pleasant discoveries are made. So it happened one day that an old and venerable publication had suddenly disappeared from its spot, which it had occupied for many years in the stacks of one of the Houston libraries. Upon investigation, I was surprised to find that the gentleman, whom I had asked what had happened, considered me with a pensive eye as if trying to decide whether to tell me or not. Fortunately I passed the test and was told that the books were removed because it had been discovered they were being vandalized for their old hand colored illustrations. The culprit, I was told, was apprehended. It is a sorry commentary upon our civilization that some of its most important cultural achievements have to be put behind locked doors because some barbarians want to make a slim profit out of their destruction.

A discovery made not so suddenly but in a more gradual way and also a disappointing one was that most of the literature on pyramidellid taxonomy is dull, complex, contradictory, insufficiently researched and often documents in papers some of which could be called downright dreary. The reason for this---let us be blunt about it---is that many of these papers are only written for the purpose of creating new labels. The unenviable record in that respect is held by a publication which appeared 25 years ago on the fossil pyramidellids of Florida in which a single species was described under no less than 24 different specific names and several others under almost equally as many. In many of these papers no thought is given to any aspects of the biology which might make the communication of interest: no distribution data of other members of the genus, no biological data about the soft parts or spawning, no habitat information, no host information, no comparison with either recent or fossil related faunas, and all too often the description is based on a single specimen.

Let me give here an example showing how taxonomic studies may contribute to the understanding of other problems. Many papers have been written on comparisons between the marine faunas of the Red Sea and the Mediterranean. The first to make such a comparison was Philippi who thought that both areas had some species in common. Later he was corrected by other investigators and further researches established the complete difference between both ends of the Suez Isthmus. This is a fact of considerable biological importance. In contrast, no similar studies

have been made about the Panamanic Isthmus. However we know that there live on both sides very similar organisms, and as Dr. T. Pulley suggested to me in a recent conversation it would be highly interesting to try to crossbreed some of the very similar organisms, described as different species, from both sides of the Isthmus. Some time ago I already commented on the possibility to investigate the rate of speciation around the Panamanic Isthmus. Another interesting subject that was brought up in an exchange of letters between Cossmann and Martin (see L.M. Rutten, "Voordrachten over de geologie van Nederlandsch Oost Indie," 1927, published by J.B. Wolters, Groningen, Den Haag, 839 p., see page 89) is the existence of biological provinces in earlier times, here the Eocene.

The undue emphasis on differences in trivial detail without any insight in the range of variability of the species has undoubtedly contributed to the low esteem in which the more theoretically inclined biologists hold taxonomy. It is known, for instance, that Huxley had no particular respect for those who created endless series of new species. I may be allowed to close this argument by quoting an even earlier author, Hermannsen (1852), the compiler of a list of generic names, who expressed himself quite clearly about the subject in Latin

"Deterreat alios exemplum Gisteli, qui in 'Naturg. der Thierreichs' triginto septem nomina malacozoorum nova propositum, quorum vix unum locum poterit habere."

(Trans: May the example of Gistel, who in the "Natural History of the Animal Kingdom" proposed 37 new names of mollusks of which hardly one will stand, deter others.)

From what I have seen what happened and for that matter is still happening, vide the cited case of Florida; nobody has been deterred by Gistel's example. Instead he has been emulated. I believe that of over the 5,000 taxa probably not more than 1,000, if that many, represent different species. Some of the species probably have a worldwide distribution. Several investigators described from each handful of beachdrift they received many "new" species and according to others each Pliocene or Pleistocene horizon had its own particular fauna. Such an attitude is compatible with the old idea that all species are immutable, fixed, and suddenly created and terminated. Needless to say that such a view is completely at variance with the findings of biology.

This brings me to an aspect of the literature on pyramidellids that I only recently became aware of: there is not even a faint echo of the greatest biological and philosophical controversy of the 19th century to be found in molluscan taxonomic studies of that time. Not by simple reference or by indirect argument were the names of Darwin, Huxley, Wallace or Hooker introduced. Apparently all the great authors of mollusc taxonomy of that time avoided the subject like the plague. If I am mistaken in this I would like to hear it and be corrected.

Is it possible that most were in the opposite camp or were they merely avoiding the troubles inherent to choosing a clear position? To my knowledge Darwin nor Huxley ever illustrated the theory by any species of mollusc. This neither is perhaps somewhat surprising because one would think that precisely because of the continuous record furnished by shells some examples of how development of trends would be available. The closest one gets to evolution in molluscs is in the book by Sacco which dates from 1892. There are given for many pyramidellid genera of the Italian Tertiary schematic evolutionary lineages. But the text does not emphasize this evolutionary development because in it no less than 275 new labels are created for the pyramidellids alone.

Fortunately the name of Darwin was brought to my attention in quite another but

delightful manner in the library of the Houston Museum of Natural Science; a discovery which offset more than I could hope for the disappointments reported above. The Museum recently acquired a large collection of valuable older malacological literature. I hope that some time in the future this important acquisition may be discussed more fully in these pages. Among these most interesting volumes is one dating from 1853, written in Latin, as was quite often the custom in those days, by Guilielmo Dunker, the German naturalist, which has the imposing title: "Index Molluscorum quae in itinere ad guineam inferiorem collegit Georgius Tams Med. Dr."

(A list of mollusks which George Tams, medical doctor, collected during his travels in Lower Guinea.)

The book deals with a number of recent mollusca from West Africa collected by a Doktor Tams, and described and reported upon by Dunker. In the book are also reported and figured a number of barnacles.

In connection with this fact it is important to remember that when Darwin returned from his voyage with the Beagle in 1839 his first important and continuous work in animal biology--not counting the preparation of his Journal and his more geological studies on coral reefs--was a study of barnacles. After eight years of hard work he wrote the most authoritative monograph in four volumes on their biology and classification which was published in the years 1851 to 1854.

Because of this fact, Dunker in a courteous gesture sent him, as I assume, a copy of his work. For on the flyleaf of that copy, now in the Houston Museum of Natural Science, is written in Latin with intensely dark ink in two lines:

"Clar. Carolo Darwinio salutem dicit plurimam
auctor devotissimus"

or translated in modern idiom, but less flowery and much briefer:
"Best wishes to Charles Darwin from the author." The Clar. stands for Clarissimo.

Underneath it in a different handwriting is penned the following note: (in a somewhat bluer and more faded ink)

"M. Darwin gave this to me, December 12, 1861."
(signed) G.B. Sowerby, 32 Great Russell Street, Bloomsburg.

and below the signature in a more or less explanatory note in still different ink and another handwriting: "This is the signature of G.B.S.
(2)"

Certainly an interesting and highly historical book!

It may be noted that 1861 is two years after the publication of the "Origin," hence a time that the emotional impact of that book was still enormous, and it is pleasant to know that cordial relations existed between Darwin and the malacological community.

New State Record: Cyrenoida floridana from the
Holocene of Southern Texas

Raymond W. Neck
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744

and

Jon P. Herber
Department of Geology
University of Texas
Austin, Texas 78712

This is to report the existence of the Florida marsh clam, Cyrenoida floridana Dall 1896, from a Holocene deposit in Cameron County, Texas. Previously, this small clam has been reported from Florida and Georgia (Dall 1896; Abbott 1974), Chesapeake Bay (Morrison 1954; Wass 1972), Delaware Bay (Morrison 1954; Leathem et al. 1976) and Louisiana (Harry, unpub.). This species has not been reported from Texas or Mexico (Pulley, pers. comm.). Harold Harry (in litt.) believes that C. floridana is conspecific with C. americana (Morelet 1851), a name with nomenclatural priority. For purposes of this communication, the name C. floridana is conserved.

The senior author has recovered single and paired valves from the surface deposit of the bottom of Resaca del Rancho Viejo near El Tejon Road, Cameron County, approximately 9.5 km N of Brownsville (Lat. $25^{\circ}59'20''$ N; Long. $97^{\circ}30'20''$ W). Length of recovered valves varies from 18.5 mm (height 16.7 mm) to 3.0 mm (height 2.6 mm). Associated fauna is dominated by the freshwater gastropod, Pyrgophorus coronatus. Also present are several intrusive terrestrial elements including gastropods and plant seeds.

The junior author found several small valves in a drill hole under Laguna Madre located 15.9 km north of the Port Isabel lighthouse and 14.6 km northeast of the Laguna Vista watertower (Lat. $26^{\circ}14'40''$ N, Long. $97^{\circ}12'41''$ W), Cameron County. They were collected between 4.1 and 5.6 m below mean sea level in a 1-mm sieve from a water-jet drilling slurry. Also in the same interval were Uca (fiddler crab) claws, oogonia of charophytes, the gastropods Texadina and Amnicola and a hard red oxidized layer.

Valves are thin and whitish with beige to light brown (possibly stained) periostracum remaining on the Resaca del Rancho Viejo specimens. Muscle scars are evident but the pallial line is indistinct. The most noteworthy morphological feature of the shell involves the cardinal teeth, each of which is modified by having long, anterior extensions which resemble and function as lateral teeth (referred to as attached laterals in Pulley 1953). Some variation in the prominence (narrowness) of the beak has been observed.

The ages of these deposits are Holocene which includes the last 12,000 years. From previously published (Pryor et al., 1976) and unpublished (Herber, unpub.; McKinley, unpub.) carbon-14 dates in the Rio Grande delta, these sediments are certainly younger than 7,000 years B.P. and most likely less than 3,000 years B.P.

Initial surveys of surrounding areas have produced no living specimens. Specimens from Resaca del Rancho Viejo have been deposited in the Houston Museum of Natural Sciences (HMNS 4089).

T. G. Littleton aided the authors by providing initial identification which was kindly verified by H.W. Harry and T. E. Pulley. H. W. Harry provided figure 2.

Literature Cited

- Abbott, R. T. 1974. American seashells. 2nd ed. Van Nostrand Reinhold, New York, 663 pp.
- Dall, W. H. 1896. On the American species of Cyrenoidea. *Nautilus* 10:51-52.
- Leathem, W., P. Kenner & D. Maurer. 1976. Northern range extension of the Florida Marsh clam. Cyrenoida floridana (Superfamily Cyrenoidacea). *Nautilus* 90:93-94.
- Morrison, J. P. E. 1954. Some zoogeographic problems among brackish water molluscs. *Ann. Rpt. Amer. Malacol. Un.* 1954:7-10.
- Pryor, W. A., K. J. Fulton and L. K. Harrison. 1976. Subsurface stratigraphy and depositional environments of several Holocene Rio Grande Delta distributaries, Cameron County, Texas. *Bull. Corpus Christi Geol. Soc.* 18(2):7-14.
- Pulley, T. E. 1953. A zoogeographic study based on the bivalves of the Gulf of Mexico. Ph.D. dissertation, Harvard U., Cambridge, Mass.
- Wass, M. L. 1972. A checklist of the biota of Chesapeake Bay. *Virginia Inst. Mar. Sci. Spec. Sci.* Rpt. 65.



Figure 1. Entire shells of Cyrenoida floridana, Resaca del Rancho Viejo, Cameron County, Texas (Holocene). Scale is in millimeters.
Photos by G. L. Mills.

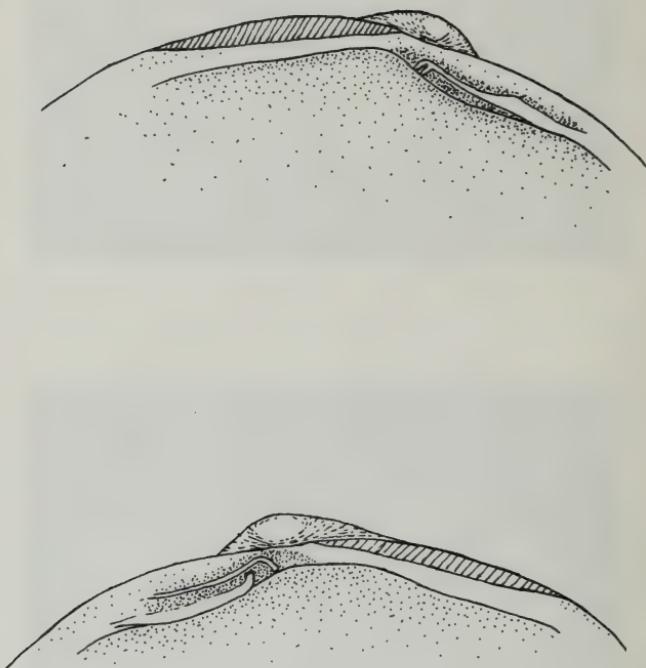


Figure 2. Teeth and umbonal area of Cyrenoida floridana, Grand Isle, Louisiana. Drawing by H. W. Harry.

CYRENOIDA
FLORIDANA



CYRENOIDA
FLORIDANA



Figure 3. Close up of teeth and umbral areas of Cyrenoida floridana, Resaca del Rancho Viejo, Cameron Co., Texas. Scanning electron micrographs by J. P. Herber. Fourth bar (in upper left corner) is 100 microns.



Figs. 1 and 2. Upper photo shows the partial egg strand of Turbinella angulata (Lightfoot, 1786) found by Mel Kleb in September, 1980, near the lighthouse at Punta Molas, Cozumel Island, Yucatan, Mexico. Note that the capsules are similar to those of Busycon except that the round discs have peripheral collars bearing three reinforced folds and also that the young apparently emerged from upper center of the disc as there are holes there instead of at the top of the discs as in Busycon. This kind of egg case is produced by the animal (Turbinella angulata) shown in the bottom photo, a shell species fairly common to Cozumel. Drawings of this type of egg case appeared in early literature (see Johnsonia, Vol. 2, No. 28 for references but no photo is known to the editor or author.

By MERLE KLEB

As I waited for the salesman to ring up my purchases I wondered if I would be able to muster the courage to use the mask and snorkel I was buying. I felt a twinge of doubt because I don't swim and I have been afraid of the water since I was a child. Still I had a strong desire to see what was under the water's surface and the perfect opportunity was rapidly approaching. In four days I would be on my way to Cozumel with my husband Mel, Barbara and Jim Hudson and the Boones, Constance and Hollis. Well, at least, I should go prepared.

Once our plane left the Texas coastline the water became a lovely blue. It was a pleasure to look down from the plane window and see the tiny ships and try to identify what types they were. As the plane approached the Yucatan Peninsula the water became many shades of blue to green. Then I could see the thick jungle growth appear and I knew it wouldn't be long before we would be landing on the island of Cozumel. I had seen this part of the Yucatan once before when I had gone to Cancun. This time the plane flew farther inland then took a slow quarter circle turn to the left. Shortly the beautiful blue water was visible again and I knew we were off the east coast of the Yucatan and headed for the island of Cozumel. We were over the Caribbean Sea and it was a very dark blue and I thought that it must be very deep. Quickly the water changed colors again and there was some dark blue areas in the lighter blue sea and this, I thought, must be reefs. Now the island was in view and the plane began its descent. Momentarily we were at the Cozumel Airport.

After claiming our baggage we were loaded into a waiting van and delivered to our hotel, the Cozumel Caribe. It was a beautiful structure set on the west coast and a bit to the north. The beach was behind the hotel with the gorgeous water beyond and many palm trees and other lush growing plants and flowers surrounding the hotel. The main floor lobby was completely open front to back and this inviting scene made us itch to get checked in, changed and to the beach.

By the time we got to the water's edge the sun was beginning to set but we didn't let that stop us. We hurried to the rocky area near the water to search the little tide pools. How delightful! We found several species of nerites, several species of limpets and chitons. We collected a sampling of each to be observed more closely. People were snorkeling about the rocks only a few feet from us. They were using flippers on their feet. I hadn't bought flippers. It looked so easy for them to move about and they were so engrossed in what they were seeing that they were not aware that we were there. How I envied them. I grew eager to try. I wondered if I should have bought the flippers. Soon it grew too dark to see so we gave up for the day and anxiously looked forward to what the next day would disclose.

Our men went to investigate renting some kind of transportation for us to get about the island. They were successful in renting a Volkswagen Safari Wagon that all six of us could get into and, by sharing the rental fee, it proved to be a very economical means of transportation for the week we were there. So, the next morning, the six of us piled into the VW and headed out in search of possible areas for shelling and snorkeling. As I set my bucket in the car that held my shelling utensils and my snorkeling gear I wondered again if I would have the chance to accomplish my dream. I had never even tried to snorkel before but I'd been told by many friends that it was easy and one doesn't need to be a swimmer to snorkel. I continued to be doubtful. I'd had a heart attack three years ago. Would that effect my efforts, I wondered? Apprehensive is what I was and "Chicken" was my name.

We left our hotel heading south on the west side of the island. Most of the time we could see the beach and the beautiful water. We passed through the little city that is the main community on the island and continued south. Excitement began to build within us as we anticipated what we might see or find.

After about a thirty minute drive we spotted an area where we could pull off the road and park the car near the beach. The water was so clear. We could hardly wait to get in for a look. Barbara, Jim and Constance grabbed their buckets with snorkels and masks and rushed to the water. Jim had brought flippers. I wished that I had. I got my things and walked to the water's edge and feared that the water would be too deep for me..I thought I'd just walk along the edge in shallow water and put my mask on the surface and see what I could.

Mel and Hollis seated themselves under a skimpy shade tree on the beach and visited while we "played". It was very hot but they patiently waited while the four "shell nuts" got into the act. On some subsequent trips Mel and Hollis remained at the hotel to relax on the beach with cool drinks or take naps. But this first day they were interested in seeing what we would get into. Both of these fellows would have loved a round of golf but there are no golf courses on Cozumel so they settled for a relaxing vacation.

Cautiously I stepped into that lovely clear water and began to step over, then on some fist size rocks and then I saw turtle grass and moved toward it. Carefully feeling my way along with the toe of my shoe, I hoped I might find a Strombus or Astraea, as I had in Cancun. Constance called to me and said to get my mask and snorkel and come out to her. She stood in about waist deep water about fifty or sixty feet away from me. She said to watch out for the long spined urchins but that I would be able to see them and avoid them. She wanted to show me something, she said. I could hardly wait to see what it was. I hurried as fast as one can hurry walking in the water and still avoid the urchins.

When I reached Constance she said, "Wet your mask and face and put the mask on and bend over just enough to get the mask under the water so you can see." I followed her instructions and I could hardly believe my eyes. What she pointed at was two live flamingo tongues, Cyphoma gibbosum (Linne, 1758), feeding on a lovely purple sea fan. My head came up and I gasped in delight as well as for a breath. "Now", said Constance, "put your snorkel on your mask, put the snorkel in your mouth, breathe through your mouth piece, bend over and put your face in the water and just walk slowly about and look." I followed her instructions. At first, water seeped in under my mask and that very salty water stung my eyes. I was also allowing the salty water to leak into my mouth at the corners around the mouth piece. Barbara came over and suggested that I grip the mouth piece gently with my teeth and hold my lips snugly to the outer part of the mouth piece. Barbara and Constance also told me how to moisten the inside of the glass with saliva then rinse it before putting it on. This clarifies the glass and improved your vision under the water. It helps, too, to get your face wet and your hair pushed back away from your face before putting the mask on as this helps seal the rubber mask frame to your face better.

After several attempts and adjustments I was able to walk about at ease and just look at my new, wonderful, beautiful world. It was such a delightful feeling, a private showing, so to speak, of a world "out of this world." It was hard to believe that I was seeing the real thing. I find words inadequate to describe that beauty and color.

Constance pointed to a large clump of staghorn coral. Some of the tips could be

seen sticking out of the water two or three inches. I walked over to the clump to see live coral for the first time. It was so pretty, and as I drew closer, I saw many species of colorful fish swimming about the coral. I was absorbed in just watching them as they swam leisurely about. It appeared to be a refuge for them. I recognized many angel fish but couldn't identify many of the other species. I saw a small barracuda several days later. He was looking at me and I was staring back but we left each other alone and went on our separate ways. That same day I saw a scorpion fish. By this time I had learned to float along on my stomach and push myself along with my long handled tongs. Suddenly, I saw two large spots move. I stopped and stared intently, and slowly I could see the well disguised form of the scorpion fish. It was settled quietly among rocks that looked amazingly like the fish. Only those moving eyes disclosed his hiding place. I hovered above him long enough to get a good look, then moved on grateful that I hadn't accidentally touched or stepped on him.

Let's return to the coral. Not only the colorful fish stay near the coral but the long spined urchins like to cluster at the base of the coral heads. I worked carefully around them so I could avoid contact with those long and poisonous spines. The urchins were very thick about the corals and in some open areas. There were several species of urchins. Some of the short spined ones had brilliant red bodies. I tried to preserve a few small ones but the lovely red color was lost.

This area was just perfect for snorkeling and observing. The rather shallow water here provided many varieties of corals with nice clear and clean spaces between where you could easily move about on foot and not get scraped by other corals, sponges and gorgonians. Several feet from a stand of staghorn coral I saw a huge mound of brain coral about four feet high and four to five feet in diameter. Here was my first encounter with the lovely plume worms. They stood in little spiraling circles, it appeared, until I came too close. Then, like magic, they were gone, having sucked down into tiny holes in the coral. They ranged in brilliant shades of pink, red, orange and yellow. Patient waiting usually paid off and soon they slowly unfurled upward again.

The bottom here was white silty sand. At first I couldn't see any shells. I expected to see shells with the animals extended and crawling about. But I was wrong. They were well disguised with thick coats of lime and blended beautifully in with the white sand. Constance touched my shoulder and pointed under the water again. At first I couldn't see a thing. Then she pointed again and I saw what looked like a silt covered rock. I picked it up and turned it over in my hand. It was a Caribbean Vase shell, (Vasum muricatum, Born, 1778), alive. Then I began looking at almost every rock. After a bit of experimenting it became easier to detect shell from rock.

Sponges and soft corals grew in many shapes. The tall slender purple stalks of coral were particularly attractive. I saw some of the flamingo tongues on these. But more often, they preferred the sea fans. Often I saw these beautiful leopard designed animals in pairs on the sea fans; one on one side of the fan and another on the opposite side in exactly the same place.

Magnification under water was very deceiving. I first became aware of its power when I saw a huge tennis-shoed foot. Surely it belonged to Kareem Abdul-Jabbar. Suddenly it moved and I discovered it to be my own size six shoe. Later I picked up a pretty shell and stood up out of the water to get a better look and it seemed to have shrunk to about a half inch. I discovered a Strombus gigas, Linne, 1758 in a large sunken area. It looked the size of a water bucket and I got so ex-

cited. With my foot I pushed it out of the hole so I could reach it with my hand. Out of the water the shell became the size of a large canteloupe. But it was a "goody" at that. It was a dead shell but did not have the hole in the spire that most of the dead Strombus had, indicating that it had made someone a fine steak or chowder. Nor did it house a hermit crab. It was a very mature shell with a very thick lip and in fair condition. I brought it home and cleaned it and put it in my shell case. It is a nice specimen.

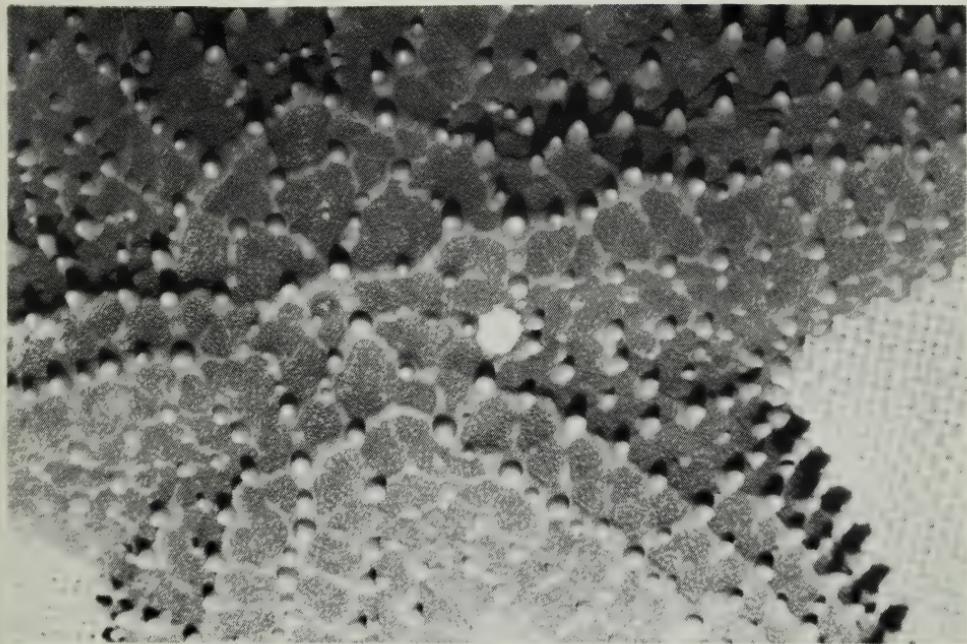
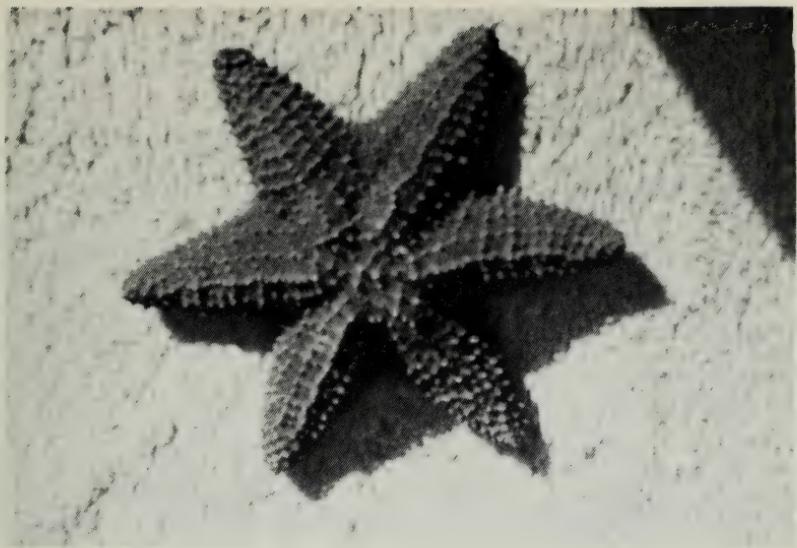
In shallow water, one day, I saw a beautiful starfish crawling along in about six inches of water. I filled my collecting bucket with sea water and put the starfish in it. Later I proudly showed it to Barbara and Constance. They looked at each other and smiled. I wondered what was funny. They said I didn't know what I had. It was a six-legged starfish, not the usual five legs. I hadn't noticed but I sure was tickled when they told me how unusual it is to find one with six legs. Later I saw a spot on top of the starfish. I thought it was a bit of lime or spot left by a barnacle. I tried to pick it off when I got home but it wouldn't budge. Two weeks later my daughter brought me a nice little book entitled "Understanding the Sea" by Denis Sanderson. On pages 32 and 33 I found color drawings of starfish with arrows pointing to a spot on the top like the one on my starfish. The spot is described as a sieve through which water enters the internal canal system. I'm sure glad that I didn't succeed in picking that spot off.

The water at Cozumel was so clear, so blue and pretty, the fish were so numerous and colorful I was spellbound. It was surely another world. I felt the sanctity of peace and comfort. Life abounded there on the bottom of the sea I had never seen it before with my own eyes and I was moved. I stood up and headed for the shore where Mel and Hollis sat in the heat. I was sure they were ready to go back to the hotel to cool off. But I felt I'd like to stay here in this new world forever.

On another day the six of us decided to take a trip up the eastern coast to the northern-most tip of the island. We had been told about this journey and that our destination would be indicated by a lighthouse. We left our hotel on the northwest side of Cozumel, drove south about one third the length of the island, turned left and drove about twenty miles across to the east side and turned back north. To this point we had good hard surfaced road. As we turned off to the north, we saw only a dirt road of two tire tracks. We weren't sure we were on the right road but this was the only one we saw so it had to be right. This road took us through jungle that sometimes touched our vehicle on both sides. The road was very rough, sometimes very rocky, sometimes with deep holes. Often we had to go so slow we had to change gears. Occasionally we would be able to see the deep blue Caribbean to our right, then the road took us back into thick humid jungle. We saw a number of Iguanas but there was one big fellow who sat on a tree stump posing. We stopped the car so Constance could take a picture. He obliged by moving to a better position and posing again. Once we stopped for a short rest and a cool drink near a small Indian ruin that was near the water. The waves splashed on a rocky beach below us.

The trip was slow and hot and seemed long and we began to fear we had taken a wrong road. After about two hours the lighthouse came into sight. You couldn't miss it because it was bright pink. It sure was a welcome sight.

Near the lighthouse was a goat ranch. We passed both then drove on about a mile before we stopped the car and slowly crawled out in the heat. Constance and Jim headed for the water with their masks and snorkels. Barbara and I had not brought



Figs. 2 and 3. The Cushion Star, Oreaster reticulatus (Linnaeus), is a common starfish at Cozumel, but a six armed one is very uncommon. This was one collected by Merle Kleb in September, 1980. After returning home she studied it a bit and discovered the interesting fact about the white spot exhibited in the bottom photo which is actually a sieve through which water enters the internal canal system of this animal.

Photos by the author and C. Boone

ours on this trip. Barbara sat digging and sifting the sand on the beach for tiny shells. It was a nice sand beach with some small rocky areas. Hurricane Allen had thrown up a lot of interesting sea debris. Some areas were piled high with purple sea fans several feet deep.

Hollis and Mel reached for cold drinks and I headed for the rocks. They were covered with several species of chitons. I collected some to use in my crafts then waded ankle deep in the water. Mel walked along the beach several feet away from the water, and looked through the beach drift. He found a dead Cypraea cinerea, Gmelin, 1791 in very good condition, also a small pair of Lima lima, (Linne, 1758) and several Strombus raninus, Gmelin, 1791, very dead but in very good condition. Mel found what I consider a prize - an egg case I had not seen before. It had been laid in a string of disks as Busycons lay their eggs. These disks, however, were smooth edged, not spiny like Busycons. After we returned from Cozumel Constance did some research and found a perfect description in Johnsonia, Volume II, No. 28, January 6, 1950, page 206, by R. Tucker Abbott. He describes the egg case of the West Indian Chank (Xancus angulatus, Solander). (Now known as Turbinella angulata (Lightfoot, 1786)). There is no picture, only the description of an egg case in the collection of the Museum of Comparative Zoology at Harvard. It had been collected by O. Bryant at Abaco Island, Bahamas and labelled as coming from this species. Is it possible that this egg case has not been photographed and printed before? Any information will be appreciated.

It was late in the afternoon when we returned to our hotel from the safari, a very tired bunch but happy with our new discoveries. Mel is not a sheller at heart but he sure had a good day and I was proud of him.

We all hope to return to this snorkeling paradise. Even Constance says it is the most beautiful snorkeling spot she has seen and she has been some neat places. I know it is the best I have ever seen and I look forward to seeing it again soon. But while I wait, I can close my eyes and still see that beauty in my memory.

(Ed. Note: There is now a law in Mexico prohibiting collecting of any live specimens of animals from the shore line to Palancar Reef from the town area to the south point of the island. Collecting may still be accomplished on other shores of the island at this time.)

NOTE FROM THE EDITOR

Our treasurer keeps reminding us that the Houston Conchology Society stays solvent after publishing Texas Conchologist, buying books for our fine library, and giving yearly funds to the Houston Museum of Natural Science BY SPONSORING SOME KIND OF MONEY-MAKING EVENT. This year Treasurer Jim Sartor agreed to chair the auction (scheduled for April 22, 1981) after no one else volunteered. Jim is very conscious that our dues are low and do not cover expenditures. He urges each member to give shells for the auction and to come and buy shells. Donations of money will be welcomed if you cannot do either of the above. There will be the gift box items - grab bag style - to be chaired by Mary Ann Curtis. Dorothy Whitson will chair the sale table and says she will welcome help in packaging and pricing shells donated. All donations are tax deductible. Please help.

SEARCH AND SEIZURE

By Constance E. Boone

At the Christmas party held by the Houston Conchology Society at the Houston Museum of Natural Science, two of the society's most faithful members presented Dr. T.E. Pulley, director of the Museum, our professional malacologist and honorary member, with their prized, self-collected, live-taken and most unique specimen of Busycon perversum (Linne, 1758) along with a normal "twin" specimen collected at the same area in February, 1973. Fannie and Sam Miron are to be congratulated for parting with their unusual freak Busycon so that it can become part of the study collection at the Houston Museum of Natural Science.

This specimen was collected at South Jetties, Galveston, Texas after a severe norther when there were many Busycons in the sand. Both specimens given the Museum were featured in a Search and Seizure report in Texas Conchologist, Vol. XIII, No. 2, December, 1976. As far as is presently known, the distorted specimen found by the Mirons is the only one known of this species from Galveston. Similar freaks were found some years ago near Corpus Christi but were crabbed.

Dr. Pulley continues to study Busycons, having written study reports about them in the past, so material to add to the Museum collection is welcomed.

Admiral Carlos Cardeza responded to the author's appeal recently for live-taken specimens of Busycon spiratum pyruloides (Say, 1822) from Sanibel. So a nice series of this species from Sanibel has been cataloged at the Museum. The Museum was interested in having specimens of different sizes and some with periostracum.

Therefore, members should note that the Museum will welcome any specimens of Busycon with good data, especially those from other areas of the range and variations or freaks. Egg cases of some species are not known at this time. Bring them in, please!!

We have been informed by Natalee Howard that a member of the Galveston Shell Club found a good specimen of Amaea mitchelli at the Bolivar dump road beach at the club's Christmas party. This used to be a very productive beach for this species, - but we have not heard of specimens of this big, brown Epitonium being found there in recent years.

Rooster Collins was kind to allow members of HCS who did come to the December field trip at San Luis Pass (it was a rainy, overcast and foggy day and no one can be faulted for not coming) to enter his property so that we could get to the sand bars near his fishing pier.

It is my understanding, however, that he has begun to charge anyone who wishes to go individually and enter his leased area. The charge is fair and reasonable and members should keep this in mind instead of trespassing.

The pass is still cut through at the Galveston side bridge turnaround area. When it will sand over I cannot guess. The current is strong through the new cut from the Gulf to the bay and it is this fact that makes it dangerous to try to wade through. Betty Genusa had to be rescued by her husband last fall when she managed to cross one day at low tide next to the bridge but spent so much time on the point that the tide was coming in strongly when she was ready to return. It might not have been over her head, she said, but she was uneasy about crossing. A fisherman had a skiff there and Betty's husband borrowed it to pick her up.

The sand bars seem to be changing again on the bay side. Also, the boat cut on the Collins' property has made wading dangerous except at low tide.

MONOGRAPH

By H. Ode

DISTRIBUTION AND RECORDS OF THE MARINE MOLLUSCA IN THE NORTHWEST GULF OF MEXICO (A Continuing Monograph)

415. Kellia spec. indet. A.

This "species" has a very strongly developed hinge plate, and the shell outwardly resembles to a surprising degree, small specimens of Aligena. In all probability it is nothing more than a morph of Kellia suborbicularis Montagu.

Previous records for the Texas faunal province are: 206, (Kellia sp. A), Tex. Conch., Vol. IX, p. 79, 1973.

Records H.M.N.S.P. 11 lots, none alive.

Depth Range: 0-55 fm. (beachdrift, coral reefs, outcrops)

Geographical Range: Unknown.

Maximum Size: 4.8 mm.

Eastern Pacific Analogue: Unknown.

416. Kellia spec. indet. B.

This could be a valid species, which has a very slender hingeplate. Our material is however, far too insufficient to come to a definite conclusion.

Previous records for the Texas faunal province are: 206, (Kellia spec. B), Tex. Conch., Vol. IX, p. 79, 1973.

Records H.M.N.S.: 1 lot, none alive.

Depth Range: 60-80 feet, coral reef.

Geographical Range: Unknown.

Maximum Size: 4.0 mm.

Eastern Pacific Analogue: None.

417. Kellia spec. indet. D.

An unidentified species, whose generic affinity escapes me at the present is here reported merely as Kellia sp. D. This generic assignment can easily be in error and the species may be Erycinid.

This rounded, but nevertheless somewhat asymmetrical species is covered by fine lines of growth and on larger specimens there are faint radial lines. Moreover in our material there may be more than one species. A more intensive study than I can make at the present is necessary to establish the identity of these shells. In shape it resembles very much some species of Parvilucina, but the shell is much smaller and the hinge as in several Leptonids.

Previous records for the Texas faunal province are: 206, (as Kellia spec. B), Tex. Conch., Vol. IX, p. 79, 1973.

Records H.M.N.S.: 9 lots, of which one contains live collected material.

Depth Range: 12-55 fms.; alive: 12 fms (also in mudlump fauna).

Geographical Range: Unknown.
Maximum Size: 2.8 mm.
Eastern Pacific Analogue: None

Genus Bornia Philippi, 1836.

Small, white, rather smooth bivalves. The only somewhat doubtfully assigned N.W. Gulf of Mexico species, is uncharacteristic.

418. Bornia spec. indet. A.

A single lot consisting of one perfect beach shell and one fragment, both quite fresh, was collected from beachdrift from a small beach near the Coast Guard Station at South Padre Island. Admittedly our identification remains somewhat uncertain, but in its main characters the hinge seems to be that of Bornia. In shape the shell strongly resembles Orobittella spec. indet. C, but the growth lines show on a quite minute scale a waviness as displayed in the genus Lasaea, but of course, the hinge is quite different.

Previous records for the Texas faunal province are: 206, (as Lasaea sp.),
Tex. Conch., Vol. IX, p. 51, 1973.

Records H.M.N.S.: 3 lots, none alive.

Depth Range: Beach.

Geographical Range: Unknown.

Maximum Size: 3.5 mm.

Eastern Pacific Analogue: ? Bornia venada Olsson, 1961. "Panama" (Keen, 1971).

419. Bornia spec. indet. B.

Two valves of a small bivalve, bearing a surprising similarity in shape to juvenile Diplodonta soror, are here provisionally classified in the genus Bornia. Further study and more material must confirm this assignment.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 2 lots, none alive.

Depth Range: 20-27 fms. on sandy shelly mud.

Geographical Range: Unknown.

Maximum Size: 3.8 mm.

Eastern Pacific Analogue: ?

FAMILY LEPTONIDAE

A family of very thin and compressed bivalves with narrow hinge line. In the N.W. Gulf of Mexico only the genus Lepton.

Genus Lepton Turton, 1822.

Small flattened bivalves with a peculiar radiating sculpture fanning out toward the edge of the shell.

420. Lepton lepidum, Say, 1826.

Amphidesma lepidum Say, Jour. Acad. Nat. Sci., Phila. Vol. V,
p. 221.

In beachdrift this is a fairly common bivalve, occasionally taken in large numbers. Still articulated pairs drift ashore filled with an air bubble. These paper-thin and glassy bivalves are collected at the uppermost fresh tideline just after the tide has come in. Presumably the animal lives attached to the underside of crustaceans (I observed this only once). The species has never been dredged offshore, nor has it been obtained in the bays and I consider it one of the characteristic surfzone species. Andrews (1971) is in error when she states that the cardinal teeth are obsolete. There is a single quite small cardinal tooth.

Previous records for the Texas faunal province are: 174, (Lepton sp.), listed; 206, Tex. Conch., Vol. V, p. 19, 1968, Vol. IX, p. 49, 1973; 269, figured on page 178.

Records H.M.N.S.: 12 lots, all from beachdrift, mostly fresh, but not alive.

Depth Range: Probably quite shallow water: 0-2 fms.?

Geographical Range: South Carolina, Texas. (probably poorly collected).

Maximum Size: 4.5 mm.

Eastern Pacific Analogue: None.

421. Lepton spec. indet. A.

Six lots of a very remarkable bivalve may represent another species in this genus. Superficially this shell resembles a somewhat rounded Mysella in shape, but differs by the presence of the peculiar radiating sculpture. The hinge of the two largest left valves shows a surprisingly Mysella-like hinge, but such a hinge is also present in the Panamanic Lepton lediforme Olsson, 1961, and for this reason we have placed it in the genus Lepton. Most other valves of the lots are too small to study the hinge properly.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 6 lots, none alive, all on sandy mud bottoms.

Depth Range: 23-27 fms.

Geographical Range: Unknown.

Maximum Size: In excess of 3.8 mm (broken).

Eastern Pacific Analogue: None.

422. Lepton spec. indet. B.

A single valve of a Mysella-like very thin bivalve closely covered by fine radial striae was dredged off the Texas coast. Its hinge line is very weak.

Previous records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 79, 1973.

Records H.M.N.S.: 1 lot, none alive.

Depth Range: 27 fms., on sandy mud bottoms.

Geographical Range: Unknown.

Maximum Size: 1.8 mm.

Eastern Pacific Analogue: None.

FAMILY ERYCINIDAE

Small, white bivalves, some of which for Leptonids are rather large. Cardinals and well developed laterals, which are placed distant from the umbo are present. In the N.W. Gulf of Mexico the genera Amerycina and Lasaesa.

Genus Lasaea.

Small, somewhat thick shelled minute bivalves, with at least in our area, a characteristic wavy sculpture of growth lines. Hinge area well developed and thick.

423. Lasaea c.f. adansoni (Gmelin, 1791).

This species, which probably is not L. rubra Montagu, 1804, is not colored; all our material is whitish and derives except for one valve picked from beachdrift (South Padre Island) and a juvenile pair dredged from the inlet to Timbalier Bay (La.), from the coral reefs on the Miocene shale uplifts. Juvenile valves are surprisingly flat and hardly have an umbo. They also lack the sculpture of the wavy growth lines.

Previous records for the Texas faunal province are: None.

Records H.M.N.S.: 10 lots, one alive?

Geographical Range: Unknown.

Maximum Size: 2.5 mm.

Eastern Pacific Analogue: Lasaea subviridis Dall, 1899, "Shelton Cove, California to the Gulf of California" (Keen, 1971) may be close.

424. Lasaea sp. indet. B = Nanopitar pilula Rehder, 1943.

A quite different and very small species was once taken from beachdrift at the Coast Guard Station at South Padre Island. There are three valves whose umbonal areas are reddish. The entire shell somewhat resembles a very minute Pseudocyrena, however, its hinge is quite different. It is possible that this is Lasaea rubra Montagu, 1804, but we have not seen specimens of this species. Our specimens lack the wavy sculpture of the previous species.

Previous Records for the Texas faunal province are: None.

Records H.M.N.S.: One lot, from beachdrift at South Padre Island.

Depth Range: Unknown.

Geographical Range: Unknown.

Maximum Size: 2.8 mm.

Eastern Pacific Analogue: None.

Genus Amerycina Chavan.

According to Chavan (Treat. Invert. Pal., Vol. N. pt. 2), Erycina Lamarck is a European and fossil genus. The American shells classified as Erycina are now labeled Amerycina. They have an opisthogyrous umbo which is usually placed considerably to the posterior end of the shell. In the N.W. Gulf of Mexico there are several species, one of which I consider identical with a species recently described from the Panamanic Province.

425. Amerycina periscopiana Dall, 1899.

Erycina periscopiana Dall, Proc. U.S.N.M. (Vol. 21 (1177), p. 787, 886, pl. 88, fig. 3.

This quite excentrical species has, when mature, a cylindrical shell with the umbo placed close to the posterior end. Juvenile valves do not exhibit this cylindrical shape to such an outspoken degree, but are

more oval. Fairly widespread over the Continental Shelf; one rather beachworm specimen was collected on Matagorda Beach.

Previous Records for the Texas faunal province are: 206, Tex. Conch., Vol. IX, p. 79, 1973.

Records H.M.N.S.: 15 lots, none alive, on sandy mud bottoms.

Depth Range: 0-37 fms.

Geographical Range: Carolinas, Puerto Rico.

Maximum Size: 4.0 mm.

Eastern Pacific Analogue: Amerycina colpoica Dall, 1913.

"Head of the Gulf of California to Cornito, Nicaragua, intertidally and to depths of 24 m: (Keen, 1971).

426. Amerycina cultrata Keen, 1971.

Sea Shells of Tropical West America, p. 135, fig. 310, 1971.

A single valve of this relatively large species was obtained from dredgings on Clay Pile Dome, a Miocene shale uplift off the Louisiana coast. It coincides perfectly with the figure and description given by Keen (1971) and in my opinion there is no doubt that the Pacific material and our specimen are identical, but a definitive comparison has not been made. It may be remarked here that the Pliocene Amerycina phaseola Olsson and Harbison may be the same. (Southern Florida).

Previous Records for the Texas faunal province are: None.

Record H.M.N.S.: 1 lot, none alive, from Miocene shale uplift.

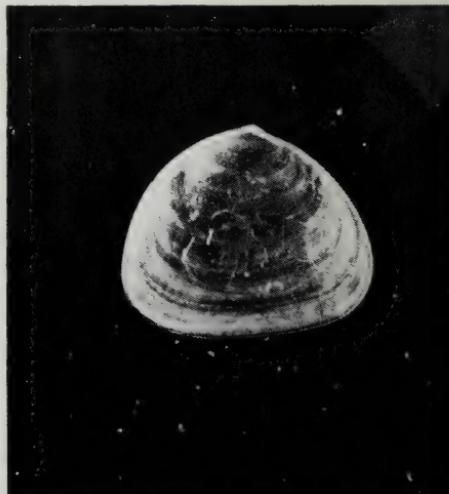
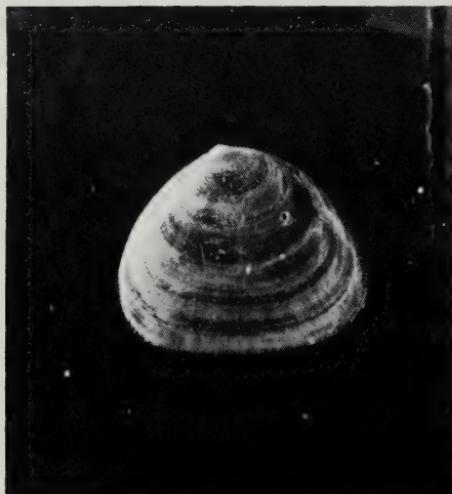
Depth Range: 100 ft.

Geographical Range: N.W. Gulf of Mexico, Panamanic faunal Province.

Maximum Size: 10.3 mm.

Eastern Pacific Analogue: Also occurs in Panamanic faunal province "Baja California, in 5-33 m."

(To be continued)



Figs. 1 and 2. Lepton lepidum, 2.4 -3 mm., picked from $\frac{1}{2}$ gallon of beach drift collected Feb., 1970, by Harold Geis at South Padre Island, Texas, near the Coast Guard Station.

Photos by Harold Geis

HOUSTON CONCHOLOGY SOCIETY, INC.

Officers 1980-1981

President	David B. Green
Program Vice-President	Mary Ann Curtis
Field Trip Vice-President	Helen Cornellisson
Treasurer	Jim Sartor
Recording Secretary	Gladys Sheridan
Corresponding Secretary	Lucy Clampit

Directors

Charlie Azares	Max Finer	Paul Loughmiller
Cynthia Biasca	Luana Huggins	Herschel Sands
Editor, <u>Texas Conchologist</u>	Constance E. Boone	
Immediate Past President	Frank Petway	

Honorary Life Members

Dr. T. E. Pulley	Dr. Helmer Odé
------------------	----------------



QL 401
T4
V. 18:3

Texas CONCHOLOGIST

VOLUME XVII NO. 3



CALIFORNIA
ACADEMY OF SCIENCES
APR 29 1981
LIBRARY

APRIL, 1981

The TEXAS CONCHOLOGIST is the official publication of the Houston Conchology Society, Inc., and is published quarterly at Houston, Texas. It is distributed as part of the dues to all members.

The Society holds regular meetings the fourth Wednesdays of the following months: August, September, October, January, February, March, April and May. The meeting is held the third Wednesday in November. Meetings are held at the Houston Museum of Natural Science, Caroline Street in Hermann Park, beginning at 7:30 p.m.

The TEXAS CONCHOLOGIST is published October, January, April and July. It is mailed postpaid to regular members in U.S. postal zones. Overseas members will be charged additional postage. Only one copy will be mailed a family membership.

Dues extend from the beginning of the fiscal year of June 1 through May 31. However, the July issue of the TEXAS CONCHOLOGIST each year is the fourth quarterly due on the regular dues year beginning June 1 of the previous year. Memberships will be accepted throughout the year but will receive the quarterlies of that fiscal year. Members receive meeting Newsletters and have all other privileges provided by the Society's by-laws.

RATES AND DUES

Family membership	\$6.00
Single membership	\$5.00
Student membership	\$2.00
Single Issues	\$1.50
Extra sets mailed members	\$5.00
(Postage for overseas members required)	
Subscription	\$6.00
(Seamail \$2.00, Airmail outside U.S., \$3.00)	

EDITOR

Constance E. Boone
668-8252
3706 Rice Boulevard
Houston, Texas 77005

CIRCULATION

Mr. Grytch Williams
664-2809
6644 Belmont
Houston, Texas 77005

EDITORIAL STAFF

Helmer Odé 664-9942 4811 Braeburn Drive Bellaire, Texas 77401	W. W. Sutow 748-7233 4371 N. MacGregor Way Houston, Texas 77004	Herschel S. Sands 772-6613 8902 Cadawac Road Houston, Texas 77074
--	--	--

The TEXAS CONCHOLOGIST accepts contributions for publication from amateurs, students, and professionals, subject to approval by the Editor. Manuscripts should be typed, double spaced and should be in the hands of the Editor the first day of the month preceding publication dates. Photos accompanying such material are welcomed.

My wife and I wish to thank the Houston Conchology Society for its helpful information that led to our successful collecting trip to Port St. Joe in late May, 1980. We had planned a trip to Sanibel, but after reading of the Society's field trip in the Texas Conchologist (Jan. 1980), we decided to save a day's driving and stop in Port St. Joe. We also received advice from Lucy Clampit, Lucille Green and Constance Boone as to where to stay (Cape San Blas Camping Resort) and where to collect.

After the $13\frac{1}{2}$ hour drive and settling in our cabin, I couldn't wait to get to the park. After following the map in the Texas Conchologist we found the boat ramp as the sun was setting. After walking the shoreline and finding nothing but broken shells, I decided to wade out, leaving Sherrie on the shore. Even in the semi-darkness, I started picking up sea urchins and broken specimens. The farther out I waded, the more I found. I started to pick up live specimens of the Apple Murex, Nassa mud snails, and the large sand dollars. Sherrie heard my excitement and decided to wade out. After calling me over every few minutes to show me a broken shell or a live Turbo or a Periwinkle, she showed me a live $5\frac{1}{2}$ inch Pear Whelk with egg case (the only live Whelk of our trip). We then found some live King's Crowns, True Tulips, and Banded Tulips before we left. We cleaned our shells that night in our cabin.

We got up late the second day and collected off the beach near the cabins. This proved to be a long trek in the soft sand. Our better finds included some nice Scotch Bonnets, large Olives, a fair Scaphella junonia, (Junonia Volute), several nice Fighting Conchs, and two 4 inch Ficus communis that we later identified at the Brazosport Museum of Natural Science. Two other beach excursions produced many nice shells common to Texas and egg cases, as well as insect bites.

Our best collecting was done in St. Joseph Bay by wading. The Texas Conchologist article mentioned live Scallops, Horse Conchs, Cones, and featured a picture of Charlie Azares with a $14\frac{1}{2}$ inch Lightning Whelk. This was the inspiration behind our trip. We didn't find any live Lightning Whelks or any Cones. We did find 78 different species of shells, several interesting crabs, large Sand Dollars, Brittle Stars, Starfish, two varieties of Sea Urchins, as well as 11 different types of egg cases.

Sherrie found the first Horse Conch, and the second, and the third before I discovered a little one. Eventually we found and kept a series of 51 that we arranged in a growth series. The largest two (8 and 10 inches), Sherrie found at another location outside the park. This particular spot is a good location to wade out on sandbars. It is across from the church where Highway 98 separates and you go to Highway 30 on your way to Cape San Blas. We also found some nice Sunray Venus' here among other specimens.

We tried using mesh grates to sift the sand and mud near the boat ramp. This proved to be lots of work and no results worth mentioning. We continued to use our hands and found both varieties of the large Pen Shells. We found a very nice Saw Tooth Pen and managed to preserve its long golden byssal threads intact.

We also picked up growth series of both the True and Banded Tulips as well as the King's Crowns. Scallops were jumping through the waters in certain areas and many found themselves in our possession. Sherrie is going to have to learn to cook them on our next trip.

The animals always appeared to be feeding (even when they themselves were in the process of being eaten). A Horse Conch would be eating a King's Crown which in turn would be eating a Turbc or a Tulip.

The weather was perfect the entire five days. The area was practically deserted and we had the entire bonanza to ourselves. We actually got tired of collecting and we visited the local Constitution Convention State Museum and neighboring Panama City.

The last day we rented a canoe for an hour and awkwardly collected in the bay from it. This was an accomplishment since we had never really used one. We did net two Horse Conchs (4 to 5 inches) this way. They could be spotted from the surface, even in the glare off the water, by their bright orange bodies hanging out of the shells.

After spending days on a cold beach in the Galveston area finding one or two nice, but still broken specimens of a Scotch Bonnet or say a Tulip, it was hard to leave hundreds of live specimens in the water after we examined them. There were many shells we didn't even disturb.

Once again we would like to thank the Houston Conchology Society for its help; without it, we would never have found this "shell paradise". We have made reservations to go back this May to find some cones and our own 14½ inch Lightning Whelk.



Fig. 1 Sherrie's 8" and 10" horse conchs from Florida.

MOLLUSCANA

By W.W. Sutow

Nudibranchs are mollusks but they remain virtual strangers to most amateur conchologists. The nudibranchs do not have external shells that can be collected and displayed. Preservation of the specimens require professional techniques. Especially equipped aquaria are needed to maintain the animals alive for any length of time. In gathering material for the continuing series on "Philatelic Conchology" the author recently had an opportunity to delve into some of the more readily available literature on nudibranchs. The literature sources have provided a variety of fascinating facts about nudibranchs that seem well worth summarizing in these paragraphs. (The ultimate purpose of the search was to derive a checklist of stamps that depict nudibranchs as central designs. The philatelic considerations will be presented at a later date.)

In reading the various publications, one develops the feeling that interest in this group of mollusks is about to expand rapidly. One manifestation of this increasing attention is the gallery of resplendent color photographs occupying 5 full pages in the middle of DISCOVERY, the new "newsmagazine of science", for December, 1980. Entitled "Splendor in the Sea", the magazine article features some remarkable photographs of nudibranchs taken by James Lance who has studied these creatures for nearly 30 years at the Scripps Institute of Oceanography at La Jolla, California. The cover photograph on SEA FRONTIERS for March-April, 1980, also display the ruffled finery of a dorid nudibranch. Inside this issue (pp 93-101) is printed a very readable article entitled "Butterflies of the Sea" by Kenneth Mallory in which several aspects of nudibranch survival are discussed. As might be anticipated, the article is illustrated by a number of photographs of nudibranchs all in dazzlingly beautiful color.

An easily available reference is a thin paperback booklet titled "NUDIBRANCHS" written by Dr. T.E. Thompson and published in 1976 by TFH Publications. The cost currently is \$6.60. What a treasurehouse of information this is! Crammed into the 96 pages is an abundant array of beautiful color photographs along with concise authoritative summary of the important scientific facts regarding these remarkable creatures.

The author, Dr. Thompson, has collaborated with Dr. C.M. Honge in another important publication, "LIVING MARINE MOLLUSCS" (Wm Collins & Sons, London, 1976). (The latter book has been reviewed previously in Texas Conchologist.) In the book, Dr. Thompson contributes two chapters: one on opisthobranch sea-snails (13 pages) and the other on sea-slugs (22 pages). Dr. Thompson covers the subjects in academic, textbook detail.

Most references on malacology devote significant numbers of pages to the subject of nudibranchs. Abbott (AMERICAN SEASHELLS) for example utilizes 33 pages in discussing the subject. Kay's HAWAIIAN MARINE SHELLS contains 34 pages of material on nudibranchs in the Hawaiian waters. Keen (SEASHELLS OF TROPICAL WEST AMERICA) describes the tropical West American species using 23 pages. The detailed monograph by F.M. MacFarland on "Studies of Opisthobranchiate Mollusks of the Pacific Coast of North America" is a well-known reference work (Memoirs of the California Academy of Sciences, Vol 6, pp 546, 1966). The Academy separated the color plates from the text and issued posthumously a reprint monograph containing only the 29 color plates. In the book reviewed elsewhere in this issue (INTERTIDAL INVERTEBRATES OF CALIFORNIA), 54 species of nudibranchs are described. The nomenclature is complete, giving for each species the phylum, class, subclass, order, suborder, superfamily, tribe, family, and genus and species. An amazing amount of information is provided regarding the biology and natural history of these animals. Each

species is illustrated by a color photo. Recent and pertinent literature citations are given for each species and also at the end of the chapter (12 pages with 30 to 40 references per page).

Very recently, Gary R. McDonald and James W. Nybakken have prepared a colorful monograph entitled "GUIDE TO THE NUDIBRANCHS OF CALIFORNIA". This 72-page soft-cover booklet was published by American Malacologists, Inc. of Melbourne, Fla. in 1980 (\$14.50). McDonald was the Curator of Invertebrates at the Moss Landing Marine Laboratory and has written the section on nudibranchs in the current edition of LIGHT'S MANUAL OF INTERTIDAL INVERTEBRATES. He is now associated with the University of California at Santa Cruz. Professor Nybakken is a well-known marine ecologist who is teaching at the Moss Landing Marine Laboratories. He is past-president of the Western Society of Malacologists. The book discussed and illustrates (with sharp and clear color photographs) all known species of nudibranchs along the California coast (which includes 90 percent of the nudibranchs that are seen from Oregon north to Alaska). Of great usefulness are the sections in the book on the identification key to the species and the chapter entitled "Feeding and Studying Nudibranchs". Here the authors give some practical advice on photography of these creatures.

The sheer, exotic beauty of the nudibranchs seems to stimulate fanciful phraseology among the authors. Abbott (AMERICAN SEASHELLS) introduces the subject with the following sentence: "Mother Nature was possibly on a drug spree and feeling very gay when she manufactured this beautiful and amazingly diversified group of sea fairies" (p. 349). He then characterizes this molluscan order as having "weird shapes, startling ornamentation, riotous colorations, intertwining evolutionary patterns, and confusing, manmade nomenclature". Thompson (LIVING MARINE MOLLUSCS) also provides an apt and vivid imagery of nudibranchs in respect to the "flamboyance of their body ornamentation" by stating that "nudibranchs are to the phylum Mollusca what the orchids are to the angiosperms (flowering plants) or the butterflies are to the arthropods".

Basically, the species in the Order Nudibranchia might be grouped under four sub-orders as follows:

1. Doridoidea - broad, flat foot and thick fleshy mantle
2. Aeolidoidea - small with long, narrow body and numerous projecting dorsal processes (cerata)
3. Dendronotoidea - similar to aeolids and has elaborate shields for rhinophores (pair of antenna-like structures anteriorly)
4. Arminoidea - less coherent group.

The various authors estimate that there may be 2500 to 3000 species worldwide. About 100 species are known from California waters (80 species in Monterey Bay) compared to about 30 species in the northwest Atlantic Ocean. The nudibranchs range in size from a few millimeters to 30 centimeters and more. The average size is 1 to 5 cm (3/8 to 2 inches). In the American Pacific waters, a few species may be as large as 12 to 30 cm and weigh up to three and a half pounds. (Trochuna teteraquestra, Tritonia diomedes, Meliba leonina, Dendronotus iris). Free swimming larvae have shells but the shells are cast off as juveniles. The bodies are bilaterally symmetrical with no spiral tendencies. Adult animals do not have shells, opercula or mantle cavities.

Although much remains to be elucidated about the physiology of the nudibranch, some unique behavioral patterns have been described. Some nudibranchs have been utilized as human food (Trochuna teteraquestra) but most nudibranchs appear to be distasteful to fishes. The British nudibranch Tritonia hombergi is said to discharge a brownish secretion that can blister the human skin. It is reported that "planktonic" species

(e.g. Glaucus atlanticus) can feed upon Portuguese-Man-of-War and then utilize the venomous siphonophore for its own defense mechanism. The animal apparently eat the Cnidaria and then "manipulates" and "translocates" the nematocysts into the cnidosacs within the dorsal papillae (cerata). In the article in SEA FRONTIERS (mentioned above), the New England species Aeolidia papillosa is described as being able to "absorb and transport nematocyst stinging cells (from sea anemone) to special sacs at the tips of its cerata and use such newly transferred stinging barbs for its own defense against fishes and invertebrates".

Even as these paragraphs are being finalized, advertisements for two new books on nudibranchs have appeared. One is entitled SEA-SLUG GASTROPODS by Wesley M. Farmer (177 pages, 1980, \$10). The other is PACIFIC COAST NUDIBRANCHS by David W. Behrens (112 pages, 1980, \$24.95). The books are listed here simply by titles since this author has not read either of the books as yet.

BOOK REVIEW

By W.W. Sutow, M.D.

INTERTIDAL INVERTEBRATES OF CALIFORNIA, by Robert H. Morris, Donald P. Abbott, and Eugene C. Haderlie, 690 pp. \$32, Stanford, Calif., Stanford University Press, 1980.

What shell collector has not walked the beaches or peered into tide pools without marveling at the numerous invertebrate life-forms that abound. This book is a rich source of fascinating and authoritative information concerning these animals (including mollusks) that are found along the expanses of the Pacific coast of North America from Alaska to Lower California. This publication becomes the latest of three major textbooks that examine, each from a somewhat different approach, the invertebrate life of the U.S. Pacific coast.

This is a BIG book (9 x 11 inches and 3 inches thick). Each of the three co-editors has had wide experience in marine biology as well as malacology. Robert H. Morris is a photographer, naturalist and also a landscape artist. Donald P. Abbott is Professor, Department of Biological Sciences, Stanford University and Associate Director of Stanford's Hopkins Marine Station. Eugene C. Haderlie is Professor of Oceanography, Naval Postgraduate School at Monterey, California. The considerable help received from Dr. Myra A. Keen in the preparation of the chapter on prosobranchs is mentioned. She provided the initial identifications, "settled nomenclatural problems, assembled the basic shell description and geographical distribution for each, and read and commented on the various drafts of the manuscript". The authors acknowledge Dr. Keen's contributions with the statement that "she deserves, but has declined, coauthorship".

The present review will be restricted to the malacologically oriented contents of the book. However, the titles for the other chapters will be listed without comment at the end of the review.

The malacological subjects occupy a major portion of the book, covering 228 pages of text and 68 pages of color plates. The material is organized into chapters as follows:

1. Mollusca: Introduction to the Phylum and to the Class Gastropoda. By D.P. Abbott and E.C. Haderlie. (3 pages).
2. Prosobranchia: Marine Snails. By D.P. Abbott and E.C. Haderlie. (77 pages and 103 species).
3. Opisthobranchia and Pulmonata: The Sea Slugs and Allies. By R.D. Beeman and G.C. Williams. (47 pages and 72 species).
4. Bivalvia: The Clams and Allies. By E.C. Haderlie and D.P. Abbott. (57 pages and 83 species).
5. Polyplacophora: The Chitons. By E.C. Haderlie and D.P. Abbott. (17 pages and 25 species).
6. Cephalopoda: The Squids and Octopuses. By F.G. Hochberg, Jr. and W.G. Fields. (16 pages and 8 species).

The book does not undertake an exhaustive survey of the molluscan fauna of the California coast. However, most of the commonly found species are described. The text starts with the name of the species which includes genus, species, subspecies, author and year. If well known under another name in recent publications, the name is shown in brackets. No synonymy is presented. Common names are given for most mollusks. The habitats and the geographical and depth distributions of the species are noted. Related species are often described. Pertinent and informative biological and natural history notes are particularly abundant. Literature citations are listed for each species. The amount of the text varies from species to species ranging from 10 lines or so to several pages. For most species, the information given is far greater in depth and amount than are found usually (including R.T. Abbott's American Seashells). (Obviously, other textbooks list considerably greater number of species which precludes lengthy descriptions).

The succinct and authoritative descriptions that characterize this book are exemplified by the discussions of Haliotis rufescens Swainson, 1822 (the red abalone). The expected distributional and size data are provided as well as descriptive comments about the shell and the animal. But, in addition, the text briefly covers such subjects as the correlation of the color pattern with the color of the dietary algae; the grazing behavior of the animal; the physiological activities of the mollusk; breeding and spawning; hybridization; responses to predators (including man); commercial and archeological aspects; and the like. All of this is bolstered by 33 references. Related discussions are continued in sections dealing with other abalones: H. fulgens, H. corrugata, and H. cracherodi. This helpful reading will surely enrich the enjoyment of the shell collector who has the seashell or, better still, who has the opportunity to observe the living mollusk.

The numerous references are pertinent and current and they constitute a valuable bibliographic resource. Many publications are cited at the end of the description of each species. The major bibliographic information is concentrated at the end of each chapter. The scope of this literature coverage is indicated by the chapter on prosobranchia which is supplemented by 14 pages of references (40 to 45 individual references per page) and the chapter on bivalvia with 16 pages of references. It should be noted that these citations are current, a great number being published after 1975 and as recently as 1979.

The indexing is something else again. In the marginal space at the start of the text for each species, there is a small but easily recognizable line drawing of the species. Each species is identified by numbers which gives first the chapter number and then the species number. The same identifying numbers are used in the illustrations so that cross referencing between text and illustrations is simple and rapid, even though separated by substantial numbers of pages. The standard index at the back shows major listing by genus and secondary listing by species. The book contains almost 200 pages of color plates picturing the species described in the text.

While legal restrictions prohibit the collection of live mollusks in California (except for stipulated "game mollusks" such as abalone and various clams in season) there is no prohibition of visual inspection and enjoyment. The only problem may be the ease of availability of public access to suitable beaches. For thorough enjoyment of all aspects of natural phenomena, a book such as this provides immeasurable stimulation.

The subject matter discussed in other sections of the book are listed below:

Foraminifera: Shelled Protozoans. (12 pp)

Porifera: The Sponges. (19 pp)

Cnidaria (Coelenterata): The Sea Anemones and Allies. (36 pp)

Platyhelminthes: The Flatworms. (8 pp)

Nemertea: The Ribbon Worms. (7 pp)

Bryozoa and Entoprocta: The Moss Animals. (17 pp)
Brachiopoda and Phoronida. (17 pp)
Echinodermata. (112 pp)
The Annelid-Arthropod Complex. (54 pp)
Crustacea and Other Arthropods. (137 pp)
Pycnogonida: The Sea Spiders. (5 pp)
Insecta, Chilopoda and Arachnida: Insects and Allies. (18 pp)

Two other "standard" reference works on invertebrates of the Pacific coast might be useful to the amateur shell collector and are mentioned here (they have been reviewed in this publication some time ago). The are:

1. BETWEEN PACIFIC TIDES by E.F. Ricketts and J. Calvin. 4th edition.
Revised by J. Hedgpeth. 1968. Stanford, California. Stanford University Press.
614 pp.

This well-known treatise emphasizes the ecological approach. Natural history data on the various invertebrates are organized in relation to the major habitats of the animals.

2. LIGHT'S MANUAL: INTERTIDAL INVERTEBRATES OF THE CENTRAL CALIFORNIA COAST.
By R.I. Smith and J.T. Carlton. 1975. 3rd edition. Berkeley and Los Angeles.
University of California Press. 716 pages.

This book is arranged as a technical laboratory guide providing taxonomic keys. It includes a much greater number of invertebrates, particularly the smaller species than the other books. The geographic coverage may be more restricted, by definition, to the California coast between San Francisco and Santa Barbara.

(Ed. Note: The book Intertidal Invertebrates of California reviewed by Dr. Sutow has arrived for our HCS library. It would make good summer reading.)

DUES NOTICE

The annual dues of the Houston Conchology Society have been raised for the fiscal year June 1, 1981 through May, 1982 by \$4.00 in each category in order that the Society can continue to provide members with nine newsletters before the meetings and with quarterlies of Texas Conchologist, as well as to continue to purchase books for our fine library and to continue our donations to the Houston Museum of Natural Science and other HCS projects.

This is the first raise of dues in many years. Anyone who heard the Treasurer's report on our annual expenditures versus our dues intake at the February meeting is well aware of the need for the increase in dues. We have been depending on an annual money-making event to augment the treasury and to enable us to continue our publications and other projects.

You will help HCS by paying your dues at the May meeting instead of waiting until we start meeting again in August. Remember that we do also publish a membership booklet in September or October. We need to have your dues early to help the Corresponding Secretary with the roster and mailing tabs.

Mail dues to Treasurer Jim Sartor, 5606 Duxbury, Houston, Texas 77035. Family membership will be \$10.00, individual membership will be \$9.00, student membership will be \$6.00. We do have a subscription rate of \$10.00 for institutions and foreign correspondents wanting the quarterly Texas Conchologist only. There will be a mailing charge added to the dues for anyone out of the US postal zone.

SEARCH AND SEIZURE

By Constance E. Boone

MATAGORDA ISLAND

Calling out to three members of the Houston Conchology Society as they trudged by our room at the motel in Port O'Connor on their return from the field trip March 7 to Matagorda Island, my query was to determine what treasures they had found on their day at the island.

(We had been deposited at intervals on the Gulf beach and had not been in close contact with all the forty plus HCS members and friends attending this field trip.)

After naming "sand dollars, Scotch bonnets, arks, etc." one spoke up and said she had found a rather long and big auger shell. Almost before the words were out of her mouth Mildred Tate and I said, "The Flame, you've got the Flame Auger. Let us see!"

So it happened that Pat Miller brought out her Terebra taurina and we all admired the slender and perfect spire of the shell and bemoaned the fact that the aperture was broken. Still it was the uncommon Terebra we thought it was and on comparison with the photo in American Seashells, Abbott, 1974, we found Pat's specimen to be almost a duplicate in size to the pictured shell.

Back home we discussed the shells found on the trip with Dr. T.E. Pulley, director of the Houston Museum of Natural Science (he missed the trip due to a sore throat). He made the remark that Matagorda Island was the type locality for this Terebra. This puzzled me until I went to the literature to discover that Dall had indeed named this shell Terebra texana in August, 1898 from Matagorda Island. (Vol. XII, Nautilus)

Dall's opening remarks follow: "Some years ago the Hon. J.D. Mitchell of Victoria, Texas, sent to the National Museum a much dilapidated specimen of Terebra from the Gulf Coast of Matagorda Island, which could not be identified with any described species. Subsequently, Mr. Mitchell sent the upper part of the spire of another specimen in rather better preservation."

The same J.D. Mitchell had sent Dr. Dall Amaea mitchelli from this island, the much-sought Epitonium named for Mitchell by Dr. Dall. No one on the field trip was lucky enough to come home with this prize.

Dall went on to tell that he had reports that a lighthouse keeper was supposed to have a perfect specimen and that efforts were made to borrow the Terebra. Finally he did get it but it proved not to be the same and Dall went on to name the shell Terebra texana from the two pieces of shells Mitchell sent to him.

The Dall description is probably the fullest we have on what we now call Terebra taurina so I quote it as follows:

"Shell large, solid, strong, with more than 21 slightly rounded whorls, color pale yellowish with darker yellow or brown flammulae; sculpture of two revolving grooves one on each side of a peripheral slightly raised band, a little narrower than the areas between it and the sutures, the whorls are crossed by numerous small flexuous riblets in harmony with the lines of growth, those on the band and the posterior area oblique but nearly straight, those on the anterior area concavely arcuate, these are stronger on the spire and more feeble on the last whorl or two; suture appressed, distinct; last whorl moderately rounded; pillar twisted, strong, with sharp revolving keel and a feeble revolving ridge above it, continuing in the

aperture where the pillar seems only callous and rounded; siphonal notch and fasciole strong. Length (21 whorls) 137 mm., diameter of last whorl 24 mm."

Dall said this was the first typical Terebra known from the tropical waters of eastern America and that it was much stouter and larger than the Terebra floridana he had named. He noted that he had not found any other species with similar sculpture.

Why do we know the shell today as Terebra taurina (Lightfoot, 1786)?????

The story is just another of probing the past by contemporary malacologists and recognition of old names according to new rules of the International Commission on Zoological Nomenclature. Nevertheless it is interesting history and you might like to know some of it.

We need to know who Lightfoot was first. This will take some understanding of the early naming of shells. The Rev. John Lightfoot was chaplain, librarian and teacher to Margaret Cavendish Bentinck, second Duchess of Portland. He was asked after her death to prepare to sell the entire collection of shells, works of art and other natural objects that had been carefully acquired by the Duchess during the late 1700s. She had a collection of shells and natural collectibles said to be the finest in England and rivalling the best in Europe, having acquired many shells from the voyages of Captain Cook. In fact, she had employed Daniel Carl Solander, a learned Swedish naturalist, former pupil of Linnaeus and a scientist with Cook on one of his voyages, to name many of her new shells. He worked long and hard doing this, making many notes and devising names but never publishing any of them before his death in 1782. Buccinum was the last genus he worked on, and the Terebra we are discussing was placed in that genus at that time. Since the Duchess died owing much money, the shell collection had to be sold, and Lightfoot had the task of preparing the material for sale. It is interesting to note that he mixed lots of shells and did not lump likes together as he felt that the public would be more interested in this arrangement. Therefore, our Terebra did get put into lots of other shells but always did have the same name. One lot on page 142 was listed as follows, however:

"A pair of large and fine Buccinum taurinum S. Lister, 841.69 from China---very rare."

The fact that Lightfoot added the reference to the figure in Lister although he used Solander's name of Buccinum taurinum leads us today to use Lightfoot as the author of the shell. Solander's bare name would not have sufficed. Lightfoot's addition stating the reference to the published figure in Lister fulfills the requirement of modern rules of zoological nomenclature.

Lightfoot's catalogue was published in early 1786 prior to beginning the sale of the Duchess of Portland's collection set for April 24, 1786. It was to last for 38 days and realized a total of 11,546 pounds, 14 s. Lightfoot's Portland Catalogue included some of his own names for shells but the Terebra we are talking about was given its name by Solander. The Portland Catalogue was issued without Lightfoot's name appearing anywhere in it. That famous sale ended with the sale of a celebrated antique vase or sepulchral urn from the Barberini cabinet of Rome. It was said to be the identical urn which contained the ashes of the Roman Emperor Alexander Severus and his mother Mammæa, put in the earth about the year 235 and dug up by order of Pope Barberini between 1623 and 1644.

The names in Lightfoot's Portland Catalogue were resurrected after scientists such as Dall began also to resurrect the names devised by Röding in the 1798 Bolten Catalogue (which was prepared to sell the extensive collection made by J.F. Bolten

who died in 1796). Dall began to use the Röding names during the first decade of the twentieth century, although there was much opposition to his use of the names by other workers.

Actually Röding had a Terebra he named Epitonium feldmanni in his 1798 catalogue. This name has now been put in the synonymy of Terebra taurina, the latter an earlier name, of course.

Lightfoot's reference to Lister's figure led to the need to see this early drawing as the first recorded for the Terebra we are reviewing. Through the kindness of a scientist we know at the Smithsonian we were able to get a photocopy of Lister's figure. Martin Lister was an English physician who had an interest in shells in the late 1600s and early 1700s. His greatest work, the Historia Conchyliorum appeared at intervals from 1685 to 1692 and consists of nearly a thousand unnumbered plates with one or more figures per plate. There is no actual text and little description on the plates with the figures. Yet this is supposed to be the first mention of our Terebra.

The synonymy of Terebra taurina always includes Terebra flammea Lamarck, 1822. Lamarck described the shell in his Histoire Naturelle des Animaux sans Vertebres (1818-1822), but it was not figured until Kiener did his redescription and had a shell figured that some think was the Lamarkian shell. The Lamarck collection had been acquired by Prince Massena and later sold to Delessert where it was in the charge of Louis Charles Kiener who used the shells to publish his illustrated iconography "Species general et iconographie des coquilles vivantes" 1834-1879. Kiener said "Vis flambee Terebra flammea Lamarck was from 'les mers de l'Inde' and 'rare dans les collections'." Lamarck's name was perfectly good for many years since nobody used the name from the Portland Catalogue.

Lamarck's volume including Terebra flammea made reference to Lister's figure and also to Martini, Vol. #4 and the figure 1446. Lamarck said T. flammea "habite l'Ocean des grandes Indies" and the shell in his cabinet was "5 pouces" long.

The reference to Martini led me to the 1st Edition of Martini and Chemnitz and in Vol. 4 of Martini's Neues Systematisches Conchylien Cabinet there is on page 296 of this (1780?) volume a discussion of the Terebra quoted as "Die Geflamme Schraubenschnecke" with the following descriptive line "Turbo tigerinus fasciatus flammeus anfractibus bifidis". A reference was made to Lister's plate 841, fig. 69, quoting Lister's description on the plate as follows: "Buccinum dentatum clavricula longissima striatum, et latis maculis ex rufō nigricantibus radiatum". The names in this 1st Edition were not consistently bionomial and therefore have not been used although the figures are referred to by malacologists.

In the 2nd Edition of Martini and Chemnitz's Conchylien Cabinet (with Kuster, Wein-kauff and others as editors, 1840-1878 volume) there is a description of Terebra flammea Lamarck. A figure on Taf 1, Fig. 7, seems to be another drawing of the same shell Martini figured in his 1st Edition. The 2nd Edition discussion referred to Lister, Lamarck, Blainville, Kiener and Anton and said the species was "In indiscen Ocean" length $4\frac{1}{2}$ ", breadth 1".

Our shell went by Terebra flammea for many years. In 1937 William J. Clench published a report in Nautilus, Vol. 51, page 114, with an accompanying plate, saying that he had collected Terebra flammea in Santo Domingo that year. Calling it a notable find, Dr. Clench said that some 20 specimens were found by his party in the dredging from Puerto Plata Harbor at depths of approximately 30 feet, all dead. He noted that the American museums had very few specimens of T. flammea, saying that the Museum of Comparative Zoology at Harvard where he was curator had only one, labelled "China." The Academy of Natural Sciences at Philadelphia had two labelled

China. On careful examination, he determined the Santo Domingo Terebras were the same as those listed from China. A plate presented a shell from each area. The Houston Museum of Natural Science has three of the Santo Domingo Terebras found by Dr. Clench in 1937.

In Nautilus, July, 1939, Dr. Clench added more data on Terebra flammea, saying Dr. Harald Rehder at the Smithsonian had suggested that Dall's Terebra texana might be the same shell and this was determined to be true. That caused T. texana to bite the dust in synonymy. A few more records from other museums were mentioned, some still declared to be from China, and one, fossil, was reported from Brazil. There was a report of specimens from St. Lucia, Caribbean area, and mention was made of McGinty's find of this Terebra from the Lake Worth, Florida area. The idea that the shell existed in the Pacific and Atlantic was still, however, accepted.

The December, 1944, Vol. 2 #2 of "Carlos de la torre Revista de la Sociedad Malacologica" carried a report by Miguel L. Juame on the records of Terebra flammea in Cuba and included a map of known distribution of the shell in the Gulf of Mexico (pinpointing Matagora) and Caribbean to Brazil. No longer was China mentioned.

In many cases early descriptions, figures and authors are accepted but the locality and range is redefined or maybe really found as more knowledge becomes available. Early collectors in Europe got shells from ship captains and sailors and were far more interested in having new shells named and added to their cabinets than they were in solving the exact localities of the shells. Ships went on long voyages, stopping in many ports and at many islands and shells were gathered everywhere, often mixed in lots before the return home.

Abbott in his 1954 American Seashells listed Terebra taurinus with Solander as author. This was the first use of the Portland Catalogue name. His 1974 Second Edition carries Lightfoot as author. Terebra flammea is listed as a synonym.

Names from the Portland Catalogue found their way into other early works on shells. Lightfoot was not given credit but in some cases Solander was. Dall published in Nautilus, Vol 34, some of the species he recognized in the Portland Catalogue and other scientists did also, although Dall and others did not know that Lightfoot was the author of some of the names. Dall did not think T. taurina of the Catalogue was from the western Atlantic. Dance and Kay later wrote papers establishing Lightfoot as the author of some of the names. Dr. Harald A. Rehder's paper on the "Valid Zoological Names of the Portland Catalogue", Smithsonian Institution Proceedings, Vol. 121, #3579, 1967, pointed out that some names proposed first in the Portland Catalogue had been accepted for over a hundred years and discussed the Rev. Lightfoot as author of new names therein. Although Lightfoot was the anonymous compiler he has been accepted as author of some names. Rehder said there were 62 names that should be credited to Lightfoot as author. One of these is Terebra taurina. Had the generic name not been changed we would list the name as Buccinum taurinum [Lightfoot, 1786]. The brackets would indicate that the author had proposed the name anonymously. Since the generic name is Terebra now we list the name as follows: Terebra taurina (Lightfoot, 1786) since Rehder points out that both brackets and parenthesis are not practical. We have changed the ending to "a" instead of leaving it "um" as first written to go Buccinum, following the lead in Keen, making Terebra feminine.

Alison Kay's study of the problem of the Lightfoot-Solander authorship of molluscan names (Nautilus, Vol. 79, July 1965, pgs. 10-19) pointed out that the Solander manuscripts (which she examined at the British Museum of Natural History) were not complete on the gastropods. Solander's last manuscript included studies on Buccinum but sometimes only generic names were proposed. According to Kay's table of com-

parison of the Solander manuscript names to those in the Portland Catalogue revealed that the name Buccinum taurinum did not appear in the Solander manuscript. Apparently Lightfoot can be credited with the name completely.

This Terebra is a shell we do not find often on our beaches. A few have been found at Matagorda Island by collectors through the years, and member Betty Allen reports that some nice ones have been found occasionally at South Padre after storms. Dr. Pulley has collected some on the beaches at Veracruz and tells a funny story about seeing the Mexicans there offer handcrafted "storks" and "turkeys" made of shells, the storks with this Terebra used as beaks. (The turkeys featured Pecten nodosus!) There are records of the shell brought in by shrimpers from the Gulf of Mexico and the Yucatan area, but most of the shells sold through dealers today (when they are made available they sell for \$10-\$25) are found by divers and dredging off East Florida near Boynton and Lake Worth. The shell can get to be six inches in length and is a very lovely Terebra when live taken and fresh. The 20,000 + lots of shells in the Northwest Gulf Mollusk Population Survey (which Odé is monographing in Texas Conchologist) do not include a single specimen of this Terebra. Pat Miller can be proud of her find on our Matagorda field trip. Considering its nomenclatural history, it is a shame we can't still call it Terebra texana!!

Peter Dance's Shell Collecting, An Illustrated History, a book we have in our library, provided me with much history of collecting and collections. You might like to read it for more insight to the story of malacology.

Matagorda Island presently is a unit of Aransas National Wildlife refuge. Our member, Mrs. C.W. Hanks, worked with Field Trip Chairman Helen Cornellisson to get a boat to take us to this barrier island along the Texas coast off Port O'Connor. To reach the island, you must travel by boat down the Intracoastal Canal about five miles southwest from Port O'Connor to the first channel marker. Then there is a six mile channel leading east directly across the bay to the island's boat dock where there are refuge headquarters for registration and information. The brochure we obtained states that upon occasion refuge personnel may be able to provide some overland transportation. We were ferried to the beach in old cars and trucks equipped to make it through the heavy sand of the Gulf beach. From the dock you are about two road miles to the beaches. You would be allowed to ride bicycles over to the Gulf but you could not take motorized vehicles to Matagorda Island. Only those owned by the government are allowed on the island.

Fishing, beachcombing, camping, hiking and swimming are allowed. There are marshy areas and bay areas where birders and nature enthusiasts may see and photograph shorebirds and where shellers may also collect. The inland pasturelands support coyotes, deer (we saw some), jackrabbits, raccoons and badgers. There are many cattle. You may also climb the stairs to the top of a lighthouse for a view of the area. All but the privately-owned southeastern tip of Matagorda Island is either federal or state owned and open to the public for the first time in over 35 years. You may have heard about negotiations between the U.S. Government and the State of Texas concerning the public lands of Matagorda Island. The two governments have been trying to agree on a plan for division of the lands. The U.S. Government acquired the 18,992 acres it has for an Air Force range during World War II.

Should you want to go over and tie up your boat at the docks, this is possible. You may wish to contact Les Peterson, assistant refuge manager, for more information. Fresh water (and showers) is available for general use but not for drinking as it has not been put through the proper filters for consumption. Peterson is with the U.S. Fish and Wildlife Service and may be reached at Port O'Connor at 512 983 2215 at this time.

The beaches we saw were littered with very worn shells and sanded over to the dunes. We were told that Hurricane Allen damaged the first row of dunes and swept sand and shells to the central part of the island. At the Pass Caballo end a new cut has been made across the beach. Many of the shells were very old, but HCS members report getting beach Phalium granulatum, Tonna galea and Murex fulvescens. Pairs of dead Noetia ponderosa, Dosinia discus, and Dinocardium robustum were dug from the sand. A few Janthinias were washing in alive, at least two species. Thousands of sand dollars were seen drying in the sun, and one fossil sand dollar was collected. The bay side yielded hermit-crabbed but big Polinices duplicatus and a log filled with Martesias. We were told that the area south of the present fishing pier on the Gulf was best for shelling.



Fig. 1. Pat Miller, Houston Conchology Society member, with her specimen of Terebra taurina collected on the HCS field trip to Matagorda Island March 7, 1981.

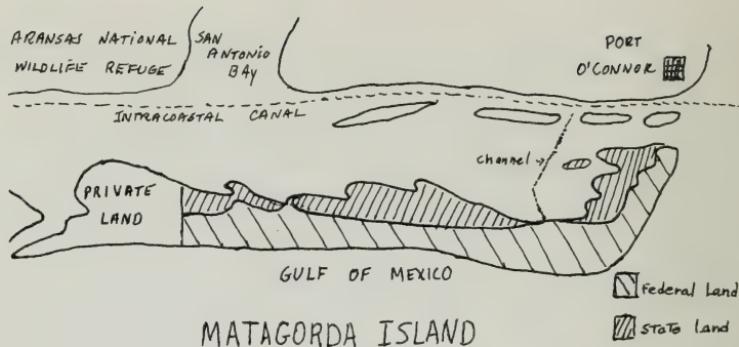


Fig. 2. Matagorda Island as drawn from the pamphlet distributed by the refuge headquarters.



Fig. 3. *Terebra taurina* specimen taken by diver off Boynton Beach, Florida.
From collection of C. Boone



Fig. 4 Lister's figure of Terebra taurina in his Conchyliorum et Tabularum Anatomicarum, T. 841, figure 69, 1770. This was the first drawing we have for this species. The Portland Catalogue gave a reference to this figure with the letter "S" (for Solander). However today the anonymous author Lightfoot of the catalogue gets credit for the name we use for this Terebra.

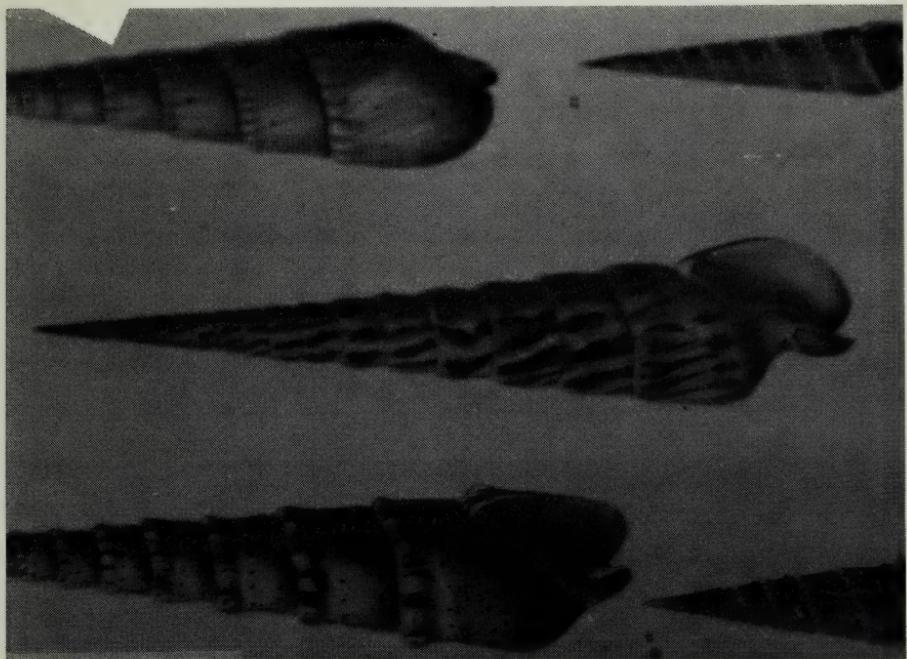


Fig. 5. Terebra flammea Lamarck from Kiener's illustrated iconography "Species general et iconographie des coquilles vivantes" 1834-1879. The figure is supposed to be Lamarck's shell, and appears in Vol. 10, Plate 5.

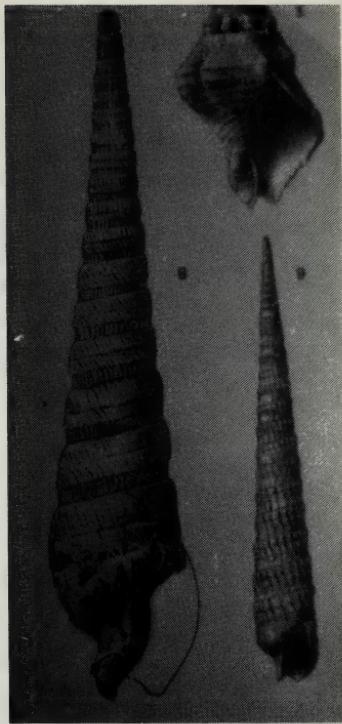


Fig. 6. Terebra texana from the drawing in Bulletin 37, U.S. National Museum, 1888, from two pieces of the Terebra put together—they had been sent to Dr. William H. Dall at the Smithsonian by J.D. Mitchell of Victoria, Texas, collected at Matagorda Island, Texas, and described in Nautilus 12, (4), pages 44-45.

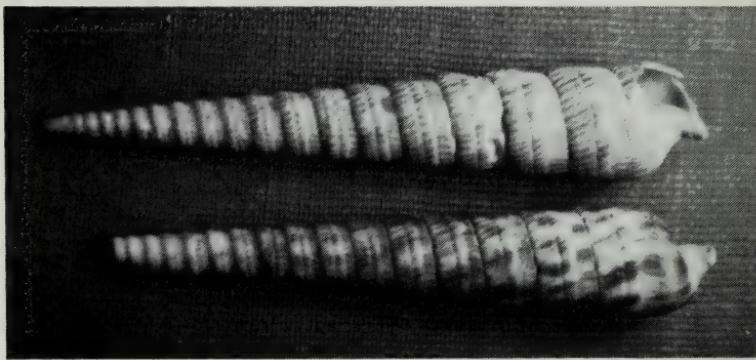


Fig. 7. Terebra taurina specimens collected by Dr. William J. Clench from dredgings at the harbor of Puerto Plata, northern coast of Santo Domingo, in 1937 when he established what he then called Terebra flammea being in the West Indies. These two specimens are in the collection at the Houston Museum of Natural Science. (Nautilus, Vol. 51, page 114).

NOTEWORTHY GASTROPOD RECORDS FROM TEXAS

Raymond W. Neck
Texas Parks & Wildlife Department
4200 Smith School Road
Austin, Texas 78744

Survey of various areas of Texas as part of a biogeographical analysis of the gastropods of Texas has revealed a series of noteworthy county records hitherto unknown to malacologists.

VIVIPARIDAE

Campeloma crassula Rafinesque occurs in streams of the eastern United States and is known from six counties of extreme eastern Texas (Strecker 1935; Fullington 1979). In October 1978 I examined a highly localized population in Lake Raven, an artificial impoundment within Huntsville State Park, Walker Co. Shells were abundant on the steep back face of the dam; I located no shells during intensive searches of the gently sloping bottom characteristic of most of the lake. Substrate is fine sand with rock which originated as dam fill and rip-rap. Largest shell collected is 36.6 mm in height and 21.5 mm in diameter. This population originated as a human introduction, possibly as live fish bait; the present Lake Raven dates from 1949. Other lake and stream sites outside the natural range of this species should be examined for C. crassula.

VERONICELLIDAE

Pseudoveronicella liberiana (Gould) is a large (up to 90 mm in length when locomoting) slug which I have observed since 1975 in residential yards in Brownsville, Cameron Co. Two other species of veronicellid slugs are known from these same areas (Neck 1976b) but P. liberiana is now the most common veronicellid in Brownsville yards. Food consists of decaying plant and animal matter. I have found specimens underneath boards, rocks and flower pots; however, densest aggregations occur in rotting tree roots below the soil surface. This slug is native to western Africa. This is apparently the first record of this species in the United States; Dundee (1974) does not list this species. I thank D. S. Dundee for identification of this species.

PUPILLIDAE

Gastrocopta tappaniana (C. B. Adams) occurs throughout the eastern United States; Texas localities (Cheatum and Fullington 1973) are highly scattered. I recently located a population of this species in bottomland woods associated with the Frio River at Tips State Park, Live Oak County; occurrence of this colony indicates ability to survive in mesic microhabitats in the semi-arid South Texas Plains. The cause of the paucity of Texas records is likely to be apparent confusion with Gastrocopta pentodon (Say) although these two species are obviously different taxa (see Hubricht 1974).

Vertigo oscariana Sterki is reported from Texas (See Cheatum & Fullington 1973) but the original reports (Pilsbry & Ferriss 1960) involve drift debris and specimens from isolated canyons in Comal and Hays Counties (Branson 1960). I found a single live specimen of V. oscariana in a thick pocket of soil and leaf litter in a small side canyon of Owl Creek within Fort Hood Military Reservation, Bell County. The locality supports many relictual species including big tooth maple, Acer grandidentatum, and a predatory gastropod, Euglandina singleyana (Neck 1980).

Small size (less than 2 mm in height) and restriction to localized suitable microhabitats may be the reason for the scarcity of records of V. oscariana in Texas. This Bell County record is the northernmost valid record from Texas.

SUCCINEIDAE

Succinea forsheyi Lea has been recorded from various areas of the southeastern United States westward to central Texas. Most early records are recorded as Succinea concordialis Gould which is now considered a synonym of the lymnaeid Pseudosuccinea columella (Say) according to Hubricht (1974). Early records probably refer to S. forsheyi. The distinctive appearance of S. forsheyi is easily learned; the gray to cream-colored foot with minuscule black spots contrasts greatly with black mantle with prominent light spots (as seen through the shell). S. forsheyi has recently been collected along the edge of Onion Creek, McKinney Falls State Park, Travis County; and Salado Creek at IH 35 in Salado, Bell County.

LIMACIDAE

Deroceras reticulatum (Muller) is native to Europe. I found several specimens in a residential yard in Brownsville, Cameron Co. in 1976, following several years of collecting many other species. D. reticulatum entered this area from adjacent yards as no new nursery plants were added prior to collection of the slug. Subsequent searches of this yard have revealed no additional collections of D. reticulatum. Periodic severe droughts in this area limit distribution of this slug to only the most consistently watered lawns.

ZONTIDAE

Striatura meridionalis (Pilsbry and Ferriss) is known from several localities in central Texas (Pilsbry 1946:494) with other populations known from northern and western Texas (Pratt 1970; 1972). I have collected this species at the following Texas locations: Bell County, side canyon of Owl Creek, Fort Hood Military Reservation; Somervell County, U.S. 67 and Brazos River; Austin County, Stephen F. Austin State Park; Harrison County, Caddo Lake State Park. All populations discovered occur in lowland deciduous woodlands except for the Bell County record which is from a mesic upland slope deciduous woodland.

SPIRAXIDAE

Euglandina texicana (Pfeiffer) is known from the two southernmost counties of Texas, Cameron and Hidalgo (Fullington & Pratt 1974). I recently located a population in native brush in Arroyo Colorado State Park Site, Willacy County, just across the Arroyo Colorado from Cameron County. Little brush occurs north of this site due to agricultural land usage and changing geological substrate. These Willacy County individuals probably represent the northernmost natural populations of E. singleyana (introduced specimens are known from Nueces County residential lawns - A. Johnstone, pers. comm.).

BULIMULIDAE

Rabdotus dealbatus ragsdalei (Pilsbry) is a moderately to heavily-ridged form occurring in western central Texas; it appears to be a xeric-adapted form. New county records include the following: Comal Co.: New Braunfels; Johnson Co.: Cleburne State Park; Shackelford Co.: Fort Griffin State Park, Travis Co.: Austin; Lake Travis. Pratt (1965) reported R. d. ragsdalei from Travis Co,

but the record was omitted from later range compilations (Fullington and Pratt 1974). The widespread occurrence and varied shell morphology of ragsdalei may indicate that this taxon is a grade (polyphyletic origins due to similar environmental pressure) as opposed to a clade (monophyletic origin and subsequent geographic dispersal).

POLYGYRIDAE

Praticolella griseola (Pfeiffer) is also known, in Texas, only from Cameron and Hidalgo Counties (Neck 1977). In November 1980 I collected living specimens in disturbed and regrowth brush on spoil mounds in Arroyo Colorado State Park Site, Willacy County, in the same general areas as the previous species. Although these last two species have similar geographic restrictions within Texas, the preferred habitat is different. P. griseola in south Texas is found in saline or disturbed habitats while E. texasiana is normally found in woodland communities. The taxonomic makeup of Praticolella in Texas is unclear pending revision by Hubricht.

Praticolella pachyloma (Menke) can be found at various localities with sandy substrates in the eastern and central parts of Texas. Initial surveys of the Austin area (Neck 1976a) did not reveal populations of P. pachyloma in Travis County. Recently I have discovered a population of this species in a remnant post-oak woodland with sandy soil on a Quaternary terrace of the Colorado River. Occurrence of P. pachyloma in Travis Co. is highly restricted due to scarcity of sandy soils.

Literature Cited

- Branson, B. A. 1960. Gastropoda of the Rob and Bessie Wildlife Foundation Refuge, San Patricio County, Texas. Southwestern Nat. 5:143-149.
- Cheatum, E. P. and R. W. Fullington. 1973. The Recent and Pleistocene members of the Pupillidae and Urocoptidae (Gastrocopta) in Texas. Bull. Dallas Mus. Nat. Hist. 1(2):67 pp.
- Dundee, D. S. 1974. Catalog of introduced molluscs of eastern North America (North of Mexico). Sterkiana 55:1-34.
- Fullington, R. W. and W. L. Pratt, Jr. 1974. The Helicinidae, Carychiidae, Achatinidae, Bradybaenidae, Bulimulidae, Cionellidae, Haplotrematidae, Helicidae, Oreochelicidae, Spiraxidae, Streptaxidae, Strobilosidae, Thysanophoridae, Valloniidae (Gastropoda) in Texas. Bull. Dallas Mus. Nat. Hist. 1(3):48 pp.
- Fullington, R. W. 1979. The Recent and fossil freshwater gastropod fauna of Texas. Ph. D. dissertation, North Texas State University, Denton, 279 pp.
- Hubricht, L. 1974. A review of some land snails of the eastern United States. Malacol. Rev. F:33-34.
- Neck, R. W. 1976a. Preliminary checklist of land snails of Travis County. Pp. 124-129, in A bird finding and naturalist's guide for the Austin, Texas, area (E. A. Kutac & S. C. Caran). Oasis Press, Austin, 145 pp.
- Neck, R. W. 1976b. Adventive land snails in the Brownsville, Texas area. Southwestern Nat. 21:133-135.

- Neck, R. W. 1977. Geographical range of Praticolella griseola (Polygyridae): Correction and analysis. *Nautilus* 91:1-4.
- Neck, R. W. 1980. Two disjunct populations of Euglandina singleyana. *Veliger* 23:112.
- Pilsbry, H. A. and J. H. Ferriss. 1906. Mollusca of the southwestern states. II. *Proc. Acad. Nat. Sci. Phil.* 58:123-175.
- Pratt, W. L. 1965. Notes on land snail distribution in Texas. *Nautilus* 78:142-143.
- Pratt, W. L. 1970. The land snails of the Greer Island Nature Center, Fort Worth, Texas. *Ann. Rpt. Amer. Malacol. Un.* 1970:58-60.
- Pratt, W. L. 1972. Land snails of the Chisos Mountains, Big Bend National Park, Texas. *Bull. Amer. Malacol. Un.* for 1971:8-9.
- Strecker, J. K. 1935. Land and freshwater snails of Texas. *Trans. Tex. Acad. Sci.* 17:5-44.

SPECIAL NOTE ON VOLUME NUMBER

The January, 1981 issue of Texas Conchologist had the wrong volume number listed on the cover. It should have been Volume XVII. No. 2 is correct and the date is correct. Just add a Roman 1 to the Volume, please. It will be important when you receive your Index to the Odé Monograph sometime in the near future. The Index will use the correct Volume number.

Believe it or not, the correct Volume number was submitted to the printer. Somebody at the printing office got a little over zealous in cleaning up the negative and erased one Roman 1....

FROM THE EDITOR

We have had the valuable assistance of Herschel Sands as typist for the Texas Conchologist for three years. He finds that business affairs keep him busier and busier and has asked us to seek another typist. We ask any member willing to assist in typing the copy for the offset printing of the quarterly to call the Editor after May 1st.

We are interested in a member who has the time to type the copy and to make corrections after proofing the typed copy. Time involved would be a fifteen day period in the last part of the month preceding publication months of October, January, April and July each year. The typist would have to have available an IBM ball-type typewriter. We use plastic coated carbon ribbons and pica elite type at present. We very much prefer having the volunteer for this job offer to do the typing for at least a year and longer, if possible. It takes some time to get used to typing the monograph material and other papers with scientific terms and names.

Operating and maintaining a simple saltwater aquarium using animals from the Gulf is not as complicated as many people think it is. The initial cost of equipment is the major expense when you use animals that you find yourself. An aquarium can be fun and educational.

Since the very first shell that I found on a Texas beach was a live Busycon, I have always had an interest in the animals as well as the shells. About nine years ago my husband, Jerry, surprised me with a twenty gallon tank. We've had it operating on and off ever since, and it has given us many hours of pleasure.

We really didn't know what we were doing, so in the beginning we made many mistakes. One problem was the gravel in the bottom. The pet store had sold Jerry the type used in fresh water tanks. It didn't bother the fish, but the mollusks all died. We finally dismantled everything and bought special gravel for salt-water tanks. The undergravel filter didn't seem to be enough so we also got a filter to go on the outside of the tank. These two changes greatly improved our success.

From the beginning we have used water made with the salt mixture available at pet stores. When the level of the water gets a little low, I fill a container with tap water and let it set at least twenty-four hours to allow the chlorine to dissipate. The stuff pet stores sell to remove chlorine doesn't always work since there is sometimes extra chlorine in the water.

Every few years we dismantle the aquarium and thoroughly clean it. Do not use soap to clean an aquarium. Use elbow grease, brushes, and possibly salt. When we start the tank again, we start over with new water.

The outside filter needs to be cleaned when it becomes excessively dirty (usually every three or four months). This has to be done carefully since it sometimes seems to kill the animals. I haven't figured out how to totally prevent it yet.

An hydrometer for measuring the temperature and salinity of the water can be purchased at a pet store. When fish and other animals are purchased from a pet store the water has to be tested at least once a day, and sometimes a heater has to be used. Animals from the Gulf are much more hardy and seem to adjust to various water conditions. We have never used a heater and don't test the salinity of the water very often.

If you are considering setting up a saltwater aquarium, remember that metal in contact with the water will produce a poison. Buy nets, etc. with plastic coated handles. The tank should be all glass.

The saltwater can splatter out around the top of the tank, so select a location for the aquarium where it can do no damage. It could quickly ruin a tv or other appliance. I once had books on the bottom of mine. Fortunately, they were inexpensive.

If you put it close to a window or other light source, you will get excessive algae growth. It's great for the animals that like to eat it, but otherwise is a nuisance.

We have enjoyed catching little fish in tide pools and bringing them home to go in the aquarium. At one time we had four lovely, striped spadefish (butterfly

fish) that we caught at the pier at San Luis Pass. For several months we had the pleasure of observing a blenny from the same location. One August Maria Carpenter and I were once again at San Luis Pass. Huge mounds of Sargassum had washed up. A little boy found a Sargassum fish (relative of the frogfish) and a triggerfish. I brought them home to the aquarium. The Sargassum fish lived only a few days. Probably because it didn't have the right things to eat.* I put a little of several things in the tank and the triggerfish ate it all. It also ate all the other living things in the tank. I think it finally died of loneliness after several months.

When we don't have fish from the Gulf, we use black mollies from the pet store. They adjust quite well to salt water and can be used for testing the water several days after it is started. Water that you make needs to set for a week or two before you put any animals in it.

Through the years we have enjoyed many types of mollusks in our aquarium. Many have lived only a short time, but others have lived many months and even years. The longest living were two Oliva sayanas that lasted three years. (The last one died because we moved). They stayed buried most of the time, so we didn't see them very often.

Right now we have a King's Crown, a drill, and two Nassa snails that we brought back from Port St. Joe, Florida in November of 1979. They are much more active.

Scallops are the most fun, but we have never been able to get them to live more than a month or two. We seem to have the best luck with carnivorous animals. In the beginning I kept Donax in the freezer to feed the mollusks, but I became tired of removing all of the empty shells from the tank. Now I buy four or five shrimp every two or three months and drop three or four little pieces in twice a week.

The fish do fine with shrimp flakes from the pet store. They will also nibble on pieces of shrimp.

One of our concerns was what to do with the animals when we were out of town. Pet stores sell lumps of fish food for this purpose, and it has worked well for us in the saltwater tank. I feed the mollusks a little extra shrimp just before we leave and when we get back. We have never been gone longer than ten days. If you were gone longer, it might be a good idea to have someone come in to feed them.

We have enjoyed many animals other than mollusks and fish. Crabs are fun but can kill the other animals and eat the mollusks' food. (The mollusks will also eat each other, so be careful about which ones you put in the tank together). Once we had a shrimp that we found in a tide pool. On a visit to Port St. Joe we found a little blob of green flesh on a Busycon shell. It survived the trip home and lived for a couple of months.

The summer months are not good for trying to get animals home alive from very long distances. You can try an aerator and a couple of ice cubes in the water, but it may not help. We have always had the best luck in the colder months. Unless you have several animals in a small container or are traveling a long distance an aerator may not be necessary when the weather is cold.

When I get home with my animals, I let the water they are in reach room temperature before putting them in the tank. Some usually die, probably because I put too many in the tank. Nature seems to limit the number of each species that can live within the confines of a small tank.

You can read books and talk to other people about their aquariums, but many things have been learned by trial and error. Keeping records of your observations can be very helpful. The habits of many of these animals have never been observed, so you may be seeing something that no one else has ever seen. Believe me, it's fun and not as difficult as most people think.

*(Ed. Note: We have fed Sargassum fish live minnows and guppies with success, as well as Sargassum shrimp when available. These fish will only eat live, moving "bait".)

ANNIVERSARY MEETING OF AMU JULY, 1981

The fiftieth anniversary of the American Malacological Union will be celebrated at the annual meeting slated for July 19-25, 1981, at Fort Lauderdale, Florida. Members of the Houston Conchology Society are welcome to attend the week-long convention which will be complete with scientific sessions, informal study programs, a book-shell auction, banquet and field trips. The Society is an affiliate member of AMU. Members will need to register to attend the AMU events but do not need to be AMU members (although you are invited to become members and we already have a number of HCS members who are also AMU members).

Dr. Richard S. Houbrick, AMU president, has announced that there will be a major symposium on "Functional morphology and ontogeny of mollusca as applied to higher category systematics." Malacologists from the USA and from abroad will participate. In addition to the major symposium there will be another symposium on endangered mollusca, and a refresher course on Paleozoic and Mesozoic mollusca will be presented by Drs. Ellis Yochelson and Bob Linsley.

The host clubs will be the Broward County Shell Club, the Greater Miami Shell Club and the Palm Beach County Shell Club. Headquarters will be at the Galt Ocean Mile Hotel located on the ocean at Fort Lauderdale.

Field trips to marine, freshwater, terrestrial and fossil collecting sites are being arranged. Several SCUBA dives, including a night dive off Fort Lauderdale, are also planned.

The workshops on selected topics of interest to collectors (which were so successful last year) will be continued at this meeting to provide amateurs and hobbyists information and to afford opportunities to seek information on collecting and related subjects.

The President's packet with Call for Papers, Registration information and Reservation information will be delivered to HCS and will be available at the May meeting. Anyone seeking information concerning membership and other information concerning AMU or the summer meeting may contact me.

Constance E. Boone, AMU Recording Secretary

MONOGRAPH

By H. Odé

DISTRIBUTION AND RECORDS OF THE MARINE MOLLUSCA IN

THE NORTHWEST GULF OF MEXICO

(A Continuing Monograph)

SUPERFAMILY PINNACEA

FAMILY PINNIDAE

Large and surprisingly strong bivalves, often found stranded alive on Texas beaches. With age the shells become brittle and chip easily. In Texas two genera, together with three species.

Sources: Keen, 1971; Turner and Rosewater, Johnsonia, Vol. 3, No. 38, 1958.

Genus Pinna Linne, 1758.

Nacreous portion of shell divided in two lobes.

427. Pinna carnea, Gmelin, 1791.

Pinna carnea Gmelin. Syst. Naturae, 13th Ed., p. 3365.

A fairly uncommon species found alive on the Miocene shale uplifts and taken dead from the calcareous banks. A few specimens have been taken by collectors on the beaches of Mustang and Padre Island, where they are probably adventitious in floating root masses from Yucatan.

The very largest specimen taken alive from a small Miocene uplift off the Louisiana coast measures about 305 mm. It is rather thick shelled and is in many characters rather close to P. rudis Linne. Whether it is this species, I do not know, but I believe it to be the same as a much smaller specimen from Stetson Bank, which is P. carnea, based on the character of lobe length.

Previous records for the Texas faunal province are: 192, listed in Table 1; 206, Tex. Conch., Vol. II (6).

Records H.M.N.S.: 5 lots, of which 2 contain live collected material.

Depth Range: 10-28 fms.

Geographical Range: South Florida, West Indies, Mexico - Trinidad? Brazil. Maximum Size: 305 mm (alive).

Eastern Pacific Analogue: Pinna rugosa Sowerby, 1835. "Southern Baja California through the southern end of the Gulf of California to Guaymas, Mexico, and south to Panama, on mud bars" (Keen, 1971).

Genus Atrina Gray, 1847.

Nacreous area not divided. In the N.W. Gulf of Mexico two species in the sub-genus Servatrina.

428. Atrina (Servatrina) seminuda (Lamarck, 1819).

This species is often found upon the beaches, where it sometimes is washed up in great numbers alive together with the next species. I have observed a small crab living in living A. seminuda (Boliver Peninsula, and Bryan Beach, Freeport). In offshore dredgings the species is not often taken and only on a Miocene uplift off East Texas the species does live (Stetson Bank). Remarkable are two lots of fragmental shells from 75 and 76 fms. respectively. Another small fragment of quite different appearance comes from a depth of 140 fms. It has smooth square ribs without scales in contrast to fragments from 12-25 fms. which often have enormous scales like Spondylus (+ 15 mm length). There is evidence that the species lives in such water depths. Small, unidentifiable, worn Atrina fragments are fairly common in samples taken to 30 fms.

Previous records for the Texas faunal province are: 7, listed; 15, Galveston; 21, listed; 58, Padre Island, fresh shells; 61, Rockport area; 65, mentioned; 67, Port Isabel; 69, (as A. rigida Dillwyn), comments on byssus; 110, (as A. rigida Dillwyn), occasionally common on all the Gulf beaches, living in Aransas Bay, pl. 7, fig. 6; 131, (As A. rigida), dead in Gulf, alive in bays; 132, (as A. rigida Solander), alive in clay of intertidal zone, East Texas; 139, (as A. rigida Solander, 1786) listed for "lower bays", pl. 3, fig. 17; 145 (as A. rigida) upper sound assemblage, pl. 2 fig. 1 A-B; 156, common on Stetson Bank listed in Appendix 3, mud bottoms indigenous to area; 162, Galveston, San Luis Pass, Matagorda Bay, Indianola; Aransas Bay, Port Isabel, Brownsville, 60 miles south of Brownsville in 12-14 fms.; 164, Rockport area, alive, dead in Laguna Madre; 170, shallow shelf assemblage off East Texas; 175, listed; 178, listed for inlet and deep channel assemblage, in same area's form beds, pl. 3, fig. 17; 206, Beach Records, Tex. Conch., Vol. II (6); 225, Galveston; 236, Galveston; 269, figured on page 161.

Records H.M.N.S.: 24 lots of which 8 contain live material.

Depth Range: 0-140 fms.; alive 0-80 feet.

Geographical Range: North Carolina, Texas, Argentina (Abbott, 1974).

Maximum Size: 205 mm.

Eastern Pacific Analogue: Atrina maura (Sowerby, 1835), "Baja, California to Peru, on offshore mudflats" (Keen 1971).

29. Atrina (Servatrina) serrata (Sowerby, 1825).

Pinna serrata Sowerby, 1825. Catalogue of Shells of Earl of Tankerville London, p. 23.

A larger, lighter and more densely imbricate shell than the previous one. Live specimens have only been taken in the bays, along the beaches, but offshore dredging has not produced any. In Romer's list of Galveston shells, two Pinnas synonymized by Turner and Rosewater with A. serrata are mentioned. Sometimes this species can be collected in large numbers along Texas beaches. It probably lives close to shore in the offshore bars. It also enters the bays and lives in the "inlet influenced areas".

Previous records for the Texas faunal province are: 1, (Pinna squamosissima Philippi), listed, also listed as Pinna muricata) common and of large size on the Gulf shore of Mustang and Padre Islands. A few on Galveston Island; 18, (as P. muricata), a few valves at Corpus Christi; 19, (as Pinna muricata L.) Matagorda Bay and Corpus Christi. In 3-5 feet water depth. Good eating. The oyster crab is its frequent tenant and com-

panion; 21, listed as P. muricata L.; 62, listed as P. muricata L. for Laguna Madre; 45, listed for Texas; 65, near muddy sections of the coast; 67, Port Isabel; 69, listed in Appendix 8; 98, listed as Atrina spec. for the bays and Padre Island; 110, occasionally common on all the Gulf beaches, pl. 7, fig. 5; 121, reports occasionally very dense offshore occurrence of dead shells, Sebree Bank in 16½ fms.; 135, dead in Gulf; 139, listed for beach and surfzone, nearshore Gulf, p. 39, fig. 34; 145, shallow shelf (dead), pl. 5, figs. 16 A, B; 146, "old shelf", pl. 4, fig. 25; 162, Galveston, Matagorda Bay, Port Aransas, Padre Island, Port Isabel; 170, transitional shelf assemblage; 174, listed; 175, listed for inner shelf, 2-12 fms. common in sandier portions of zone, pl. 4, fig. 6; 206, Beach Records, Tex. Conch., Vol. II (6); 225, Galveston; 236, Galveston; 253, abundant pairs on Gulfside of reef off Padre Island: 269, figured on page 161.

Records H.M.N.S.: 29 lots, of which 12 contain live collected material.

Depth Range: 0-23 fms.; alive 0-3 feet.

Geographical Range: North Carolina, Florida to Texas, West Indies (Abbott, 1974).

Maximum Size: 265 mm.

Eastern Pacific Analogue: None is given in the literature, but Atrina texta Hertlein, Hanna and Strong, 1943 may be closest. "Gorda Bank off the tip of Baja California, depth 125 m to the Galapagos Islands" (Keen, 1971).

Remarks:

For Texas one finds also cited Atrina rigida Solander, 1786. These records are certainly all Atrina seminuda. They are: Ref. 45, Galveston, Corpus Christi, Matagorda Bay; Mustang Island, Padre Island; Ref. 174, listed, 253, rare, several individuals were collected all found attached inside a hole about half as deep as the shell was long. (Note: this paper implies that this is A. rigida and not A. seminuda. If true this is the only record of this species for the N.W. Gulf of Mexico known to me).

(This concludes the report on the bivalves in the Northwest Gulf Population Survey. Dr. Ode plans to begin monographing the gastropods in future issues of Texas Conchologist.)

Editor's Note: Since we have many new members we explain once again that the Ode Monograph reports on the 20,000+ lots of mollusks assembled over a period of years by Harold Geis, with assistance of many members of the Houston Conchology Society, local divers, Bureau of Commercial Fisheries, U.S. Navy personnel and equipment, Dr. T.E. Pulley and the Houston Museum of Natural Science, Texas Parks and Wildlife and others interested in the project. The material is systematically arranged and now being catalogued at HMNS. Malacologists will be able to use this material for years to aid in the study of Northwestern Gulf of Mexico mollusks. It is important to note that each sample was worked to the finest and most minute material and none has been thrown away. Therefore, many minute species are available in abundance sometimes and juvenile material is available when collected.

A repeat of the references (given by numbers in the monograph previous records) was given in the September, 1974 issue of TC. To obtain the complete set of the issues with the monograph of the bivalves, ending in this issue, please contact the Editor or Herschel Sands. For a limited time, we offer this valuable set for \$30.00. Make your check payable to the Houston Conchology Society. Foreign orders will be accepted, payable in U.S. funds and with either airmail or seemail postage added to above amount.

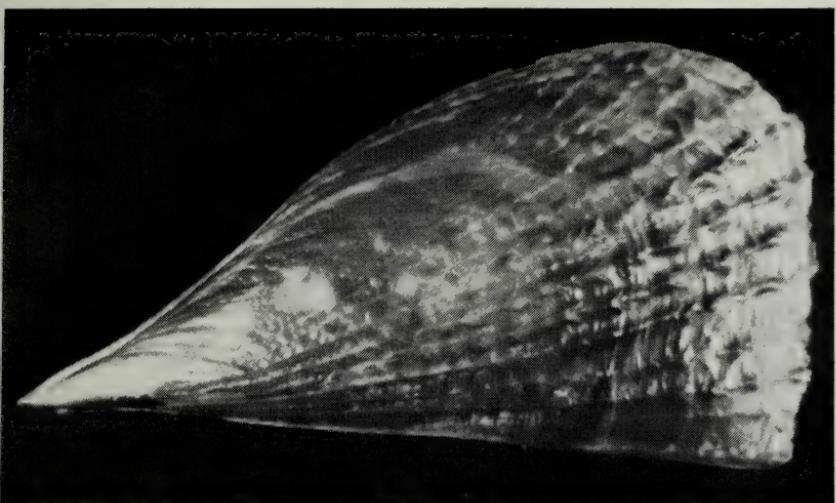


Fig. 1 *Atrina seminuda* collected on the Gulf beach at 11 mile Road, Galveston, Texas, by H. L. Geis and W.S. Sinclair April 9-15, 1965; 10 inches.

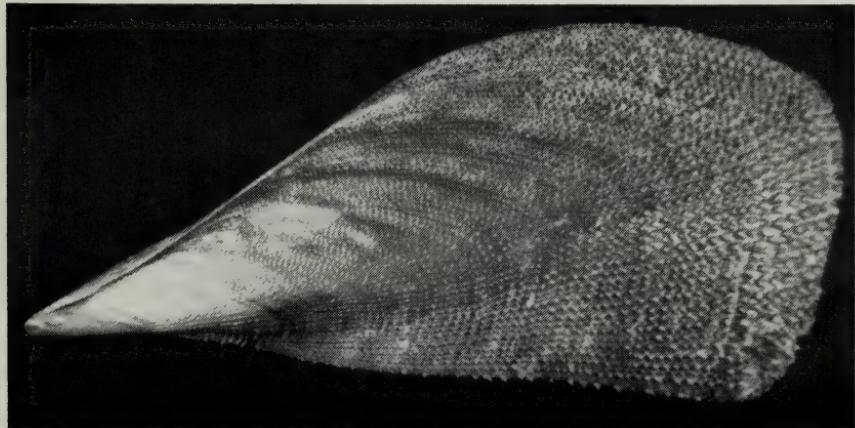


Fig. 2 *Atrina serrata* collected by H.L. Geis and W.S. Sinclair April 9-15, 1965, on the Gulf beach at 11 Mile Road, Galveston, Texas; 8 inches.

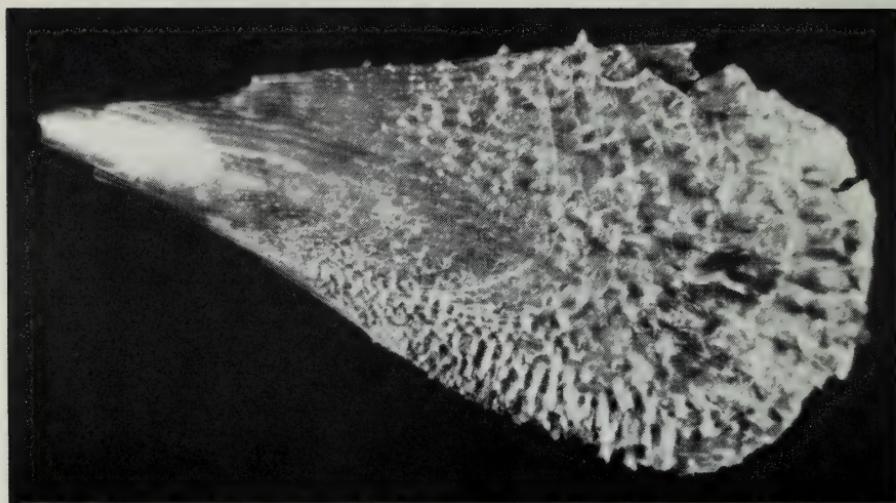


Fig. 3 Atrina seminuda, once labelled Atrina sp. A, collected in 25 fms.
30 miles north of Port Isabel, Texas, trawled by the Bureau of Commercial
Fisheries vessel, Gus III; 8 inches; heavily spined offshore specimen.



Fig. 4. Pinna carnea collected by divers from 70-90 feet at Stetson Bank,
74 miles SSE of Galveston, Texas, aboard the USS Haynsworth DD700 August 10,
1969; 12 inches in length.

Photos by Geis and Boone

HOUSTON CONCHOLOGY SOCIETY, INC.

Officers 1980-1981

President	David B. Green
Program Vice-President	Mary Ann Curtis
Field Trip Vice-President	Helen Cornellisson
Treasurer	Jim Sartor
Recording Secretary	Gladys Sheridan
Corresponding Secretary	Lucy Clampit

Directors

Charlie Azares	Max Finer	Paul Loughmiller
Cynthia Biasca	Luana Huggins	Herschel Sands
Editor, <u>Texas Conchologist</u>		Constance E. Boone
Immediate Past President		Frank Petway

Honorary Life Members

Dr. T. E. Pulley	Dr. Helmer Ode
------------------	----------------



Texas CONCHOLOGIST

QL 401

T4

1.17:4

VOLUME XVII NO. 4



JULY, 1981

The TEXAS CONCHOLOGIST is the official publication of the Houston Conchology Society, Inc., and is published quarterly at Houston, Texas. It is distributed as part of the dues to all members.

The Society holds regular meetings the fourth Wednesdays of the following months: August, September, October, January, February, March, April, and May. The meeting is held the third Wednesday in November. Meetings are held at the Houston Museum of Natural Science, Caroline Street in Hermann Park, beginning at 7:30 p.m.

The TEXAS CONCHOLOGIST is published October, January, April and July. It is mailed postpaid to regular members in U.S. postal zones. Overseas members will be charged additional postage. Only one copy will be mailed a family membership.

Dues extend from the beginning of the fiscal year of June 1 through May 31. However, the July issue of the TEXAS CONCHOLOGIST each year is the fourth quarterly due on the regular dues year beginning June 1 of the previous year. Memberships will be accepted throughout the year but will receive quarterlies of that fiscal year. Members receive meeting Newsletters and have all other privileges provided by the Society's by-laws.

RATES AND DUES

Family membership	\$10.00
Single membership	\$ 9.00
Student membership	\$ 6.00
Single Issues	\$ 2.50
Extra sets mailed members	\$ 9.00
(Postage for overseas members required)	
Subscription	\$10.00
(Seamail \$5.00, Airmail outside U.S., \$8.00)	

EDITOR

Constance E. Boone
668-8252
3706 Rice Boulevard
Houston, Texas 77005

CIRCULATION

Mr. Grytch Williams
664-2809
6644 Belmont
Houston, Texas 77005

EDITORIAL STAFF

Helmer Ode'
664-9942
4811 Braeburn Drive
Bellaire, Texas 77401

W.W. Sutow
748-7233
4371 N. MacGregor Way
Houston, Texas 77004

The TEXAS CONCHOLOGIST accepts contributions for publication from amateurs, students, and professionals, subject to approval by the Editor. Manuscripts should be typed, double spaced and should be in the hands of the Editor the first day of the month preceding publication dates. Photos accompanying such material are welcomed.

My husband, Lonnlie, and I made a wonderful two-week expedition to St. Thomas, U.S. Virgin Islands. Despite discouraging warnings beforehand about poor collecting, we were quite pleased with our collection.

Basically we prefer beach specimens. When we find a beautiful shell that way it comes as a delightful gift from the sea, just for us. All the reports we hear show that live collection is greatly reducing the numbers of mollusks world-wide, so we are happy to limit taking live shells to a few.

Our cottage was located on the east coast of the island near Red Hook Bay. We looked down on Secret Harbor, and a steep path led us to the Caribbean. We collected small West Indian tops, nerites, limpets, and a large chiton from the rocks at the foot of our path. Not far away was a tiny beach covered with small rocks and coral pieces. It produced a surprising number of small shells with little damage, considering they were mixed with and covered with small stones. My biggest treasure from there was a one-foot diameter, twenty-pound brain coral head. Fortunately we had a suitcase sturdy enough to transport it, for I just had to bring it home. A number of different varieties of live coral were visible on the swim to reach this beach, and large amounts of dead and broken coral had been thrown up by the last hurricane. This beach produced lovely little Tegula, common dove shells, wood louse, a nice little hairy triton, a fine little Latirus, and worn mouse cones, olives, flamingo tongues and others.

By far the most productive beach we discovered was Brewer's Beach near College of the Virgin Islands. The beaches on these islands are very short by comparison to the stretches along the Gulf of Mexico, but Brewer's is one of the longer ones, perhaps a mile in length. It was a veritable treasure house awaiting us. Few beaches we visited had crowds of people, probably because October is a slow season. So practically everything there was waiting just for us.

We found numbers of brightly colored scallops, emerald nerites, rosy strigilla, coffee-bean trivia, West Indian cup-and-saucers, olives, star shells, king venus clams, colorful moon snails, juvenile queen conch, and a perfect miniature melo. Here was where I found my very first carrier shells. Our finest treasure was a two-inch helmet in beautiful condition.

We travelled breath-takingly steep mountainous roads from one end of the island to the other searching for beaches and coves. One such small cove we visited was Mandal Bay. It was basically a coral ledge that abutted a narrow and rocky beach. As we arrived, the theretofore unnoticeable tide change was exposing the reef ledge, and hundreds of nerites were on the move to seek shelter or water. Here was one of our few live collections. A jar full of bleeding-tooth, four-toothed, and zebra nerites resulted in one of my more unpleasant times in the islands. Cleaning those little jewels kept me up half the night!

The route was limited, but the most pleasant and inexpensive way of travelling was by open-air "surrey" buses, we called them. Seats for about twenty people were installed on an extended pickup truck bed and a surrey-like top kept the rain and sun off. The steep roads kept speed to about 20 mph or less. It was coo' riding and afforded the best view of the landscape.

I found a bonanza of shell-print fabric at Jim Tillet's. His workshop does original silk-screening on a variety of fabrics with motifs of the islands. We enjoyed a personal demonstration of the printing technique and even tried a little ourselves. I also came upon a little shop for needlepoint. She had original design, hand-painted canvas with shell and island designs. Choosing is so hard!

One glorious day was spent sailing the Caribbean aboard the Red Hooker. Lonnie and I had the Captain and his 27-foot sloop to ourselves. As we left the harbor and crossed into deeper water, I wanted to reach out and embrace the magnificent colors of the water as they changed to ever-deeper hues of turquoise. I think that may be the most truly beautiful sight I have ever seen.

Near Greater St. James we snorkeled from the boat and were thrilled to find two live 5-inch flame helmets. We also were proud to acquire two queen conchs in the passage between the islands. It was disappointing to me not to be able to collect the queens myself, but the current was very strong, and the conchs were living at about a twenty-foot depth. Since we had already been swimming for over an hour, I chose safety first and returned to the boat. Lonnie and the captain each selected one queen, and each also came back with a beautiful 18-inch starfish.

The starfish were one of our disappointments on the island. My books contained no method for preservation, and we learned too late how to care properly for them. Formaldehyde poured sparingly into them is supposed to preserve color and height. An even bigger disappointment was having the camera malfunction when we photographed the live queen, helmet, and starfish. Only after I had cleaned them did we discover the problem.

The most successful method for cleaning the large live shells turned out to be hanging them by the foot overnight until the shell dropped off. All you have to do is hold your breath and hope you have padded properly to prevent damage to the shell.

A swim in Magen Bay didn't produce much, but it's always so pleasant and beautiful to snorkel in the clear water. It is on the north and Atlantic side of the island, and fewer shells are found there. This is the only beach we found that had an admission fee and was closed before dark. We did find two small but lovely reticulated olives on the sand in shallow water.

One full day was occupied scouting nearby St. John. The precipitous roads made driving very slow, but the jungle-like terrain and views of distant islands across the Caribbean were lovely. We snorkeled in Trunk Bay along the world-famous underwater trail. Underwater markers pointed out different formations of coral and other forms of sea life, and colored fish darted about everywhere. We spent so much time sight-seeing, we didn't have a chance to get to the east end of the island. The Park Ranger told us that that long drive plus an hour's hike would put us on a deserted beach that might have shells. That will have to wait for our next trip.

We spent our last day on a visit to Water Island, in Charlotte Amalie harbor. We met Walter Phillips on the small ferry boat. He most graciously invited us to his home to view his shell and coral collections and botanical garden, including a greenhouse full of orchids. The east beach of Water Island was lined with two distinct hurricane deposits, one a hundred years old and one very recent. A literal wall of broken coral and shells covered any trace of beach. Prospects for shells looked good as we prowled the coral rubble lining the beach there, but it seems like time always runs too short.

Altogether we collected approximately 100 different species of shells. We really enjoyed our trip and would love to share our slides and experiences with anyone planning a trip to St. Thomas.

Partial list of shells we collected:

West Indian Top - Cittarium pica (Linne)
Limpet - Fissurella nodosa (Born)
Chiton - Acanthopleura granulata (Gmelin)
Tegula - Tegula excavata (Lamarck); Tegula fasciata (Born)
Common Dove - Columbella mercatoria (Linne)
Wood Louse - Morum oniscus (Linne)
Hairy Triton - Cymatium pileare (Linne)
Latirus - Latirus virginensis (Abbott)
Mouse Cone - Conus mus (Hwass)
Olives - Olivella reticularis (Lamarck)
Flamingo Tongue - Cyphoma gibbosum (Linne)
Scallop - Aequipecten gibbus (Linne)
Emerald Nerite - Smaragdia viridis viridemaris (Maury)
Rosy Strigilla - Strigilla carmaria (Linne)
Coffee-bean Trivia - Trivia pediculus (Linne)
West Indian Cup-and-Saucer - Crucibulum auricula (Gmelin)
Star Shell - Astraea tuber (Linne)
King Venus Clam - Chione paphia (Linne)
Colorful Moon Snail - Natica canrena (Linne)
Queen Conch - Strombus gigas (Linne)
Miniature Melo - Micromelo undata (Bruguiere)
Carrier Shell - Xenophora conchyliophora (Born)
Helmet - Cassis flammea (Linne)
Bleeding-tooth Nerite - Nerita peloronta (Linne)
Four-toothed Nerite - Nerita versicolor (Gmelin)
Zebra Nerite - Puperita pupa (Linne)
Star Fish - Oreaster reticulatus (Linne)

DUES TIME IS NOW!!!!

Our fiscal year begins June 1 each year. If you have not paid your dues for 1981-1982 send them now to Treasurer Jim Sartor, 5606 Duxbury, Houston, Texas 77074. Our new rates are listed in the front of this issue. Please note that if you joined during this last year, even in the spring months, you are due to pay the dues for this new fiscal year. You did receive the four issues of this publication for the last year on your last dues. We do not begin memberships in the middle of the year to extend to the next middle year.

Helping to work up the shells from the first trip to the Pacific coast of Baja California made by the Houston Museum of Natural Science in February, 1980 (reported in Texas Conchologist, Vol. XVI, No. 4, July, 1980) whetted my curiosity to see the wonderful animals and shells of the islands and lagoons of that area. Therefore, I joined the third expedition sponsored by the Museum and the University of Houston Continuing Education Feb. 1 through Feb. 9, 1981.

Although the rules imposed by H & M Landing, operator of the tours, state that no collecting of live animals may be made and urged participants to limit collection of beach specimens to help preserve the natural beauty of this unique coastline, the Museum has been granted a special permit to collect shells for the growing Museum mollusk collections. Shells collected by participants were given the Museum, except for some few samples not needed by the Museum.

The incredible beauty of the rocky coastlines of the islands visited and the expanse of the lagoon at San Ignacio with its sandy beaches and grassy shores has been publicized in newspaper stories by one of the leaders, John Tveten, and by programs given by Dr. T.E. Pulley of the Houston Museum of Natural Science.

You see more gray whales than you can imagine, touching the so-called "friendlies" as you cruise among them at San Ignacio Lagoon in the small rubber skiffs. The sea lions frolic around you and cavort engagingly as you try to balance yourself in the skiffs and take pictures. My favorite animals were the elephant seals, and I spent hours in quiet coves on one of the islands, watching the families of babies, mothers, aunts and the ever-present "papa" or bull elephant scaring off all young bulls trying to get an edge in the harem and fussing sometimes at the females who barked, fought and tended the black-furred babies.

The tides were minus, just perfect for a shell collector like me. But it did mean that the skiffs couldn't get very close in to pick us up at the end of the hours we spent on shore and we had to walk long distances, luging heavy shells, to get to the boats.

So far 26 species have been added to the list from the Baja trip in 1981. The 1980 trip resulted in a list of 123 identified species as reported last year in TC. We expect to add a few more species to both lists as we work through the material and catalogue it for the Museum.

We did collect at least two species of Chitons which we do not list, and we have some minute material from debris collected at San Martin Island which has not been determined completely. We added from the 1981 trips many better specimens, whole or live-taken shells, to enhance the Museum's collection.

In the 1980 assessment of the collection, Dr. Pulley pointed out the mixture of southern and northern forms of shells and the need to consult both Myra Keen's Sea Shells of Tropical West America and books such as American Sea-shells by Tucker Abbott and Marine Shells of Southern California by James H. McLean. In mentioning my trip to Dr. Keen, she replied that she also was struck by the mixture of southern and northern forms when she spent a couple of hours once at Guerrero Negro somewhat north of San Ignacio Lagoon. She said she found that the northern were mostly nearshore, the southern offshore and taken by divers.

The trip was conducted on a sturdy fishing boat holding some 25 to 30 passengers and a crew consisting of a master captain and skippers of the small boats, as well as a cook and helper. The accommodations were adequate, not fancy and crowded bunk-type rooms, with two shower rooms and separate toilet facility rooms. You were urged to forget a bath every day as the boats make their own water, and this can be done only while travelling. You were so tired after the day's adventures on water and shore that you really didn't care. Another member of our club, Helen Cornelisson, will attest to the fact that I climbed up on the top bunk every night and slept in my clothes!! It often was cold so you needed warm jackets at night and in the boats you needed tough rain gear that would withstand your bouncing about on the water and kept you from getting wet as whales sprayed you with "blows". I bought cheap, light-weight gear that didn't last through the first day!! Each day I ended up getting wet in the boats or on shore wading around collecting shells; therefore, it is mandatory that you take enough changes of clothes to get you through the week. Our tennis shoes were dried at the boiler each day.

Our meals were really rather spectacular, considering where and on what we were. The cook provided three large meals a day, including homemade breads, cake and pies. In between we were offered snacks of homemade cookies, imported chutney, etc. One day for lunch we came in to have a half of fresh pineapple filled with fresh fruits, melon and scoops of sherbert. We had chocolate sundaes even!! Meals ranged from fresh fish we caught to roast turkey to lobster brought by Mexican fishermen to the boat and served with steak for dinner. You could purchase wine, liquor and soft drinks at all times.

This trip involves flying into San Diego and boarding the boat there. In the middle of the night you go to sleep after a buffet dinner and wake up the next morning at dawn, if seas cooperate, at the small island of San Martin where you go ashore to collect and to try and see the harbor seals. Our tides were so low the seals were way out at sea instead of sunning at the cove. But the shell collecting was great. We saw limpets piled up on the boulders, Tegulas competing for space on the rocks, live abalones on undersides of boulders, Olivellas in the sand on the beach, lovely shells tossed up among rocks exposed and in the debris line next to the mangroves. The captain brought back live specimens of Megathura crenulata from algae-covered rocks on the opposite side of the cove. These were deposited in the aquariums for us to see. You have to see the huge black animals to believe them.

Birders enjoyed seeing resident birds, and the trip includes leaders who are knowledgeable in this field. About 100 species are usually seen. The flora and fauna are discussed and detailed. You are given a complete book of reading material on the trip, and a library is on board ship.

Our next island was Cedros. First we got in rubber skiffs to cruise the coast line to see birds and animals and then we anchored to enter a canyon to see rocks and trees, etc. I opted for turning the smooth rocks exposed at shore-line to collect limpets, baby abalones, Murex, Trivias, and Littorinas. After I had been turning rocks to back-breaking time, one couple showed up to ask me what I was collecting and started turning rocks also. Guess what!! This couple came up to me in a few minutes to ask what the bivalve was they had found. It proved to be the only specimen of Lyropecten subnodosus found on this trip - a perfect small, knobby, red pair.

Then we headed south the long way to San Ignacio Lagoon. Once there we immediately began to see the magnificent gray whales. The next three days were extremely busy ones spent either chasing the whales in the skiffs or taking our turn on shore. Since the tides were so very low, everyone got to see live shells as they lived. Huge pen shells were standing up exposed in the heavy sand. Live scallops were everywhere in the grassy sand. Huge ark shells, moon snails, live Murex, live cockles, live Terebra, Oliva and Macron were collected. Live sand dollars and edible clams were plowing along in shallow inlets.

Another day on a different shore with a few mangroves and rocks we collected a few oysters for a study being conducted by our member Dr. Harold W. Harry. Dr. Harry has identified the oysters for the Museum collection. We also collected huge live Astrea undosa, camouflaged with algal tufts.

At still another beach we trudged a long sandy stretch so littered with pairs of shells and beached clumps of purple barnacles (known as whale barnacles but not living on the whales at all) sun-dried sand dollars up to five inches, and specimens of Forreria belcheri, an uncommon Murex.

Some of the material has been sent to professionals for studies - such as the oysters mentioned already. The Littornias were submitted to Dr. Joseph Rosewater at the Smithsonian. He has reported that one species, which he calls Littorina pectinata Carpenter, 1864, instead of Littorina aspera as we reported in 1980 (pencillata he considers to be fairly distinct in Baja California), is a range extension. Dr. Rosewater reports that L. pectinata is usually considered to be inside the Gulf of California and south, and just around the bend of the Cabo San Lucas area. He thought that the larvae might have been carried north to Islas San Benito where I collected only two of this striped species. L. pectinata is part of the Littorina aspera complex, he stated. Dr. Rosewater included a copy of his paper in Nautilus Vol. 92 (3), July 12, 1978, which established a new name for Littorina planaxis Philippi, 1847 which we carried in our list in 1980 as collected on the 1980 Baja trip. L. planaxis is now Littorina keenae Rosewater, 1978. The paper in Nautilus explained that a systematic study of West African Littorinidae disclosed a case of double primary homonymy which necessitated the replacement of a name for the well-known eastern Pacific species, Littorina planaxis Philippi, 1847.

Dr. Rosewater also found one more species of Littorina in the material sent to him from Baja. Added to the list is Littorina scutulata Gould, 1849, a species which has spots but without the flattened columella and which Dr. Rosewater says is being worked on by people on the west coast and may soon be 2 of more species.

We intend to send some of the pectens collected to a professional working on Pectinidae because we are not certain about the status of this bay species found at San Ignacio.

The Houston Museum of Natural Science will conduct another Baja trip the first week of February, 1982. Anyone interested in participating should call Carl Aiken at the Museum for details. Since the number of participants is limited and since plans this next year include another museum as sponsor, it would be wise to place your deposit early to avoid being disappointed for acceptance.

REPORT ON THE MOLLUSKS COLLECTED ON THE HMNS AND UH GRAY WHALE TRIP TO BAJA CALIFORNIA Feb. 1 - 9, 1981

The following mollusks are additions to the 1980 list reported in the July, 1980 issue of TC.

CLASS GASTROPODA

SCIENTIFIC NAME	COMMON NAME	RANGE	KEEN	ABBOTT
1. <u>Tegula regina Stearns</u> , 1892	Queen Tegula	Catalina, CA. to Gulf of Calif.	51	
2. <u>Nerita scabricosta Lamarck</u> , 1822	Rough-Ribbed Nerite	Baja Calif. to Ecuador	63	359
3. <u>Littorina scutulata Gould</u> , 1849	Periwinkle	Alaska to Baja California	67	
4. <u>Hipponix antiquatus</u> (Linne, 1767)	White Hoof Shell	Atlantic and Brit. Columbia to Peru	135	
5. <u>Hippopus tunensis Carpenter</u> , 1864	Ribbed Hoof Shell	Crescent City, CA., to Baja Calif.	135	
6. <u>Crepipatella lingulata</u> (Gould, 1846)	Half-slipper Shell	Alaska to central Baja Calif.	141	461
7. <u>Crepidula aculeata</u> (Gmelin, 1791)	Spiny Slipper Shell	Cayucos, Calif. to Chile (+ Caribbean)	142	458
8. <u>Ocenebra pouloseni</u> (Carpenter, 1864)	Poulson's Dwarf Triton	Santa Barbara, CA. to Baja Calif.	184	
9. <u>Cantharus elegans</u> (Griffith & Pidgeon, 1834)	Elegant Cantharus	Magdalena Bay, Gulf of Calif., to Peru	220	560
10. <u>Macrom lividus</u> (A. Adams, 1855)	Livid Macron	Monterey, Calif. to Baja Calif.	221	
11. <u>Olivella biplicata</u> (Sowerby, 1825)	Purple Dwarf Olive	British Columbia to Baja Calif.	235	
12. <u>Cancellaria cassidiformis</u> Sowerby, 1832	Nutmeg Shell	Gulf of Calif. to Peru	653	
13. <u>Stenoplax conspicua</u> (Dall, 1879)	Conspicuous Chiton	Santa Barbara, CA., to Gulf of Calif.	397	871
<u>CLASS PELECYPODA</u>				
1. <u>Barbatia gradata</u> (Broderip & Sowerby, 1829)	Ark Shell	Baja Calif. to Peru	422	40
2. <u>Brachidontes semilaevis</u> (Menke, 1849)	Mussel Shell	N. Gulf of Calif. to Peru		61
3. <u>Lithophaga attenuata</u> rogersi Berry, 1957	Date Mussel	S. Calif. thru Gulf to south Mexico	434	68
4. <u>Pinnia rugosa</u> Sowerby, 1835	Pen Shell	S. Baja thru Gulf to Panama	438	75
5. <u>Pteria sterna</u> (Gould, 1851)	Western Wing Shell	Baja thru Gulf of Calif. to Panama	440	77
6. <u>Isognomon recognitus</u> (Mabille, 1895)	Western Tree Oyster	Santa Barbara to Magdalena Bay, Baja	441	79
7. <u>Ostrea conchaphila</u> Carpenter, 1857	Shell-Loving Oyster	Baja Calif. to Panama	456	82
8. <u>Ostrea columbiensis</u> Hanley, 1846	Columbian Oyster	Baja Calif. to Peru	457	82
9. <u>Chama arcana</u> Bernard, 1976	Jewel Box Shell	Calif. to Baja (name from McLean)		
10. <u>Cardita affinis</u> Sowerby, 1833	Cardita	Gulf of Calif. to Peru	476	107
11. <u>Americardia biangulata</u> (Broderip & Sowerby, 1829)	Western Strawberry	Southern Calif. to Ecuador	484	157
12. <u>Papyridaea aspersa</u> (Sowerby, 1833)	Cockle	Baja Calif. to Peru		155
13. <u>Chione quidea</u> (Broderip & Sowerby, 1857)	Paper Cockle	Paper Cockle		188
		Frilled Venus		



Fig. 1 *Ocenebra erinaceoides* (Valenciennes, 1832) was collected among the grass and sand flats at San Ignacio Lagoon. This one was depositing egg capsules inside an old cockle shell. The capsules were tulip shaped with a "tit" inserted in each top seam of the capsule. These capsules were maturing as they were purplish, the usual indication of reaching hatching stage.

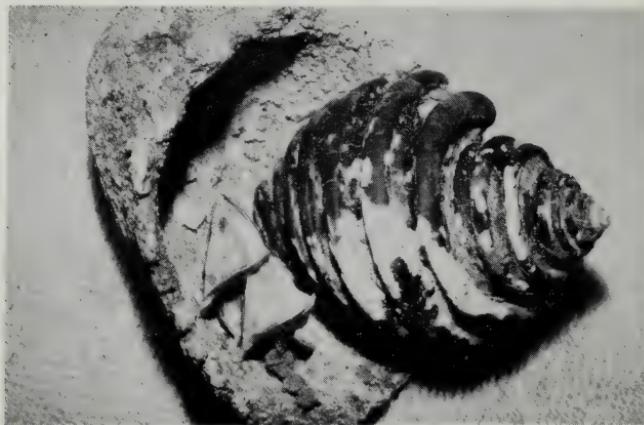


Fig. 2 *Macromesistius aethiops* (Reeve, 1847) was found alive quite commonly in the grass and sand flats at San Ignacio Lagoon, specimens ranging up to 3 inches. The species was discovered depositing eggs in an old shell. The triangular egg cases had a pleat across the top and sides and were laid individually.

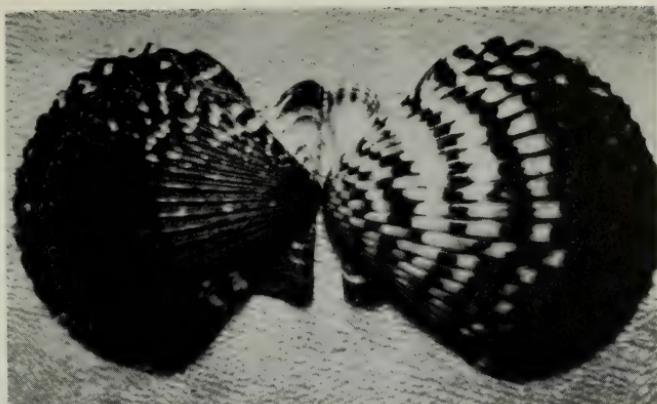


Fig. 3 Argopecten aequisulcatus (Carpenter, 1864) (or perhaps a subspecies or maybe even just a color form of Argopecten circularis (Sowerby, 1835)) was found alive in the grasses and sand bars exposed at minus tide at San Ignacio Lagoon. These pectens were extremely dark sometimes, yet some small individuals were bright orange or light gray.



Fig. 4 Sanguinolaria nuttalli (Conrad, 1837) covered the sand beach at one place we went to at San Ignacio Lagoon. The Mahogany Clam weathers out to lovely shades of pink and purple, and valves were everywhere.

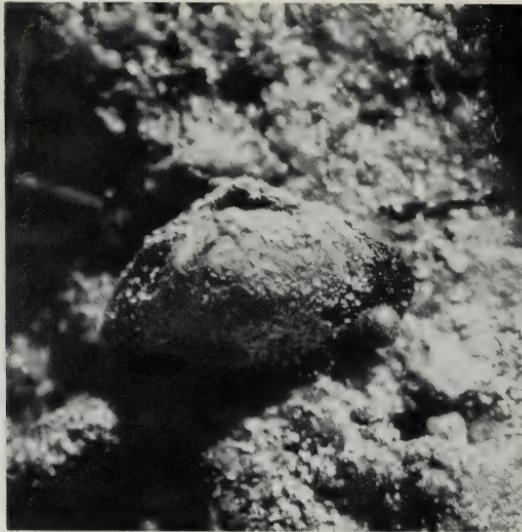


Fig. 5 Barbatia reeveana (Orbigny, 1846) was discovered live attached under rocks by a byssus in crevices at one beach at San Ignacio Lagoon.

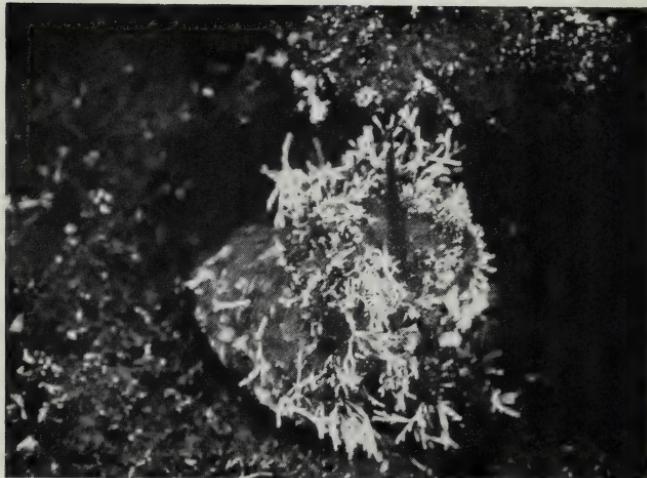


Fig. 6 Astraea undosa (Wood, 1828) was so camouflaged with algal growths that some collectors had a hard time finding them under rocks and ledges at one beach at San Ignacio Lagoon. Some were over five inches in width.

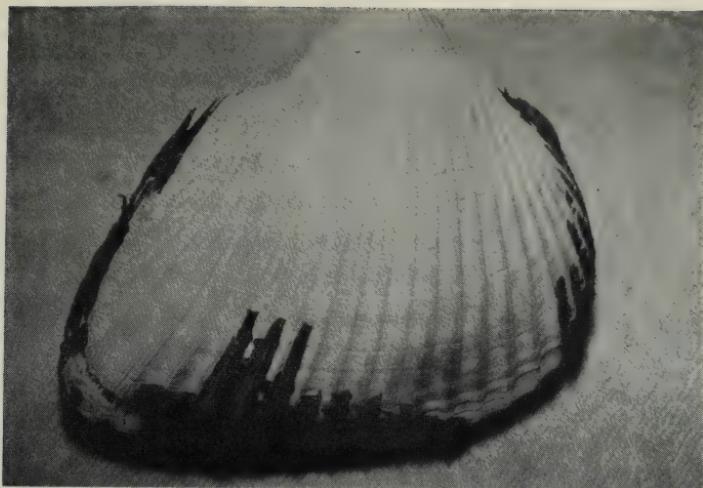


Fig. 7 Anadara grandis (Broderip & Sowerby, 1829) collected in the sand at San Ignacio Lagoon measured five inches and weighed over a pound.



Fig. 8 Sacks of abalone shells await shipment at San Benitos Islands. Three species seemed to be collected by the fisherman of the settlement. Labels on sacks said the shells were going to the port of New Orleans. Some dealers in Texas say they are having a hard time getting the shells - that most of them are actually going on to Japan..



Fig. 9 Several mamas are exchanging the gossip of the day as they sun their black furred babies. Watching the elephant seals in a cove at San Benitos Island afforded some pleasant hours.



Fig. 10 The seas got dead calm and some participants could stand and photograph the gray whales at San Ignacio Lagoon while one could reach over and pet the whale at the edge of the boat.

Photos by Constance Boone

NON-MARINE GASTROPOD FAUNA FROM AN EARLY HOLOCENE
MAMMOTH-BISON SITE IN THE LLANO MESTENO OF SOUTH TEXAS

Raymond W. Neck
Texas Parks and Wildlife Department
4200 Smith School
Austin, Texas 78744

This report provides identification and interpretation of snail samples recovered from preliminary investigations of two archeological sites from the early Holocene of southern Texas.

South Texas has apparently undergone a progressive period of dessication since the last glacial maximum (Price and Gunter 1942; Lundelius 1972). During the latest pluvial period of the Wisconsin, the Palo Blanco River was a substantial water course draining a large area between the Rio Grande and Nueces River. By early Holocene times, however, less abundant moisture resulted in the eventual dominance of aeolian processes. The result was a large erg ("sea" of sand) with little drainage. This area is known as the Llano Mesteno. Limited ecological work has been performed in this area but the biological history of this area (indeed all of southern Texas; see Bryant and Riskind 1980) is all but unknown.

Excavations in this sand sheet have revealed a rich faunal deposit with associated archeological materials (Suhm 1978). The sites are located on La Paloma Ranch, Kenedy Co., approximately 35 kilometers south/southwest of Kingsville. Megafaunal remains include mammoth, bison, horse, mastodon, deer, glyptodon and ground sloth. Microfaunal remains include snails, fish, amphibians and reptiles. Radiocarbon dating on various bone and tooth material recovered from the site yielded dates from 8080 to 9830 B.P. (Early Holocene). This time period is slightly later than most other Late Pleistocene megafaunal sites (Martin 1967).

Limited numbers of snails were recovered as these samples had been screened with quarter-inch screen (use of smaller mesh screens is more time-consuming but preferable because it provides much additional information; see Neck 1980). Snails recovered from two sites designated as 41KN17 and 41KN18 are identified in table 1. The snail fauna of the two sites are nearly mutually exclusive with regards to species occurrence. 41KN17 is located in the intermittent drainage system of the Palo Blanco and is characterized at present by wetland grasses. All snails found at 41KN17 are aquatic except for two stream-deposited specimens of Rabdotus alternatus. 41KN18 is an elevated remnant knoll with heavy grass cover and scattered mesquite; all snails from 41KN18 are terrestrial species. The difference in snail fauna between the two sites indicates that present-day topographic relationships have existed for quite some time.

Fossil snails recovered from the La Paloma Mammoth Site indicate the presence of slow-moving streams or ponds. All species recovered are now present in areas of southern Texas to the north and south of the La Paloma Site. Few suitable sites for aquatic molluscs exist today in the Llano Mesteno except for anthropogenic stock ponds.

Table 1. Annotated List of Snails

Aquatic Species

Helisoma trivolvis (Say). This moderate-sized, discoidal snail is found in waters of varying depth, current and quality.

Physa virgata Gould. This sinistral coiled snail also occurs in waters of various characteristics but is probably less tolerant of extreme environmental conditions than the previous species.

Biomphalaria obstructa (Morelet). This highly-flattened discoidal species is most commonly found in ponds or streams with reduced water currents. It seems to require higher quality water than the previous two species.

Terrestrial Species

Praticolella berlandieriana (Moricand). This species normally inhabits mesic micro-habitats in open, oftentimes xeric, environments. The globose nature of the shells indicates that introgression with Praticolella pachyloma (Menke) during the past may have provided the extra drought resistance required for sandy environments.

Rabdotus alternatus (Say). This species is locally abundant in colonies on arborescent plants. Present-day localized habitats near 41KN18 are probably of marginal quality for this species. The two specimens from 41KN17 are water-transported as demonstrated by shell pitting and wear. The shells are filled with slightly indurated sand.

Presence of these aquatic snails is not an indication of permanent water. All three of the above freshwater snails are adapted to avian phoresy, i.e. transport of living eggs and/or snails in mud attached to the feet of waterfowl. Lack of snail species restricted to permanent waters and pelecypod fragments indicate the lack of permanent high-quality water under natural conditions. The report of crab ossicles (Chaney in Suhm 1978) in various sediments also indicates presence of stagnant, probably somewhat brackish, water.

One interesting aspect of the La Paloma Ranch Site is the co-occurrence of extinct vertebrates with contemporary non-marine molluscs. Explanation of such a faunal mix probably involves the impact of increased dessication which occurred following the last Wisconsin glacial maximum. Alterations in niche parameters have occurred in time and space (Guilday 1967). Such alterations are more significant for wide-ranging large species (macro fauna) because they are unable to escape in time or space. Smaller species which are able to survive in restricted, isolated favorable areas are less susceptible to extinction, because micro-faunal species are more adapted to maintain populations in restricted relictual areas. Lack of additional molluscan species in southern Texas during the Wisconsin pluvial may have been due to absence of suitable dispersal corridors. Although Hubricht (1962) reported a number of boreal species from the Pleistocene of southern Texas, these snails may have been early Wisconsin or earlier in age.

Further investigation of this site is highly desirable. Additional samples would not only allow more detailed environmental reconstruction of the immediate vicinity of 41KN17 and 41KN18, but could also provide valuable data concerning the evolution of present-day land snail communities of southern Texas.

Table 2. Non-marine snails of 41KN17 and 41KN18.

Site

41KN17

	B.o.	H.t.	P.v.	R.a.	P.b.	Total
Trench #1, 2.5m., lot #2				2		2
Trench #1, 1.lm., lot #2		1				1
Trench #3, back dirt, lot #47		1				1
Test pit #1, level 3, lot #45		2				2
N209 E102, level 5, lot 76-3	1		1			2
N211 E102, surface, lot #96		1				1
N211 E102, S-1, lot #97-1		3				3
N211 E102, S-2, lot #99-1		23				23
N211 E102, S-9, lot #107-2	1	1				2

41KN18

Trench A(10-11), level 1, lot #7				1		1
Trench B(8-9), strat. A, lot #33			1*			1
Trench B(24-25), strat. A, lot #39				1		1
Test pit #1, level 2, lot #35			1			1
Total	2	32	1	4	2	41

* fragments representing other individuals also present

B.o. = Biomphalaria obstructa (Morelet)H.t. = Helisoma trivolvis (Say)P.v. = Physa virgata GouldR.a. = Rabdotus alternatus (Say)P.b. = Praticolella berlandieriana (Moricand)

Literature Cited

Bryant, V.M., Jr. and D.H. Riskind. 1980. The paleoenvironmental record for northeastern Mexico: A review of the pollen evidence. Pp. 7-31 in Papers on the prehistory of northeastern Mexico and adjacent Texas (ed. J.F. Epstein, T.R. Hester and C. Graves). Center Arch. Res. U. Tex. San Antonio Spec. Rpt. 9:

Guilday, J.E. 1967. Differential extinction during Late Pleistocene and Recent times. Pp. 121-140 in Pleistocene extinctions (P.S. Martin and H.E. Wright, Jr., ed.), Yale U. Press, New Haven, Conn., 453 pp.

Hubricht, L. 1962. Land snails from the Pleistocene of southern Texas. Sterkiana 7:1-3.

Lundelius, E.L., Jr. 1972. Fossil vertebrates from the Late Pleistocene Ingleside Fauna, San Patricio County, Texas. Bur. Econ. Geol. U. Tex. Austin Rpt. Invest. 77:74 pp.

Martin, P.S. 1967. Prehistoric overkill. Pp. 75-120 in Pleistocene extinctions (P.S. Martin and H.E. Wright, Jr., ed.), Yale U. Press, New Haven, Conn., 453 pp.

Neck, R.W. 1980. Gastropods of the McKinney Homestead (41TV289), McKinney Falls State Park, Travis County, Texas. Bull. Tex. Archeol. Soc. 51:136-139.

Price W.A. and G. Gunter. 1942. Certain recent geological and biological changes in south Texas, with consideration of probable causes. Trans. Tex. Acad. Sci. 26:138-156.

Suhm, R.W. 1978. Preliminary investigation of the La Paloma Mammoth Site (Late Pleistocene), Kenedy County, Texas. TAIUS 11:13-36.

PLEA FROM THE EDITOR

The Texas Conchologist continues to offer both scientific papers and informal discussions of shelling trips, as well as excerpts from other journals, etc. We continually solicit good material for publication. We like to have reports on shelling on Texas beaches and ask you to call in information if you feel you don't have enough to report in a paper. Search and Seizure is developed to make reports and will continue to do this. Short articles are especially helpful when you are trying to make TC look rounded and full!!!!

You note in this issue that Dr. Helmer Odé's monograph on bivalves is no longer in evidence. It was completed in the last issue. We look forward to beginning his monograph on the gastropods of the Northwest Gulf Mollusk Population Survey soon. Our member, Ruby McConnell, is working on an index of the monograph on bivalves which we hope to publish sometime this year.

We will entertain ideas for new columns, even exchange of shell notes prepared by an editor, if you are interested. Please call me if you can offer to help with a new idea for TC.

Because we never did get a volunteer typist from the membership we are having to employ a typist to prepare our issues. This adds to the overall cost of TC. Postage continues to climb, and printing costs are higher. Our costs are being paid by our money-making event each year. If you have any ideas to help in maintaining a balanced budget, please let us know. Circulation chairman Grytch Williams has asked me if we should consider having ads. Our small format seems to limit what kinds of ads we could print, it seems to me, but we might consider line ads if anyone is interested in this and will help to solicit and work on copy. The members' viewpoints on this would be appreciated.

Constance E. Boone

NEW OFFICERS ARE ANNOUNCED

Check the list of officers on the back cover as elected for 1981-1982. If anyone can offer to help with special projects during the year, please do not hesitate to call the president or any officer controlling the business you feel you can help with during the coming year.

Several members have called recently to ask advice about vacation areas of the world that could provide good shell collecting, and some others have asked about shell tours and leaders.

My advice has been generally to travel to the Caribbean and the Florida Keys in the summer (these areas have been the ones most asked about), to suggest going to the Gulf of California (West Mexico or Baja California) in the winter when seas are calmer and tides are lower (there are still many colorful shells there), to check tide books for the Pacific and other seas of the world to choose best times to go collecting. Collectors often choose to go to Australia and Pacific areas in the spring and summer months. We went to West Africa in February for low tides and more pleasant weather although the water was too cold for snorkeling. Cold water and low tides go together in many places. We had low tides in the Philippines in April but the water then was warm enough for snorkeling - the heat was high for on-shore events.

This column at this time is not meant to answer all questions on places to go. We do have many members in the club who travel. Just get up at a club meeting and ask for advice on an area you are contemplating traveling to. Someone is sure to offer suggestions to help you out with your planning.

It is quite true that some of us seek out "shell tours" to go to strange places because it makes the planning easier and it saves a lot of research if you are going with a sheller who has been to the area before you go. Some shell tour leaders check out trips before taking customers. Some do not. Ask enough questions to satisfy yourself about the knowledge the leader has about the area in question. Find out if he or she is a dealer and attempt to determine if he or she is more interested in buying shells than shelling activities. I prefer a leader who is a good sheller, someone who is eager to find shells with you and who is interested in all kinds of shelling. Find out if shelling will consist of snorkeling, beach walking, or both, and if you are a diver you will have to know if you will be able to pursue your interest.

There have been some very bad shelling trips in the history of such tours. It is no fun to get to a far away foreign land and find the leader hasn't paid for anything and sometimes didn't even show up to meet you. This has happened.

It is no fun to get to a really isolated island or country that doesn't care for Americans and then learn you don't have correct Visas. There was a warning in a travel column recently stating you should NEVER go to an African country without Visas. I have done this, at the insistence of the tour leader that it would be all right, but it is certainly not wise. It does seem that you can be told in this country by embassies that you don't need to get Visas here but can get them in the countries you go to at the time you enter the country. Last year Barbara Hudson and I were part of a tour to East Africa. We got stuck in Mauritius for a week longer than planned due to the lack of Visas for Madagascar and we were not able to negotiate with that country's government officials to secure Visas. Our stay had been paid at Madagascar but we were left to pay our way the rest of the time at Mauritius and even beyond that because of the change in plans forced on us.

The tour leader did not offer to pay or get the money from the travel agency which caused the problem for us. We got some refund later but that didn't help our pocketbooks and spirits at the time. To go that far and not get to the main part of the trip was a terrible disappointment. One cannot go on such trips without expecting to have emergency payments of some sort and you must go prepared for such events. There may be "acts of nature or God" that alter your plans - Barbara and I have been in the Pacific at Palau when part of the mountain road to the hotel collapsed and took with it the main water line!!

Shelling tours often seem to be shoestring operations. They are expensive and may be cancelled at the last minute if enough people do not pay that final trip cost. I have friends who had sent in their full fares to go to India and didn't find out the trip was cancelled until they "happened" to call the travel agent to ask a question just a week or so before "leaving".

Because shellers travel to out of the way places, the sheller has to expect some discomforts, unusual transportation or accommodations and sometimes scarce or poor food. You can expect conditions to be less than American standards. It is all part of the adventure. You can pick up "bugs" that defy the antibiotics you brought with you. You hope that you don't break a limb because there may not be a hospital, plane out to civilization, etc.

The tour leader you choose can be good, helpful, and generous with his advice and knowledge or be very poor and even a crook. There is no guarantee, so check with members who have traveled with the one you are considering. His or her present state of business stability, health, and friendliness and welcome to the country you plan to travel to are all very important. Some leaders have been known to start out their tour history with a bang with exceptionally fine trips but then they begin to provide less as they lose money or get too greedy in their purchases of shells for their business.

Five us of from this area went to the Philippines in April with someone we cannot recommend - for varied reasons. We did not know enough about the leader before we went. The trip sounded good, the brochure was alluring, the price was right. We had dreams of seeing fabulous shells at Punta Engano. We are still stunned to realize we never saw Punta Engano because the leader changed plans on us for his own purposes.

When I am asked where to find out about trips I usually mention checking ads in Sea and Shore and Hawaiian Shell News. Go beyond that and contact several former customers of tours you are interested in. Diving magazines also have tours advertised, but you must determine if diving tours take beach walkers or snorkelers and make provisions for them. I have friends who sat in boats on the reef while divers did their thing. They were shallow water snorkelers, and no one wanted to cater to their desires and needs. Also, many of the diving trips prohibit all shell collecting. You also must be sure that any trip you consider will take you to a place where shelling is permitted at all. Some tour leaders don't know that or don't have the current information concerning collecting. Permits may be necessary; there may be limits on where and what you collect and on what you can take out of the country.

You do some leg work. (P.S. I am ready to go again!!)

In the following note I will discuss a project that has occupied me for the last two years and still will require at least another year to finish, namely the compilation of a catalogue of the Pyramidellidae. While preparing an overview of the Gulf of Mexico members of this family I never could discover the valid names for some of these shells and kept discovering homonyms, synonyms, etc. In short I discovered what many must have known without requiring proof: That the affairs of this family are in a chaotic state. Unfortunately, at the same time the family is large and thus the mess is quite extensive. For that reason alone, no list however carefully prepared can ever pretend to be complete or to be without defects.

That such a list might be useful can be shown by the many synonyms, preoccupations, and spelling errors discovered. In general it is useful to have all information concerning a group of shells together with all proper references. However the most beneficial aspect of such a compilation is that it allows one to overview the field and point out where most of the scientific exploration work needs to be done. In the Pyramidellidae definitely a need exists to understand generic rather than specific distinction. In the second place the present very unequal global distribution of the family may be due to the very unequal intensity of sampling. Lastly one may ask when, where and from what did Pyramidellidae originate?

In what follows I will not touch upon the solution of these or any related problems, but will discuss some experiences I had during the course of the work and relate some interesting anecdotal information.

After long and arduous work I must confess that the subject matter is still quite unclear to me, and that therefore I have no idea what is precisely tabulated in the catalogue. Pyramidellidae have often the appearance to be related to other groups (Acteonidae, Fossilidae, Rissoidae, Aclididae, etc.) so that in many instances one is forced to make rather arbitrary choices about what to include or to exclude from the list. The difficulties are compounded by the fact that in the past the usage of what to call "Pyramidellids" has changed.

Many of the early authors have described forms under quite different generic designations such as Turbo, Trochus, Turritella, Helix, Melania and Pasithea, and it is unavoidable to miss a number of these in the list. Lamarck very early included some of these shells in a group he designated as "Plicacea" which also includes Acteon. A further serious difficulty arises through the unfortunate change of opinion of Orbigny who widened the concept of his genus Chemnitzia so as to include in it much larger Mesozoic gastropods belonging mostly in a now extinct group. No special effort was made to retrieve all those labels which must number at least several hundred from the literature. Similar difficulties arise concerning the meaning of the genus "Obeliscus". Finally it is mentioned that it is quite difficult to judge what constitutes the content of the genera Melania and Pasithea, which in the early 19th century were "catchalls" for small and slender gastropods. Auriculina quite often was used for forms now referred to as Odostomia.

It appears that there is at the present time more or less general acceptance that the Pyramidellids arose some time in the Cretaceous. However, some authors report similar forms classified as Pyramidellids from much older formations (Carboniferous, Permian, etc.). We have omitted those and included only those forms which appear to be clearly related to the present stock of the family. Cretaceous species are rather few but an extremely varied and interesting group of species which lived in the Eocene species from such widely removed places as the Basin of Paris, Alabama and the Island of Java are quite close. The faunas are in many respects very similar. Then apparently the number of species decreased in the Oligocene although this may be an artifact of poor sampling. It was only in the Miocene that forms arose closely related to the present day Pyramidellids.

Practically all information in this catalogue is based on references from the literature. Anyone who has been engaged in that type of work will know the feeling of frustration that can develop when dealing with poor references. Even with the best possible library facilities available it would have been a major undertaking to check and evaluate the most important part of Pyramidellid literature. How much worse is the task when available libraries are poorly supplied with the necessary works and journals are not seldom incomplete and often not present at all. But perhaps worst is the poor and inconsistent manner in which many authors refer to their sources by abbreviating titles, often to a single word, repeating errors, omitting publication dates or serial dates, volume number, pages, plates, etc. Even with the pertinent references in hand it is not always possible to establish the valid taxonomic date. Thus probably in more than one instance the date given in the catalogue will be in error. The frustrations of this type of research can be exemplified by finding the name of Lamarck catalogued under M (de la Marck) in one library visited!

It is impossible to report all findings in extenso. We will restrict ourselves to give ranges, type information and some significant citations from the literature. One of the aims of the list is to make it unnecessary for others to waste their time in doing this type of search. It is unfortunately not possible to inspect all references cited. Although no author should ever quote anything he has not personally inspected - how many unnecessary errors would have been avoided if this advice were strictly adhered to - I do quote a large number of papers I did not see, but attach the note "non vidi" in order to warn the reader.

In the past authors have freely introduced names for "varieties". Many of those cannot be accorded any taxonomic validity and must be considered merely as labels for a number of forms under which authors believe a species may occur. Only in a rare number of cases have subspecies designations been introduced as such. In the list under preparation I have included most of these so-called varieties under the species the author referred them to. One notices then that some species contain a great many of such "varieties".

For any taxon I have tried to give the type information. In many cases these data are unavailable and only in this century it has been customary to present this information.

The list under preparation will be presented alphabetically according to the trivial names. Almost all conceivable types of trivial names have been employed in the Pyramidellids varying from the euphonious to the terrible, from the correct latinisation to the absurd. About a century ago names would be altered because they were considered to be not "correct" Latin and some authors expressed indignation at names they considered to be incorrectly formed. It is best not to heed this irritation and to ignore the proposed changes because in general it will be quite difficult to set up a standard for correct Latin. Some constructions are indeed inadmissible from a linguistic point of view but I will not advise to change them. For instance "ovumformis", dreamt up by Nomura for a Japanese shell is definitely a "barbarism". However, because there also exists an oviformis - the correct construction - the problem arises whether one preoccupies the other.

What to think about "coalgillensis", a name attached for a Cretaceous pyramidellid from Utah? The name Coalville for a small mining community may not be particularly elegant, its latinisation is to my ears somewhat painful. Nevertheless the name, as it stands, is correct. Not only trivial names were changed for linguistic reasons. Jeffreys preferred for some time Odontostomia to Odostomia; the former is undoubtably to be preferred, but the latter was originally coined. That is was also used incorrectly for some pupoid landsnails is no reason to replace it by a linguistically more correct term. Especially some French authors use Odontostomia, although one worker there, to avoid the controversy, introduced the entirely new name of Ptychostomon. Finally another author objected to the "i" in stomia and wrote Odontostoma for the genus. The "science" of taxonomy deals with the rules and regulations to decide what to choose here.

Large numbers of preoccupied names resulted from the widespread early use of such adjectives as elegans, sulcata, gracilis, elongata, suturalis, etc. It is upsetting to me that even fairly recently authors have attempted to name Pyramidellids using these trivial names.

Most authors develop their own style in naming species. Dall and Bartsch choose in general rather short and on the whole euphonious names, usually Latinlike; Sacco went for composite, correctly constructed Latin names - which are among the longest given; Watson and Melvill had an inclination for trivial names derived from the Greek, and Nomura introduced many latinisations, mostly Japanese geographical names. The shortest name is "io"; a very long one is "prostriatulolanceae pseudoanisocycloides" Sacco and another is "pseudocostellatooides" Peyrot.

In a few cases I discovered that the spelling of a name as usually presented is incorrect. For instance the species from the West Coast of America: Odostomia kraussei Clessin should be spelled with double s (kraussei) and not with a single s as is usual (see Abbott, 1974) and as reference to the original publication will establish.

Many species have only been reported once or twice, and especially for those species it is instructive to investigate how numerous the material is upon which the species is based. I was dismayed to find that literally hundreds of species are based upon a single specimen. Almost all such "species" are highly suspect.

The most obvious discovery made in compiling the catalogue is the existence of numerous synonyms. Such well known species as Turbonilla lactea, Turbonilla interrupta, Odostomia plicata, Odostomia conoidea have whole lists of them, all coined over many years by various authors. Particularly notorious in this respect is a publication by Bartsch in which various species appear, each under ten to twenty different designations. Such "species mongering" is not uncommon, especially with Bartsch, although it is seldom that extreme. In this 1955 publication several hundred new names were introduced, but in all probability most are merely synonyms of well established species and only a few may represent new species.

Bartsch's example was unfortunately followed by many later workers, with the result that any handful of beachdrift from Ecuador, Columbia, Panama, Costa Rica, and many other places yielded innumerable new species. Thus Corgan could maintain in his thesis of 1967 that the Pyramidellids were abnormal in the sense that they produced highly localized and short lived species. He completely disregarded the opinion of previous workers as Jeffreys and Dall, who believed that some Miocene species still were part of the recent fauna and who did not object to identical species in the Northwest (America) and Northeast Atlantic Ocean (Europe).

Of course one discovers in the course of this type of work a number of preoccupied names, even of species that serve as type of a "subgenus". For instance striaturbonilla alpina Sacco 1892 is preoccupied by an earlier Turbonilla alpina Winkler 1861 from Germany. It would have been easy enough to introduce for any such case discovered a new label, as unfortunately is the fashion. I have refrained from doing so because I consider it unwise to correct names without even knowing the most basic facts about the objects to be named. Moreover hasty corrections produce additional synonymy. As an example the case may be cited where two different authors noted the same case of preoccupation and each created a new label, which regrettably in each case, is preoccupied! In this manner huge, completely valueless, lists of names are created in a group that is already saddled with unnecessary synonymy.

Another instance of the judicious naming of species is provided by Turton. This collector brought together a fine collection of molluscs around Port Alfred in South Africa and some of his material was worked up by E.A. Smith of the British Museum. Some time later (1915), Bartsch wrote a monographic paper about the collection in which he named many new Pyramidellidae. Turton wanted to present his collection to the British Museum but attached a string to his gift by insisting that it be exhibited in a special display. For that reason the collection was not accepted. This so infuriated Turton, who was already aggrieved by the fact that Smith and Bartsch had not named all his material, that he wrote his own book. In this study, later described as "unfortunate and regrettable", he introduced another 40 labels for Pyramidellids, most of which are preoccupied. When this was pointed out to him, Turton rather naively stated that he thought that all known taxa pertaining to recent shells were enumerated in the Paetel list.

This Paetel list is a rather famous list of a large and extensive shell collection, collected by a Mr. Paetel in Germany. As so many lists of the previous century, it is merely the catalogue of a collection and was printed in book form. Unfortunately it contains many inaccuracies, mystifications, mixups, and other errors so that it should be used only with the greatest restraint. One of these errors is interesting to the Texas shell collector and can be spotted only if one is familiar with the map of Texas. Among the species Chemnitzia listed is Chemnitzia indianola Stm. with the notation "Texas". Here Indianola, a location on the Texas coast, got promoted to trivial name!

Already in the previous century authors were forced to adopt strategies to avoid creating synonyms. A very old, but no longer effective, one is the use of patronymics, that is the use of names such as dalli, jeffreysi, bartschi, etc. Others have systematically given names of girls, such as anna, mariae, juliae. None of these strategies is any guarantee, because I have discovered several cases of preoccupation among labels created in this fashion.

Considerable confusion in Pyramidellid nomenclature was created by the simple expedient of Jeffreys to classify most of them under the single designation "Odostomia". In Jeffrey's opinion there was no rational basis by which Turbonilla could be differentiated from Odostomia because intermediate forms can always be found. He objected strongly to the many genera introduced by others, for example, those of H. and A. Adams, some of whose names now are in general use. Similarly in Orbigny's Prodrome only three generic designations are used: Turbonilla, Pyramidella, and Chemnitzia, and it should be understood that Chemnitzia used in the sense often used by Orbigny includes completely unrelated gastropods. Later Dall and Bartsch used as few genera and relegated most other designations to the status of subgenus. This practice resulted unfortunately in a considerable number of preoccupations and thus in new labels. Some of those may prove to have been introduced unnecessarily if it decided that the original generic designation of these species will be considered valid.

Schemes to classify the Pyramidellids into related groupings have been proposed by several authors. All use the character of the shell exclusively. One of such characters concerns the number of plicae, the so-called "teeth" on the columella and some grooves on the inner side of the outer lip. Although Jickeli as long ago as 1871 pointed out the variability of such characters with age of the shells for Pyramidellids he collected in the Red Sea, the custom to use these characters has persisted until recently. Laseron even erected the genus Urambella on such tenuous grounds, a genus that as can be expected falls into synonymy with the well known genus Pyramidella. (See Cernohorsky, 1972) Surprisingly enough no systematic study of the heterostrophic protoconch so far has been made in the family, but some interesting observations on West European species from France have recently been published.

In the use of generic or subgeneric designations regional habits play an important role. For instance at present the designation "Chrysallida" is used for some European shells which appear to have little in common with the type material of that genus (West Coast of North America). I do not believe that many of the authors employing Chrysallida for European material have taken the trouble to verify its use by comparison with authentic Chrysallida material. On the other hand it is probable that North American workers are still prejudiced by the use of generic designations selected by Dall and Bartsch about three quarters of a century ago!

So far we have seen that the finding in Pyramidellid taxonomy is definitely to over speciation. Even today new species are described at a rapid rate without regard to biology but only based on external shell shape. About 20 years ago Laseron created another 130 labels for Australian species and even for the recent fauna of Western Europe new discoveries are claimed (Nordsieck). In my opinion it is doubtful that the majority of these new species will survive a critical comparison with already described species. Of the well over 5,000

taxa so far tabulated by me I suspect that hardly 1250 represent good species. Thus about 75% of all names proposed so far are merely labels that flutter in the winds of taxonomic confusion. In his thesis Corgan estimated the total number of taxa at about 8,000 but that appears to be a considerable over estimate. However it is quite possible that, because large areas of the world have been poorly sampled such as South American and Indonesia, still a fairly large number of recent species will be discovered. I would be surprised if that total number of recent and Tertiary species would ultimately exceed 2,500.

A close look at the list of taxa reveals immediately the fact that a relatively small number of authors has described most of the species known so far. Far ahead on the list is Bartsch who described well over 600 species, although half of these were done in coauthorship with Dall. But in the monograph that carries both their names it is stated that the "junior author" did most of the taxonomic work. The next prolific author is Nomura who added well over 300 labels to the recent and fossil Japanese fauna. Unfortunately many of the 280 labels created by A. Adams, mostly for Japanese and Chinese Pyramidellids, pertain to species so poorly and so briefly described that they are, unless either figured or present in Museum collections and derived from authentic material collected by Adams, quite unrecognizable. Thus many of these species are mostly ignored by modern workers.

Sacco created for the Italian Tertiary innumerable new species and varieties, many of which undoubtedly will fall into synonymy. Laws (recent and fossil fauna of New Zealand), Saurin (recent fauna Viet Nam), Thiele (recent fauna, worldwide) and Melvill (recent fauna Gulf of Persia) each have added well over one hundred new species labels and together the above mentioned authors account for well over 2,000 taxa. If we add the names of de Folin, Carpenter, Boettger, Hertlein and Strong, Cossmann, Deshayes and Yokoyama to the list most than half of all Pyramidellids are accounted for. All in all there are probably about 470 authors who have named at least one Pyramidellid. Together these zoologists and paleontologists have written an enormous library of several thousand papers and books in many languages, including Latin, Japanese, Bulgarian, Dutch, Hungarian, Swedish, Polish, Portugese, etc. The nation making the most numerous contribution to the number of taxas is the United States of America, followed by Great Britain, France, Japan, Germany and Italy.

In conclusion I may state the following aspects about this family which have struck me so far most forcibly:

- 1) Necessary are biological studies of soft parts to establish relationships within the Pyramidellids and possible relationship with Acteonidae, Fossilidae, Aclididae, etc.
- 2) Renaming of species in cases of presumed preoccupation is meaningless as long as the internal relationships within the "genera" Pyramidella, Odostomia or Turbanilla are unknown.
- 3) Efforts should be made to sample more effectively in those areas of the world where Pyramidellids appear to be rather scarce: f.i. South America, Indonesia. I suspect that this scarcity is only a sampling artifact.
- 4) Can faunal provinces be distinguished in the Tertiary on the basis of Pyramidellid material?

HOUSTON CONCHOLOGY SOCIETY, INC.

Officers 1981-1982

President	Lucy Clampit
Program Vice-President	Mary Ann Curtis
Field Trip Vice-President	Helen Cornellisson
Treasurer	Jim Sartor
Recording Secretary	Valerie Middaugh
Corresponding Secretary	Dianna Rudolph

Directors

Herschel S. Sands	Al Mohle	Charles Glover
Curtis Fleming	Fannie Miron	Betty Genusa
<u>Editor, Texas Conchologist</u>		Constance E. Boone
Immediate Past President		David B. Green

Honorary Life Members

Dr. T.E. Pulley	Dr. Helmer Ode'
-----------------	-----------------

