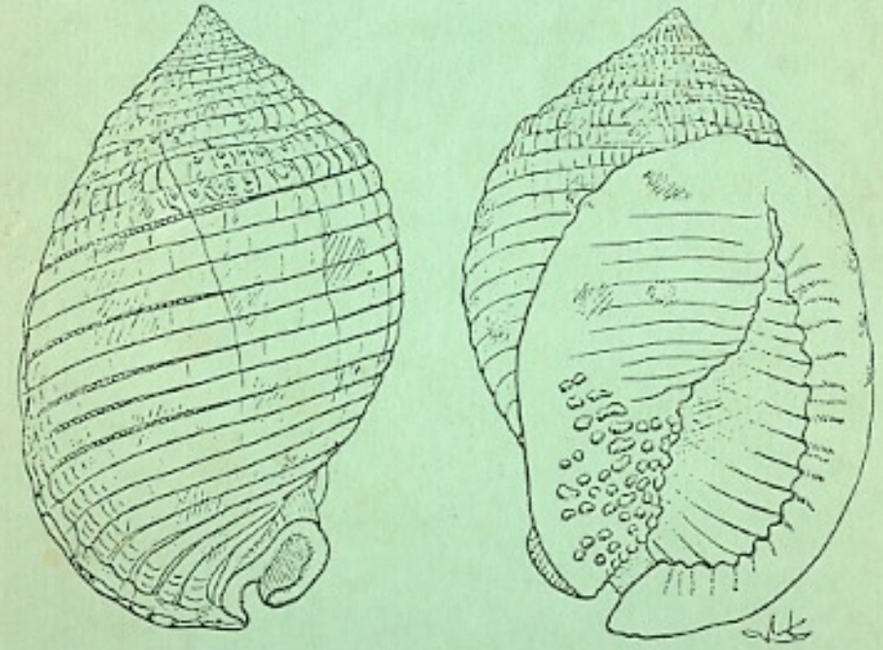
TABLE OF CONTENTS

Doug Wolfe

NORTH CAROLINA SHELL CLUB BULLETIN

1966

NO. 3



COVER:

Scotch Bonnet (Phalium granulatum Born)
official state shell for North Carolina.

Drawing by Mr. Jean Kane, Exhibits Designer,
N.C. State Museum of Natural History.

NORTH CAROLINA SHELL CLUB BULLETIN 1966, No. 3
Editor - Hugh J. Porter

1966 Shell Club Officers

President . . . . . Paul Jennewein
Vice-president . . . . . W. Gillies Brown
Secretary . . . . . Hugh J. Porter
Treasurer . . . . . Mrs. Elizabeth T. Mathews
Executive Committee member
at large . . . . . Harry T. Davis

PRESIDENT'S REPORT
Paul R. Jennewein

When the North Carolina Shell Club was established in 1957, little did the charter members imagine that it would have achieved as much as it has in almost nine years. But, the Shell Club has moved forward in the fields of science, education, and fellowship.

High point of the 1965 year was legislation establishing the Scotch Bonnet (Phalium granulatum, Born) as the State Shell. I'm sure the meeting of the American Malacological Union in August will climax 1966, especially since so many of us have put forth major efforts on the preparations for the annual meeting.

Let us also not forget the continuing project of the shell exhibit in memory of Mrs. Lula Upchurch at the North Carolina Museum of Natural History. We will probably become most recognized scientifically for this collection and we should make more of an effort in the coming months to work on it.

Largely because of its success in various endeavors, the club has grown in membership. More persons have enjoyed the lectures, field trips, talks and associations with other shell collectors than ever before. Those who have come to the meetings from curiosity have joined later to strengthen the club. The N.C. Shell Club has certainly shown that it is a vital, stimulating and enthusiastic organization that will develop in importance with the passage of time.

Let me say personally, too, that being president of the club has been a tremendous experience, as well as a lot of fun. I have made many friends whom I wouldn't have known otherwise, and have made contacts with many others. I have learned much—and not only about shells. In all, it has been stimulating and rewarding.

REPORT ON 1965 SHELL CLUB ACTIVITIES

Hugh J. Porter, Secretary N. C. Shell Club

The Chesterfield Inn of Myrtle Beach, S.C., was host for the spring meeting (March 19-20). Friday evening featured an illustrated talk on the Volutacea by Dr. John Ferguson. Carl Withrow, Wade Brown and Mrs. E. Mathews and others exhibited their Volute collections. The Saturday morning business session (42 persons present) heard progress reports on the Lula Upchurch Shell Collection and the State Shell Bill. Twelve new members were voted in at this time. An afternoon field trip to Litchfield Beach and Pawley's Island was made in spite of bad weather and poor collecting. During the evening session, Hugh Porter showed a series of molluscan slides presented to the State Museum by the club's first president, Rev. Scott Turner, and a series of slides of the mollusk fisheries in North Carolina waters.

The summer meeting (May 14-15) was held at the Atlantis Motel in Atlantic Beach, N. C. Friday evening at the informal get-together, time was spent displaying, trading, and/or selling shells and accepting donations of shells to the Upchurch Collection. Saturday morning, the shrimp trawler, "Miss Brenda", out of Beaufort, N. C., took 39 of the members on a pleasant field trip to Cape Lookout. During the afternoon business meeting, there was discussion on the final passage of the State Shell Bill and the Upchurch Collection. A request was heard for the club to join in the fight to preserve Baldhead Island (near Southport, N.C.) from commercial exploitation. Changes in the Club Constitution (see next article) were presented and enacted. The following persons were elected to Honorary Membership in the club: Mr. Odell Williamson, Mr. Moncie Daniels, Dr. R. J. Menzies, Dr. A. F. Chestnut, Mr. I. H. O'Hanlon, and Mr. Doyle Howard.

Possibly the most enjoyable and best attended meeting of the year was the fall meeting (Sept. 24-25) at the Carolinian Hotel in Nags Head, N. C. Friday night Dr. Ferguson discussed the Olividae family. Many shells were on display at this time. Saturday morning had unorganized collecting on the outer banks. The afternoon business meeting was concerned primarily with plans for the 1966 A.M.U. Convention which the club was going to host. Highlight of the day was a banquet Saturday evening in honor of Mr. Moncie Daniels, the state legislator most involved in the passage of the State Shell Bill.

The winter meeting on Dec. 4th was held at the State Museum of Natural History in Raleigh. Meetings consisted of an informal morning get-together, a mid-day luncheon at the Raleigh Women's Club and an afternoon general session. Major business at the latter session were reports on plans for the

A.M.U. Convention. It was announced that in gratification for work done on the State Shell Bill the club had presented silver-plated Scotch Bonnets to Mr. and Mrs. Muncie Daniels and to Mrs. Charlotte Johnson and gold-plated ones to Mr. Mike O'Hanlon and Mr. Joe Branch. The following were elected as the 1966 Shell Club officers: President, Paul Jennewein; Vice-president, W. Gillies Brown; Secretary, Hugh J. Porter; Treasurer, Elizabeth Mathews; Member-at-large, Harry Davis. Afternoon program consisted of a talk prepared by Dr. John Ferguson and Dr. Jack Upchurch entitled "Shells and Their Shell Structure". A movie on North Carolina's coastal fishing industry entitled "Big Fish - Little Fish" was shown.

CHANGES TO THE N.C. SHELL CLUB CONSTITUTION AS MADE IN 1965

(Copy of Constitution on page 15, Bulletin No. 2)

1.) The following shall be added to the end of paragraph two: "Honorary Memberships may be granted by a majority vote of the members present at a meeting following recommendation by the Executive Committee. Honorary members will not be eligible to hold an elected Shell Club office, vote, or be required to pay dues."

2.) Third paragraph which partially reads: "The following officers shall be elected annually, by ballot on the first meeting of the year." shall be changed to read ". . .by ballot on the last meeting of the year. . ."

3.) Fourth paragraph which partially reads "An executive committee shall consist of the above officers, the retiring president, . . . " shall be changed to read ". . . above officers, all past presidents, . . ."

SHELL WANT-ADS RECEIVED BY THE CLUB SECRETARY

Hinton, Mr. A. G., Division of Fisheries, D.A.S.F., Konedobu, Port Moresby, Papua. Wishes to exchange live collected shells (with data).

Reichard, Carlos F., Box 445, Aguadilla, Puerto Rico, 00603. Wishes to exchange shells with someone from N.C. He warns that as he is a paraplegic, all specimens are those given to him.

Smith, Mrs. George, Hukerenui, Northland, North Is., New Zealand Wishes to exchange shells. Mentions that she has the Kauri Land Snail.

ANNUAL FINANCIAL STATEMENT - N.C. SHELL CLUB

Period: 12-10-64 - 12-1-65 - Elizabeth T. Mathews

Balance on hand 12-10-64		$229.25
Receipts:		
Dues from 12-10-64 - 12-1-65	171.50	
Special Contributions for 1966 A.M.U. Meeting	38.00	209.50
Total Receipts		$438.75
Disbursements:		
Postage & Addressing Tape	53.50	
Door Prizes	15.00	
Printing, N.C. Shell Club Bulletin #2, and Envelopes	114.75	
Receipt Book & Rubber Stamp	6.18	
Refreshments	28.24	
Telephone Calls (by Nominating Committee)	3.69	
1965 A.M.U. Dues	6.00	
Bank Service Charge	1.67	
Total Disbursements		229.03
Balance on Hand 12-1-65		$209.72

A CODE FOR SHELL COLLECTORS

Carl Withrow

When the writer agreed to help fill up space in this bulletin, and announced the subject, everyone's advice was to bear down hard on conservation. Well, we are all in favor of it, just as we are in favor of motherhood and the American flag; but I think the subject has been over-done, and often misconstrued. And, in North Carolina waters, few of us ever get the opportunity to be hoggish, and over-collect.

First, let's remember that conservation of mollusks applies only to living shells. If you pick up a thousand dead specimens on the beach, you will not have disturbed nature's balance one whit. The same goes for half-dead or dying shells washed ashore; I am convinced that many specimens are washed ashore because they are diseased, damaged or dying. However, from a practical standpoint, don't try to pick up more than you need, or could ever use. They just clutter up the house (I can prove it!), and somebody behind you might want a few specimens too.

Also, I can't see much point in carefully preserving the supply of such pests as the oyster drills; or such profusely common shells as Nassarius obsoletus Say-The "Eastern Mud Nassa" which can be seen by the thousands on warm mud flats. Who would want more than a dozen or so of them, anyway? In general, the more common and easy to find a shell may be, the less likely are collectors to overcollect.

But, assuming we are lucky enough to run into desirable specimens in quantity, let's not try to clean out the whole colony. Take only the best specimens; leave those with bad growth scars, chipped lips, or generally inferior appearance, to carry on the race. And take only what you really need.

Seriously, I doubt if all our club members together could make even a slight dent in the balance of nature. Even diving or dredging we can reach only an infinitesimal part of our mollusks; and only occasionally do we find such shells as Busycon carica in quantities; and who among us has ever had a chance to pick up live Scotch Bonnets? If we did, how much conscience would we have?

Speaking of conscience brings me to the real thought behind this article. We often hear it said that all shell collectors are nice people-and I hope we all try to keep it that way. It's hard to beat "The Golden Rule"and if we just stop and think, there are many ways we can help fellow collectors. Do you have patience with beginners; do you take the time, if asked, to explain what you may think is common knowledge, but is unknown to others? It may be difficult to strike a nice balance, in helping where help is needed and wanted, yet not overwhelming a beginner with Latin names, technical terms, and

information that can't be absorbed all at once. Tolerance of others' likes and dislikes makes for more friendly feelings; the specialist in Cypraea is not apt to feel a warm glow of friendship for the person who casually states, "Cowries leave me cold!" Similarly, one who collects only "local" shells, or self-collected shells, has so much in common with one whose interests are world-wide, that they can at least understand, rather than disagree.

I think the greatest joy from any hobby is sharing it with others. I have never seen a shell collector who was not ready, even eager to show his collection, however small, to anyone really interested. Beautiful shells were not meant to be hidden away in drawers forever; don't force your shells on those who are completely uninterested, but display them proudly to those who care. It is surprising how many people become interested in shells, just because someone took the trouble to "introduce" them to the subject.

Let me pose a few questions, and "let your conscience be your guide" when you think of them in the future. Incidentally, the writer is probably guilty of all, and more of these faults; so "do as I say, not as I do."

Do you envy the fortunate person who finds (or even buys) a rare shell you have always wanted? Or do you rejoice in his good fortune?

Do you welcome new club members, and then keep on working to make them feel at home? Or do you leave them quickly to their own devices, and stay in your own little circle or "clique"? Remember, we were all new members once; and new members of larger clubs than ours have lost interest and dropped out, just because nobody took the trouble to make them feel at home in the group.

Do you ever think of sharing your duplicates with others, especially those who might not be able, financially or otherwise, to obtain ones you have in abundance? Yes, it's fine to keep some for trading purposes; but we all have certain species in quantities almost too large for comfort. Why not let others in on the fun? Children, especially, can appreciate beauty in a shell, no matter how common it may be.

Finally, are you generous with your time? Do you "pitch in" and help in club activities? Somebody has to do things, you know; so don't sit back and let others do things, and then complain that they pushed themselves forward, and "hogged" the spotlight; or that you would have done it in a different, and of course, a better way.

In short, do unto others.....

SHELL or BOOK DEALERS THAT HAVE BEEN RECENTLY IN CONTACT WITH THE CLUB SECRETARY

John Q. Burch - Books, 4206 Halldale Ave., Los Angeles, Calif. 90062.
Henri Cloet, Kapellestraat 74, Ostend (Belgium). Exotic Seashells and Sea Products of all kinds.
Hano Specimen Sea Shells (and Books), 1598 Third Ave., New York, N.Y. 10028.
Richard E. Petit, P.O. Box 133, Ocean Drive Beach, S.C. 29582. (Dealer in specimen shells).
Stephen R. Shadlow, 2317 Pacific Highway, Mermaid Beach, Gold Coast, Queensland, Australia. (Queensland deep-water marine specimen shells.)
Shells of the Seas, Inc., P.O. Box 68, Kissimmee, Florida 32741.

THE FLORIDA ROCK SHELL

Wade G. Brown

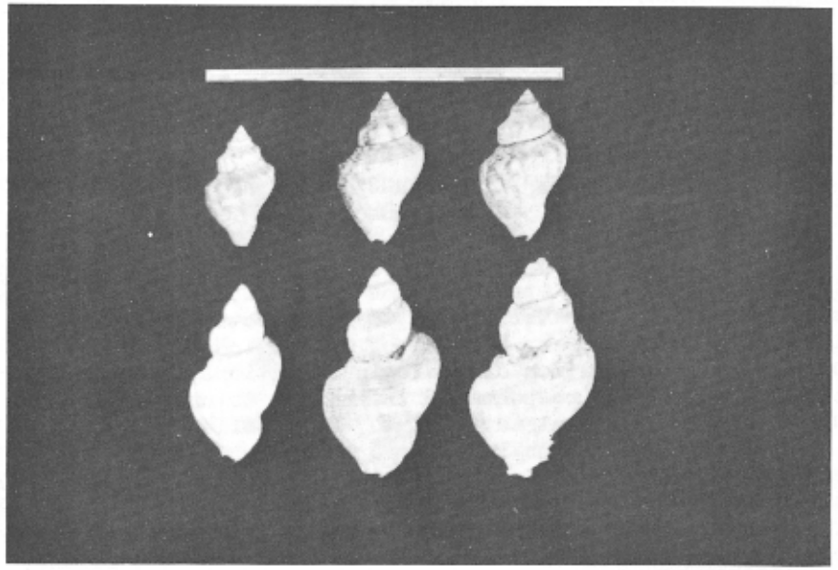
The genus Thais is extremely variable, and Thais haemastoma floridana Conrad, the species found on the North Carolina coast is no exception. The variations to be expected are those of size, color, presence or absence of nodules on whorls, sculpture, etc. The question of ecologic variations, that is, variations caused by the response of the animal to unusual changes in environment is of great interest to shell collectors.

The specimens illustrated were taken from Pamlico Sound, Ocracoke Island, North Carolina. All shells except lower right were found in an actively breeding colony on a breakwater formed of broken concrete off Springer's Point. This well aged concrete is the remains of a World War II "road" on the Island, made from Portland cement and beach sand, not concrete as we know it. The 6th specimen was taken from a piling about 1 mile north with no evidence of colonization.

The shells on the top row are normal specimens, and all shells were alive. It was noted that all shells larger than approxiately 2½ inches were deformed and extremely eroded. The shells on the lower row are typical, with all the usual characteristics gone. The operculum also deteriorated, becoming frayed, incomplete and very rough.

It is well recognized that most fully mature shells (like your author) are not as handsome as they were as "youths"—but—who can explain this cruel quirk of Nature?

Photo courtesy of Hayes Proctor, Durham. (See next page).



A STATE SHELL?
Paul Jennewein

On May 28, 1965, the General Assembly enacted a bill establishing the Scotch Bonnet, Phalium granulatum, Born, as the official seashell of the State of North Carolina. It became the first state in the nation to take the official step, although citizens of other states had considered such action.

Credit for initiating action goes to Mrs. Marilu Horton of Wilmington and Sarasota, Fla. She suggested at the Oct. 3, 1964 meeting of the North Carolina Shell Club at Kure Beach that the shell club suggest or have a state shell.

Mrs. Horton pointed out that the state has an official flower (dogwood), bird (cardinal) and tree (pine), "why not an official shell?" She indicated that Florida had an official shell — although later investigation showed that state's legislative body had not taken action.

Carl C. Withrow of Charlotte, president that year of the N.C. Shell Club, thought it was an excellent idea. Paul R. Jennewein of Wrightsville Beach stuck his neck out. He said if the club came up with a shell, he'd try to contact friends on the 1965 Legislature for a bill making the suggestion official.

The club set its December meeting as the time to select a worthy shell. In the discussion, Hugh J. Porter, secretary, indicated there were several handsome shells found in North Carolina that could serve as official shells. It was also decided to have a display of North Carolina shells at the meeting, with a prize given for the best display.

Nominating the winner at the High Point meeting was Mrs. R.C. McLean, Sr., of Red Springs. The members of the club with Scottish blood apparently banded together to give the Scotch Bonnet the edge over 10 other shells. Leading contenders until the clans gathered were Lightning Whelk (Busycon contrarium Conrad), Lettered Olive (Oliva sayana Ravenel) and Coquina (Donax variabilis Say).

Backers of the Scotch Bonnet recalled that Scots had settled the North Carolina coast and had moved inland to populate a good section of the state. The shell's common name would be sure to win support of legislators. Mrs. Elizabeth Mathews had the best shell display, with the biggest Scotch Bonnet.

James E. Wadsworth of Chapel Hill managed to get a copy of the bill establishing the pine as official State tree. From this bill, the suggested act for the Legislature was prepared. Attached to the act was information on the shell club, scientific data on the shell and the club's activities in the interest of malacology and conchology.

Next was the problem of persuading legislators to submit the bill; but a hitch developed. Representatives of two leading

coastal counties — where many of the members lived (Carteret and New Hanover) — were Republicans. The Legislature made it clear it wasn't passing any bills submitted by the minority. Other legislators were cool to the idea. No other state had voted an official seashell, "if we do it, do we get praise or become a laughing stock?" was the reasoning.

Mrs. Kenneth (Charlotte) Johnson of Raleigh went to see Gov. Dan K. Moore (who had Scottish ancestors). She suggested that selection of the shell was a way of calling attention to the state's fine beaches. Gov. Moore thought it was a good idea and passed the word.

County Representatives Moncie L. Daniels, Jr., of Dare, Odell Williamson of Brunswick and I.H. O'Hanlon of Cumberland introduced the bill. Harry Davis, then director of the State Museum of Natural History, prepared a special display of the shell in the Museum — a block from the Legislative Building.

Color postcards of the shell, donated by photographer W.K. Dorsey, Jr. of Wilmington, went out to each legislator. The cards bore the message: "This shell, found off the North Carolina Coast, has been proposed by the N.C. Shell Club as the official State Shell. Your support would be appreciated."

The club, operating on a shoe string, thought the cards would be sufficient ammunition to persuade legislators. But one lawmaker suggested to Daniels that the cards be replaced with the real thing. Fortunately, his friends at Nags Head and Hatteras found enough to supply the legislators' demand. While Daniels was still trying to find Scotch Bonnets, a North Carolina State University zoologist was quoted in newspapers as saying the scarcity showed the shell wasn't a native and a poor choice. He thought Coquina a better one. Newspaper editors linked the effort with the "old shell game." The try reached the verge of becoming an object of ridicule.

Daniels fought off objectors — said he'd rather "fight than switch." The bill passed the House, but then bogged down in the Senate. Mrs. B.A. Dixon of Durham gave the venture a helping hand at this point. She mimeographed scores of bills with supporting data so that the "lobbying committee" could distribute them to senators. Mrs. Charlotte Johnson went to see Gov. Moore again, presenting him with a shell, and the Governor pried loose the bill again.

The bill finally passed, despite an inland senator's last-minute suggestion that a chicken's eggshell seemed more suitable as a state symbol. Ratification was May 29 — the day after enactment.

A few days later, a group of legislators — with tongue in cheek — offered a resolution on a state bug — Climex lectularis, or bed bug. The resolution was referred to a committee for extinction.

Passage of the bill caught Shell Club members with their stocks of Scotch Bonnets down. Just about every relative and close friend expected to presented with a specimen Scotch Bonnet shell. Prices of the shell zoomed upwards. They were worth a nickel on May 27 and on May 30 they'd gone up to a quarter and 35 cents. A few weeks later, certain unscrupulous shell dealers began selling Japanese imports — similar in general appearance but without the "pimpled" lower shield on the body whorl. Publicity by interests which had the real shell explained the difference and helped to curb sales by the fakers.

Apart from the immediate benefit of publicity, the establishment of the official shell was expected to be of lasting value. Use of the state symbol will immediately make a person aware that North Carolina's shores and waters are as important as its forests, mountains and plains.

RECENT BOOK NOTICES RECEIVED BY CLUB SECRETARY

Burgess, C. M. The Living Cowries. $30.00 Order from John Q. Burch.

Habe, Tadashige. Shells of the Western Pacific in Color, Vol. II. 304 pp. 66 color plates. $18.00 English Edition. Hoikusha Pub. Co., Osaka, Japan.

Kira, Tetsuaki. Shells of the Western Pacific in Color, Vol. 1. 304 pp. 72 color plates. $18.00 English Edition. Hoikusha Pub. Co., Osaka, Japan.

Krauss, Helen K. Shell Art. (A handbook for making shell flowers, mosaics, jewelry, and other ornaments.) 192 pp. $6.95. Hearthside Press Inc., New York, N.Y.

Melvin, A. G. Sea Shells of the World with Values. 150 pp. (Over 1,000 shells pictured, half in color). $7.50. Charles E. Tuttle Co., Inc. Rutland, Vermont.

SHELLS, AND HOW THEY GET TO BE THAT WAY (PART I)

Dr. John H. Ferguson

(First presented as a talk at the March, 1966 N.C. Shell Club Meeting)

The mollusks (MOLLUSCA) are the 'soft-bodied' animals, countless thousands of which make distinctive SHELLS, whose variety of form helps to identify them and whose beauty and other features attract us to the hobby of shell collecting. An appreciative understanding of shell features enables us to group together those that belong together as there is much satisfaction in an orderly collection.

Language, and the naming and classification of shells. While Latin and Greek are 'dead' languages, as far as everyday communication is concerned, a great deal of our common speech is based on the ancient word forms, and we all know a lot more Latin and Greek than we think we do. Aqua, Latin for water, gives us aqueous, aqueduct, aquatics, and aquarium. The scientist coins many new names based on the classic tongues in order to express himself more precisely. More ideas and more communication mean much more interest and fun in life. A shell hobby is greatly enriched by learning new things, and even without getting too deeply involved, it is quite easy to invoke the language and keen perceptions of science. After all, science is just 'knowing', but it is knowledge with understanding.

The scientist can tell us a lot of interesting things about shells: First, he can name them often based on significant features of the shell itself or on the animal that makes it. Scientific names of plants and animals are binomial, that is, two names, one for the GENUS and one for the SPECIES, and they are in Latin. SUBgenera are now often included. Unfortunately, scientists didn't get together in earlier periods when most of the shells were named, and so there has been a needless multiplication of names. Eventually this will get straightened out and one name will get 'official' priority, relegating all the others to synonyms. Popular names are useful, but are apt to be inexact, and it is often just as easy to learn the scientific name. Then, some shells are not at all common. Secondly, shells may be arranged in a scientific classification (or TAXONOMY). The most important groups are the Families, with names ending in -IDAE (or - INAE, for SUBfamilies). All shell families belong in one or other of five big CLASSES.

CLASS I is for the CHITONS (pron. kite-on) and their relatives. The technical Class name is AMPHINEURA, meaning 'nerve (cords) on both sides'. It tells us that even in the lowly mollusks there is a right and left side to the animal

body. We are only interested in the SUB-CLASS, POLYPLACOPHORA (bearing many plates). In fact, the shell is usually in 8 pieces (or VALVES), held together by a leathery GIRDLE. So it is easy to identify a Chiton.

CLASS II is for GASTROPODA ('belly-footed') including the common snails that crawl around on their belly, with the shell (if any) on top of them. At threat of danger they can usually withdraw into the shell opening (APERTURE) and thus protect themselves. As the shell is in one piece, they are sometimes called Univalves.

CLASS III is for SCAPHOPODA ('boat-footed'), namely the tusk or tooth shells, which are so distinctive that their grouping gives us no trouble.

CLASS IV is for PELECYPODA ('hatchet-footed'), a name which is quite descriptive when the flattened foot is thrust out between the free margins of the two-hinged valves, and the common name Bivalves is equally appropriate. All the clams belong to this class.

CLASS V is for CEPHALOPODA ('head-footed'), including the octopus, squid, paper- and pearly-nautilus, and their relatives. Many don't have shells, but can easily be recognized by their suckered arms or tentacles. There is an outside shell in Nautilus pompilius Linne, the Chambered Nautilus. In the Paper Nautilus, Argonauta species, the female makes a shelly egg-case, which is the fragile beauty we prize in our collection. Spirula and Sepia are squids which have characteristic internal shells. The last is commonly called a 'cuttlebone'. All these forms, at least, are easy to class.

What is a SHELL? A shell is simply composed of the calcareous (lime-containing) secretions of a membranous part of the mollusk's body, which is called the MANTLE. It is a very lovely sight to behold a live Rose Petal Bubble Shell, Hydatina physis Linne, in the Indo-Pacific, with its wavy blue mantle floating out and wrapping itself around the shell. A shell is a mixture of three kinds of secretions: (1) the hard material is lime, or calcium carbonate, in several types of micro-crystalline structure; (2) the organic matrix is called conchiolin; and (3) the pigments, which give color patterns to many shells.

Shell TEXTURE depends on the particular kind of calcareous structure and its admixture with conchiolin. NACRE, or 'mother-of-pearl' for instance, refers to a shell mixture in which the conchiolin matrix preponderates over the calcareous part. The Abalones (Haliotis species), in the Gastropods; or the Pearl Oysters (Pinctada species), in the Pelecypods, are good examples.

The Periostracum. In many mollusks, both Gastropods

and Pelecypods (the 'girdle' of Chitons is similar), the mantle envelops the outside of the shell to secrete a protective coating, mostly made of conchiolin. It is called the PERIOSTRACUM, and is often fuzzy or hairy in appearance. It is useful to protect the shell against corrosion by acids in the water, or from encrusting coralline and other growths. Among the Bivalves, some good examples are seen in certain Mussells (Family: MYTILIDAE) or Arks (Family: ARCIDAE), e.g. Arca (Arca) imbricata Bruguiere (SYN. 'umbonata' Lamarck), the Mossy Ark, on our Carolina beaches; and Barbatia barbata Linne, the Bearded Ark, from the Mediterranean. The terms 'mossy' and 'bearded' obviously refer to the periostracum. Some gastropod examples are: (a) Busycon (Busycotypus) canaliculatum Linne, our Carolina Channelled Whelk (or 'Conch'): here the periostracum is light and fuzzy. (b) Fasciolaria (Triplofusus) gigantea Kiener, or Giant Horse Conch, with a thin black periostracum revealed by chipping away the encrusting coralline growth. (This name is proposed by Olsson and Harbison, but others put it in separate genus Pleuroploca.) (c) Pugilina (Pugilina) morio Linne, is a small Brazilian cousin of the Horse Conch, which has a lovely velvety brown periostracum. (d) Conus (Cleobula) betulinus Linne, the Betel Cone, from the Indo-Pacific (Philippines) shows how dull a Cone Shell can be until you clean off the periostracum. Of the few gastropods without any periostracum, we may mention the Cowries, Olives, and Marginellas.

Shell Colors. All colors and color patterns come from pigments secreted by the mantle along with the other components of the shell. Many examples can be selected from any shell collection. For the most part, the more brightly colored shells tend to live in warm tropical seas, while those in cold oceans are apt to be dull.

The operculum. Certain Gastropods have an OPERCULUM, or trap-door. This should be regarded as part of the shell and displayed with it in your shell collections. Actually, it is secreted by, and attached to, the back (or top) of the animal's foot. When danger approaches, the animal withdraws into his shell and closes off the opening (APERTURE) with the operculum. In the Moon Shell Family (NATICIDAE), three SUB-families are named with reference to the operculum, thus: (1) NATICINAE, e.g. the colorful Atlantic Moon Shell, Natica (Natica) canrena Linne, have a calcareous (shelly) operculum; (2) POLINICINAE, e.g. our common Shark's-eye Moon Shell, Polinices (Neverita) duplicatus Say, have a corneous (horny) operculum; while (3) SININAE, e.g. our popular little Baby's Ear, Sinum (Sinum) perspectivum Say, have no operculum, but bury the whole shell in a thick white fleshy mantle. The calcareous opercula of the

Turban Shells often have a thin horny layer where attached to the mollusk's foot, e.g. our Chestnut Turbon, Turbo (Marmorostoma) castaneus Say. Turbo (Turbo) petholatus Linne, from the Indo-Pacific, has the pretty green-centered operculum called the 'cat's eye'. There are more detailed classifications of opercula according to size, shape, and the number and pattern of their growth rings. Sometimes the operculum is poorly developed and quite inadequate to close off the aperture. One example is in the rare Slit Top Shell, Pleurotomaria (Mikadotrochus) hirasei Pilsbry, dredged in deep water off Japan.

Shell growth, and parts of a GASTROPOD shell. During shell growth and development, the chemicals and enzymes secreted by the mantle (mostly) can form, or can remove, parts of the shell structure. It is in this way that the basic form and features of the shell are brought about. Let us start with the growth of a typical shell-forming gastropod, as illustrated by the common Perverse Whelk (or 'conch'), Busycon (Busycon) perversum Linne. We'll leave the microscopic embryo stages to the scientist, and just go back as far as the 'baby conchs' that we find in a ripe egg-case, cast up on our Carolina beaches. The baby Busycon has a knobby APEX (or tip), and one or two turns (NUCLEAR WHORLS). The shell will grow by the mantle secreting more shell out from the margins (lips) of the aperture, so that the shell enlarges in a spiral manner. This may go on in a 'DEXTRAL' (right-handed) way, in the variety eliceans, Montfort, or left-handed ('SINISTRAL'), in the variety kieneri, Philippi. The term PROTOCONCH means 'first shell' and may be used for the earliest developmental stages. It is also applied to the apical region (NUCLEUS) in the later stages, which retains what is left of the younger structures. Often the apex becomes remodelled, by the mantle's activity, so as to lose all resemblance to the baby shell. In a few forms, the spiral direction even reverses from what it was in the protoconch. Among the Volutes, (a) Scaphella junonia Shaw, our angular Volute, from Uruguay, has a curious elongation, and variously remodelled apex.

DECOLLATE gastropods have lost their apical whorls (turns) - like having 'the neck cut off'. This occurs when acids dissolve away the oldest parts of the shell, particularly when the animal happens to live in brackish estuaries, stagnant lake water, or in damp soil. Two examples, that use the term for their species names, are: (1) Cerethidea (Cerithidea) decollata Linne, one of the Horn Shells (Family: CERITHIIDAE), which lives in shallow waters of Western Australia, and (2) Rumina decollata Linne, a land snail, imported from Europe,

and now to be found at Southport, N. C., and in gardens at Charleston, S. C.

Suture, and columella. As the WHORLS (turns) grow in a spiral manner, they usually fuse together in the center to form an 'axial' (or longtitudinal) little pillar or COLUMELLA. On the outside, the whorls generally have a connecting groove or SUTURE between them. It is the conspicuous deep suture which gives the name to our Channelled Whelk, Busycon (Busycotypus) canaliculatum Linne. Both suture and columella are well seen in a longtitudinal (or sagittal) section of this shell. Incidentally the American Indians used sections of this Busycon columella for their 'white' wampum, whereas the 'purple' wampum was fashioned from the colored edges of the Hard Clam (or Quahog) Mercenaria mercenaria Linne (in Family: VENERIDAE, the Venus Clams). Sometimes the whorls don't stay joined together as the shell grows, and this is well illustrated in the Worm Shell, Vermicularia knorri Deshayes. If you just find the young early section, it looks very much like a Tower Shell or TURRITELLA. Modern workers, in fact, now regard VERMICULARIINAE as just a SUB-family of the Family TURRITELLIDAE.

In other cases, the whorls are fused on their outer aspects, but incompletely so in the central region. This makes a hole that you can see at the BASE (bottom) of the shell. It is called the UMBILICUS. In the rare deep ocean snail, Gaza (Callogaza) superba Dall, dredged in the Gulf of Mexico, the umbilicus often extends all the way up through the apex of the shell. The Sundial Shells, e.g. Architectonica maxima Philippi, from the Indo-Pacific, have a wide umbilicus, in which you can see the sculptured margins of the whorls. This explains the other popular name, Spiral Staircase Shells. Our common Shark's-eye Moon Shell, Polinices (Neverita) duplicatus Say, has an umbilicus, but this is mostly covered by a large brown CALLUS.

A callus is an overgrowth of extra shell laid down by the mantle on top of the surface of the original shell. It particularly occurs in the region called the PARIETAL WALL, which extends from the inner (or columellar) lip of the aperture on to the adjoining BODY WHORL. This is the last turn of the shell and typically much the largest. Callus forms the so-called 'PARIETAL SHIELD' of the Helmet and Bonnet Shells (Family: CASSIDIDAE). Related to the Olives is Olivancillaria (Olivancillaria) auricula Lamarck, from Uruguay, which shows how callus formation can greatly change the appearance of a shell, here even going up to and covering the apex.

Parts of a Gastropod Shell. Reviewing terms already mentioned, and adding just a few more, we can list the following features of a typical gastropod shell: (1) Apex (tip), formed by the protoconch and nuclear whorls; (2) Spire, comprising

the apex and all the whorls (turns), except (3) the Body Whorl, usually the widest and largest: (4) the Penultimate Whorl is a term sometimes used for the next-to-last turn; (5) the Base is the bottom of the shell or body whorl; (6) the Periphery is its widest point, furthest from the aperture. Adjoining (7) the Parietal Wall, is (8) the Aperture (shell opening), with its (9) Inner (or Columellar) Lip, and (10) Outer Lip.

Orientation of a Gastropod Shell. When the animal emerges from its shell and stretches out its foot, etc., to move forward, it swings the shell over its back (Latin=dorsum) and crawls with the aperture facing down (=ventral) with the base in front (=anterior) and the spire and apex tilted up and to the rear (=posterior), usually pointing a bit to one side. Thus the scientific orientation names (in parentheses) are very meaningful. If you hold the empty shell upright, with the base (or anterior end) down and the aperture facing you, the posterior rim of the opening is uppermost. The right and left sides are still in their correct relation, however, as you can see by turning the shell over to its proper position as it is held by the crawling mollusk.

The ANTERIOR CANAL is a frequently-seen grooved prolongation at the base (or front) of the aperture. It is also called the SIPHONAL CANAL and for a very good reason. The ANTERIOR (or INHALENT) SIPHON is a tube-like structure by which the mollusk sucks in water to breathe. As this water flows around the GILLS, oxygen is extracted, and the waste water finally exits toward the rear and on one side (see later). In the Mud Snail, Nassarius species, the animal can crawl around safely under the mud or sand surface, with its little inhalent siphon sticking up into the water above. Thus, it keeps on breathing easily, without exposing itself to a hungry fish lurking in the water above.

The anterior canal, therefore, is to support and protect the inhalent siphon. It is greatly elongated in some shells e.g. (a) the Snipe's Head Rock Shell, Murex (Haustellum) haustellum Linne, from the Great Barrier Reef, off Australia; (b) the Spindle Shells (Fusinus species), mostly from the Indo-Pacific; and (c) the Beak Shells (Tibia species) from the Red Sea through the Indo-Pacific. In all these shells, observe carefully that the anterior canal is not completely closed over but is rather just an elongated slit. This is easily explained by the fact that the mantle has to wrap itself around the inhalent siphon while laying down the shell. If you try folding a cape around your arm, you'll see that the folds have to be separate, even if they overlap.

The exit flow of breathing water is between another fold of the mantle, but in many gastropods this does not form a

special shell feature. The previously-mentioned Slit Top shells, Pleurotomaria species, have a conspicuous natural slit in the posterior (or upper) part of the outer lip of the aperture, where this mantle fold is accommodated. A functionally similar 'TURRID NOTCH' is an identifying feature of the Turridae family (Turret shells) e.g. Gemmula (Unedogemmula) unedo (Kiener), from Japan. Turrids are much more recent in evolution and are highly developed mollusks, however.

A POSTERIOR or EXHALENT SIPHON is present in some gastropods and is protected by a groove, notch, canal, or hole in the posterior rim of the aperture. A conspicuous POSTERIOR NOTCH is seen in most of the Frog Shells (Family: BURSIDAE) and at least one species, Bursa (Ranella) bufonia (Gmelin), from the Indo-Pacific, has an elongated POSTERIOR CANAL. As the animal grows and extends the aperture, the exhalent siphon moves out to a new position and is reaccommodated by a shelly tube. The old tubes remain, however, sticking out near the suture of the older whorls of the shell. Much the same kind of thing is seen in some of the TYPHINAE, which are a Sub-family of the MURICIDAE, or Rock Shells. Note again in these posterior canals, that they are typically slits, rather than complete tubes, because they were laid down by the mantle while folded around the siphon tube.

Evolution of the Keyhole Limpets. In the Family: FISSURELLIDAE, comprising the Keyhole Limpets and their relatives, modern surviving species still show all stages in the interesting evolutionary series of steps taken for the accommodation of the exhalent (or Posterior) siphon. In the Shield Shells, Scutus species, from the Indo-Pacific, there is merely an inconspicuous groove or SULCUS, extending to the posterior rim of the shell, perhaps forming a rounded notch at the edge. In Hemitoma octoradiata (Gmelin) from the Bahamas and West Indies, the groove is narrow and distinct and makes a definite notch on the posterior rim ('Hemi-toma' - Lat. means half-a-slit). In the Emarginula species, the notch has become a conspicuous full-fledged slit.

In Puncturella multistriata Dall, from California, or the rare little Rimula frenulata Dall, from our Atlantic Coast, the slit has become a little slot, partway up the posterior slope of the shell. Incidentally, Rimula has a little pointed tip curving forward a bit, which is the remnant of the spire and apex that have become lost when the FISSURELLIDAE opened out into a cap-like or 'limpet'-form. Finally, the keyhole has worked its way up to the apex in the most advanced Fissurellas, e.g. (a) Fissurella (Fissurella) barbadensis Gmelin, from Florida, Bahamas, and West Indies; (b) Diodora (Diodora) cayenensis Lamarck, common in the Carolinas; (c) Megathura

crenulata, Sowerby, the Giant Californian Keyhole limpet. Just a little more evolution explains the large keyholes of the South African Fissurella (Pupillaea) aperta Sowerby, and the very elongated slots of the Macroschisma species from Japan, whose genus name means 'big cleft'.

Scientists tell us that many of the stages which are called PHYLOGENY in the evolution of species, are recapitulated in ONTOGENY, or the embryonic stages of development, in the individual. This is nicely illustrated in the Fissurellas, as shown by Figure 5, on page 20 of Tucker Abbott's "American Seashells".

Some other Aperture Features. Extending from around the columellar or inner lip of the aperture, a number of gastropod shells display COLUMELLAR FOLDS (Latin: plicae, plural). These plications are crowded together like a 'little bundle of sticks' as they spiral out on to the posterior (lower) end of the parietal wall in the Olives and their relatives (Family: OLIVIDAE). Hence the name 'PARIETAL FACIOLE'.

Neosimnia uniplicata Sowerby, is named for the 'one fold' at the posterior end of the columella lip. The Simnias live on the sea whip corals (Leptogorgia species) and camouflage themselves by a remarkable matching of their color to that of the particular kind of sea whip on which they live.

Cancellaria (Cancellaria) reticulata Linne, our common (especially in Florida) Nutmeg Shell has two, or more, strong plicae on the inner lip. The Nutmeg may look a bit like a young shell of the common Northern Whelk, Buccinum undatum Linne, which may also have a couple of (slanting) columellar folds, but these are smoothed out as the shelk gets older, whereas they persist in the Nutmegs.

The Marginella's, or Rim Shells, have four sharp-edged spiral folds, commonly called COLUMELLAR TEETH. Many of the nerites have distinctive teeth (hence the description: 'denticulate' inner margin, of the aperture.)

The Florida Bleeding Tooth Nerite, Nerita (Nerita) peloronta Linne, is very aptly named. A shelf-like projection and thickening of the inner margin of the aperture is charaoteristic of the Neritas and their relatives, e.g. Neritina (Neritona) squamosa Sowerby, from Hawaii. This shell is modified to have almost lost its whorls, except the last or body whorl. The thickened INNER LIP or SHELF is to provide extra firm attachment for a strongly developed foot, by which the animal clings to the rocks, even withstanding the pounding of the waves. Further development of these features, for the same purpose, is seen in the following sequence of forms in the Family: CALYPTRAEIDAE.

One of the Chinese Hats, Calyptraea (Trochita) trochiformis Born, from West Mexico (which may need a new species

name, Spirata, Forbes), is flattened or 'depressed', with a flared-out body whorl so that the base and aperture form a somewhat hollow under surface. The inner lip is thin, but the animal has a big flat foot to hold the 'cap'-like shell to the rocks.

In Crepidula (Crepidula) fornicata Linne, our common Slipper Limpet (or Lady's Slipper), the distinctive white 'Deck' is really just the shelf-like inner margin of the original aperture, which has opened out to give attachment to the muscles of the clinging foot.

In the Cup-and-Saucer Limpets (Crucibulum species) the shelf has become a curious little 'cup' surrounded by the foot attachments to the surrounding 'saucer'. All these shells have some vestige of the whorls, but these become completely lost in the true Limpets of the old world (Family: PATELLIDAE) or the new world (Family: ACMEIDAE). 'Patella' means the 'knee cap', which is a little tendon-bone in front of our knee, that has much the same shape as these shells (except that it isn't hollow). The Limpets are nothing but 'aperture' with the sides running up in the shape of a cone, or 'cap' like. The attachments of the strong clinging muscle leave an 'owl-like' muscle scar. Limpets are common on the rocks near Cape Town, South Africa, where the waves are often extremely rough. In quiet periods, the limpets do crawl round a bit, however.

Let us wind up this talk with a bit more about 'teeth' or PLICATIONS in the shell aperture, with specific reference to the Cowries.

In the common Measled (or Zebra) Cowry of Florida, Cypraea (Macrocypraea) zebra Linne, distinct brown ridges or teeth are present on both sides of the aperture, but the outside shell surface is very smooth.

Trivia aperta Swainson, from South Africa, is much larger than our West Indian 'coffee beans', and readily illustrates the typical feature, which distinguishes the Trivias from the Cowries, namely, distinct ridges that run all around the outside of the shell in an encircling (or radial) manner. Quite obviously, the apertural 'teeth' here are nothing more than the ends of these ridges.

Cypraeovula capensis, Gray is the well-known Cape Cowry, from South Africa, which is an evolutionary 'missing link' between the older Trivias and the more recent true Cowries. Notice that it still has body ridges, but they are finely crowded and faint. The teeth on the outer lip of the aperture coincide with some of the body ridges, but are fewer, with some only partly developed, while others have become extinct. The true cowries have just evolved further, to the point where only the apertural teeth persist and all traces of body ridges have

disappeared. To carry this to its logical conclusion, evolution has gone on until even the apertural ridges have gone, and this gives us the toothless cowry, Cypraeovula capensis (Gray), also from South Africa.

Finally, the so-called Egg Cowry Ovula (Ovula) ovum Linne, belongs to another family, OVULIDAE (or AMPHIPERATIDAE) that never had the tooth problem. At most, the aperture just shows a few irregular growth ridges.

Some knowledge of facts like these, to anybody with even a slight interest in science, adds greatly to the fascination of a shell hobby.

PORTSMOUTH ISLAND

Mrs. Charlotte Ann McGraw

A beautiful island, 20 miles long, two miles wide, Portsmouth is a part of the Cape Lookout National Seashore Park. The island is located in Carteret County, below Ocracoke, and is a part of North Carolina's famed Outer Banks.

The beach on Portsmouth Island is approximately a mile and a half wide, and shells of many different varieties may be collected there at low tide. (High tide covers most of the beach area.) The Scotch Bonnet, the state shell, is also plentiful.

The sound part of the island has many cedars and other foliage. Although the population reached 500 a century ago,* there are now only four persons residing on the island. Severe storms caused most of the inhabitants to move to the mainland. Several very neat and well-kept summer homes are sprinkled across the island.

Occupants of the island, descendants of the original founders, are Miss Elma Dixon, her sister Mrs. Lillian Babb, and Mrs. Babb's daughter, Miss Marian Babb. Henry Pegott, a colored man, is the only male resident, and is an able fisherman who shares his catches and lawn-cutting services to the ladies of the island.

A small white frame church, always neat and filled with flower arrangements, may be found in the heart of the community. Although no minister has been available for regular services for the past 20 years, Henry Pigott continues to ring the church bell at 10 a. m. every Sunday.

Portsmouth Island is reached by boat on a 12-mile ride from Ocracoke. Transportation is offered by the marine mailman, Mr. Maultsby Bragg of Ocracoke, at a roundtrip cost of $20.00. Advance reservations are requested for the trip.

The occupants of Portsmouth Island always welcome visitors and overnight campers who will enjoy the shelling, surfcasting, and scenic beauty of this island.

*Editor's Note: Early colonial charts show Portsmouth as the major seaport for the state of North Carolina.

SONGS FROM THE SHORE

Here's to ....

Here's to the sunburn, the sprain in your back,
The windburn, the chill, the weight of the sack
And bottles and bags, the unpackable gear
Strapped round you and playfully banging your rear.
Here's to the barnacle gash and the bruise,
The salt in your eyes and the sand in your shoes.
Here's to the stink in the kitchen at night,
The cleaning and scraping and sorting outright.
The searching thru books till your eyes dull with strain
For the needed, elusive, unspellable name.
Here's to the polishing, boxing, arranging,
Consulting, re-sorting, re-naming and changing.
Yes, here's to the weariness, bruises and cuts,
But most of all — here's to you wonderful nuts
Who go on collecting, foul weather or fair,
Not minding at all, with a glassy-eyed stare
For the sane of this world who look on in surprise
And miss all the grief, and the fun AND THE PRIZE.

Margaret White
Furnished by Charlotte Johnson

. . . . . .

INDIAN-GIVER

The tide is a spendthrift, careless and free
Who scatters his wealth on the shore, recklessly.
And I in my greed rush to hastily reach
For the Treasures he's generously strewn on the beach.

Then quickly he utters an angry gasp
And grabs them all from my hurried grasp-
For he changes his mind and selfishly
He takes them back to his vaults in the sea!

Charlotte G. Johnson, April 1962

THERE ONCE WAS AN OYSTER

There once was an oyster whose story I tell
Who found that some sand had got into his shell!
It was only a grain but it gave him great pain,
For oysters have feelings——for all they're so plain.

Now, did he berate the harsh workings of fate
Which had brought him to such a deplorable state:
Did he curse out the government——cry for election,
And claim that the sea should have given protection?
No—he said to himself as he lay on a shelf,
Since I cannot remove, I shall try to improve it.

Now the years rolled around as the years always do
And he came to his ultimate destiny—Stew!
And the small grain of sand that had bothered him so
Was a beautiful pearl all richly aglow.

Now the tale has a moral; for isn't it grand
What an oyster can do with a morsal of sand?
What couldn't we do if we'd only begin
With some of the things that get under our skin!

Unknown author
Furnished by Carl Withrow

LIST OF COMMON NORTH CAROLINA MARINE MOLLUSKS

Dr. John Ferguson, Dr. Jack Upchurch &
Hugh J. Porter

(A) CLASS: AMPHINEURA; SUBclass: POLYPLACOPHORA (=Chitons). (FAMILY, & SUBfamily)
- Chaetopleura apiculata Say (ISCHNOCHITONIDAE, Chaetopleurinae)
  (Common Eastern Chiton)

(B) CLASS: SCAPHOPODA (=Tooth or Tusk Shells)
- Cadulus (Polyschides) carolinensis Bush (SIPHONODENTALIIDAE)
  (Carolina Tooth Shell or Cadulus)
- Dentalium (Graptacme) eboreum Conrad (DENTALIIDAE)
  (Ivory Tusk)
- Dentalium (Dentalium) texasianum Philippi (")
  (Texas Tusk)

(C) CLASS: GASTROPODA; (=Gastropods=Univalves='Snails')

- Anachis (Anachis) avara Say (PYRENIDAE) ='COLUMBELLIDAE'
  (Greedy Dove Shell)
- ** Anachis translirata Ravenel (")
- Aplysia willcoxi Heilprin (APLYSIIDAE)
  (Willcox's Sea-hare)
  Balcis intermedia Cantraine (EULIMIDEA) ='MELANELLIDAE'
  (Intermediate or 'Cucumber' Melanella)
- Bittium (Bittium) virginicum Henderson & Bartsch (CERITHIOPSIDAE, Cerithiopsinae)
  (Virginian Bittium)
- Bulla (Bulla) occidentalis A. Adams (BULLIDAE)
  (Common West Indian Bubble Shell)
  Bullata ovuliformis d'Orbigny (MARGINELLIDAE)
  (formerly 'GIBBERULINA')
  (Teardrop Marginella)
- Busycon (Busycotypus) canaliculatum (BUSYCONIDAE), Linne ='MELONGENIDAE'
  (Channelled Whelk or 'Conch')
- Busycon (Busycon) carica Gmelin (")
  (Knobbed Whelk or 'Conch')
- Busycon (Busycon) contrarium Conrad (")
  (Lightning Whelk)
- *Busycon (Busycon) perversum, Linne (")
  (Perverse Whelk) Var: eliceans, Montfort(right-hand)
  Var: kieneri, Philippi (left-hand)
- Busycon (Busycotypus) spiratum Lamarck (")
  (Pear Whelk) ='pyrum', Dillwyn
  Caecum (Levia) carolinianum Dall (CAECIDAE)
  (Carolina Caecum or 'Blind' Shell)
- Calliostoma (Kombologion) euglyptum (TROCHIDAE,
  A. Adams Calliostomatinae)
  (Sculptured Top-shell)
  Calliostoma (Elmerlinia) jujubinum Gmelin (")
  Var: tampaense Conrad
  (Mottled or 'Jubjube' Top-shell; Tampa variety)
- *Calyptraea (Calyptraea) centralis Conrad (CALYPTRAEIDAE
  (Circular Cup-and-Saucer Limpet) Calyptraeinae)
- Cancellaria (Cancellaria) reticulata Linne
  (Common Nutmeg) (CANCELLARIIDAE)
  Cantharus (Pseudoneptunea) multangulus Philippi
  (False Oyster Drill) (BUCCINIDAE) (Buccininae)
  not in MURICIDAE!
  *Cantharus (Pollia) tinctus Conrad (" ")
  (Tinted Cantharus)

- Cassis (Cassis) madagascariensis Lamarck (CASSIDIDAE)
  & Var: spinella Clench Cassidinae)
  (Queen, or Emperor, Helmet, & Clench's Variety)
- Cerithium (Thericium) floridanum Morch (CERITHIIDAE,
  (Florida Cerith or Horn Shell) Cerithiinae)
  *Conus (Conasprella) jaspideus Gmelin (CONIDAE)
  Var: stearnii Conrad
  (Stearn's (a variety of Jasper's) Cone)
  Crassispira (Crassispirella) ostrearum Stearus
  (Oyster Turret) (TURRIDAE, Clavinae)
- Crepidula (Crepidula) aculeata Gmelin (CALYPTRAEIDAE,
  (Spiny Slipper-shell) Cheileinae)
- Crepidula (Crepidula) convex Say (")
  (Convex Slipper-shell)
- Crepidula (Crepidula) fornicata Linne (")
  (Common Atlantic Slipper-shell)
- Crepidula (Janacus) plana Say (")
  (Eastern white or flat Slipper-shell)
- *Crucibulum (Dispotaea) striatum Say (")
  (Striate Cup-and-Saucer)
  Cylichna (Cylichna) alba Brown (SCAPHANDRIDAE,
  (Brown's Barrel-bubble) Acteociniae)
- Cylichna (Cylichnella) bidentata d'Orbigny (")
  (Orbigny's Barrel-bubble)
  *Cymatium (Monoplex) parthenopium von Salis (CYMATIIDAE,
  (von Salis' Triton) Cymatiinae)
  *Cypraecassis texticulus Linne (CASSIDIDAE,
  (Baby Bonnet=Reticulated Cowrie-helmet) Cassidinae)
- Diodora cayenensis Lamarck (FISSURELLIDAE,
  (Cayenne Keyhold Limpet)='atlernata' Diodorinae)
  Say
- Epitonium (Epitonium) angulatum Say (EPITONIIDAE)
  (Angulate Wentletrap) ='Scalidae')
- Epitonium (Epitonium) humphreysi Kiener(EPITONIIDAE,
  (Humphrey's Wentletrap) ='Scalidae'
  Epitonium (Asperiscala) multistriatum Say (")
- Epitonium (Gyroscala) rupicolum Kurtz (")
  ='lineatum' Say (")
  Erato (Hesperato) maugeriae Gray (ERATOIDAE, Eratoinae)
  (Mauger's Erato)
- Eupleura caudata Say (MURICIDAE, Ocenebrinae)
  (Thick-lipped Drill)
- Fasciolaria hunteria Perry (FASCIOLARIIDAE,
  (Banded Tulip) Fasciolariinae)
- Fasciolaria tulipa Linne (")
  True Tulip)

Fasciolaria (Triplofusus): see PLEUROPLOCA (Horse Conch)

● Hyalina (Volvarina) avena Kiener (MARGINELLIDAE) (Orange-banded Marginella) (not 'Valenciennes')

Hyalina (Volvarina) avenacea Deshayer (") (Little Oat Marginella)

**Kurtziella limonitella Dall (TURRIDAE) (Punctate mangelia)

**Litiopa melanostoma Rang (CERITHIIDAE) (Brown Sargassum Snail)

● Littorina (Littorina) irrorata Say (LITTORINIDAE) (Marsh Periwinkle)

● Mitrella Astyris) lunata Say (PYRENIDAE, (Lunar Dove Shell) ='Columbellidae')

● Murex (Muricanthus) fulvescens Sowerly (MURICIDAE, (or Hexaplex) (Giant Eastern Murex) Muricinae)

● Murex (Phyllonotus) pomum Gmelin (") (Apple Murex)

● Nassarius (Hinia) albus Say (NASSARIIDAE) (Variable Nassa)='ambiguus' Pulteney Non Solander

● Nassarius (Ilyanassa) obsoletus Say (") (Eastern Mud Snail or Nassa)

● Nassarius (Hinia) trivittatus Say (") (New England Nassa)

● Nassarius (Phrontis) vibex Say (") (Common Eastern Nassa)

● *Natica (Naticarius) canrena Linne (NATICIDAE, (Colorful Atlantic Natica or Moon Naticinae) Shell)

*Natica (Tectonatica) clausa Broderip & (") Sowerby (Arctic Natica)

● Natica (Tectonatica) pusilla Say (") (Southern Miniature Natica)

● Neosimnia uniplicata Sowerby (OVULIDAE (Single-toothed Simnia) ='Amphiperatidae')

● **Odostomia (Menestho) impressa Say (PYRAMIDELLIDAE) (Impressed Odostome)

● **Odostomia (Chrysallida) seminuda C.B. Adams (") (Half-smooth Odostome)

● Oliva (Oliva) sayana Ravenel (OLIVIDAE, Olivinae) (Lettered Olive) ='litterata' Lamarck, NON Roding.

Olivella (Olivella) floralia Duelos (OLIVIDAE, (Common Rice Olive) Olivellinae)

● Olivella (Dactylidia) mutica Say (") (Variable Dwarf Olive)

● Phalium (Semicassis) granulatum Born (CASSIDIDAE, (Scotch Bonnet) Cassidinae)

● Pleuroploca gigantea Kiener (FASCIOLARIIDAE, (Giant Horse Conch) Fasciolariinae)

● Polinices (Neverita) duplicatus Say (NATICIDAE, (Shark-eye Moon Shell) Polinicinae)

● Prunum (Leptegouana) apicinum Menke (MARGINELLIDAE) (Common Atlantic Marginella or Rim Shell)

● Retusa (Utriculastra) canaliculata Say (RETUSIDAE) (Channelled Barrel-bubble)

Retusa (Retusa) sulcata d'Orbigny (") (Sulcate (=grooved) Barrel-bubble)

**Rubellatoma rubella Kurtz & Stimpson (TURNIDAE) (Reddish Mangelia)

● *Scaphella junonia Shaw (VOLUTIDAE, (Juno's Volute) Scaphellinae)

● Sinum (Sinum) perspecturim Say (NATICIDAE, (Baby's Ear, Common) Sininae)

● Strombus (Strombella) alatus Gmelin (STROMBIDAE) (Florida Fighting Conch)

● Terebra (Strioterebrum) concava Say (TEREBRIDAE) (Concave Augur)

● Terebra (Strioterebrum) dislocata Say (") (Common Atlantic Augur)

*Terebra (Strioterebrum) protexta Conrad (") (Five-ribbed Augur)

● Thais (Stramonita) haemostoma Linne (MURICIDAE, (Florida-Rock-Shell) Var: floridana Purpurinae) Conrad

● Tonna (Tonna) galea Linne (TONNIDAE, Tonninae) (Giant Tun)

*Trivia (Pusula) maltbiana Schwengel & (ERATOIDAE, McGinty (Maltie's Trivia or Coffee-bean) Triviinae)

● Turbo (Marmorostoma) castaneus Gmelin (TURBINIDAE) (Chestnut Turban)

● Turbonilla (Pyrgiscus) interrupta Taffen (Interrupted Turbonille) (PYRAMIDELLIDAE)

● Urosalpinx cinerea Say (MURICIDAE, Ocenebrinae) (Oyster Drill)

● Vermicularia knorri Deshayer (TURRITELLIDAE, Vermicu- (Florida Worm-shell) (not Vermetidae) lariinae)

(D) CLASS: PELECYPODA (Pelecypods=Bivalves='Clams')

● Abra (Abra) aequalis Say (SEMELIDAE) (Common Atlantic Abra)

● Abra (Abra) lioica Dall (") (Dall's Little Abra)

● Aequipecten (Argopecten) gibbus Linne (PECTINIDAE, (='Plagioctenium') Pectininae) (Calico Scallop)

- Aequipecten (Argopecten) irradians Lamarck (")
  (Atlantic Bay Scollop)
- Andara (Cunearca) brasiliana Lamarck (ARCIDAE,
  (Incongruous Ark) ='incongrua' Say Andarinae)
- Andara (Larkinia) lienosa (Say) (")
  (Cut-ribbed Ark) floridana Conrad
  ='secticostata' Say
- Andara (Lunarca) ovalis Bruguiere (")
  (Blood Ark) ='pexata' Say
- Andara (Larkinia) transversa Say (")
  (Transverse Ark) ='sulcosa' van Hyning
- Anodontia alba Link (LUCINIDAE)
  (Buttercup Lucine)
- *Anodontia philippiana Reeve (")
  (Chalky Buttercup)
- *Anomia (Anomia) aculeata Gmelin (ANOMIIDAE)
  (Prickly Jingle Shell)
- Anomia (Anomia) simplex d'Orbigny (")
  (Common Jingle Shell)
- Arca (Area) imbricata Bruguiere (ARCIDAE,
  (Mossy Ark) ='umbonata Lamarck Arcinae)
- Arca (Arca) zebra Swainson (")
  ='occidentalis' Philippi
  (Turkey Wing)
- Arcopsis (Arcopsis) adamsi E.A. Smith (")
  (Adam's miniature Ark)
- Arcuatula demissa Dillwyn (MYTILIDAE,
  (formerly 'Modiolus' Tribe=Mytilini)
  or Volsella) ='plicatula' Lamarck
  (Atlantic Ribbed Mussel)
- Atrina (Atrina) rigida Solander (PINNIDAE)
  (Stiff Pen Shell)
- Atrina (Servatrina) serrata Sowerby (")
  (Saw-toothed Pen Shell)
- Bankia (Bankiella) gouldi Bartsch (TEREDINIDAE)
  (Gould's Ship-worm)
- Barbatia (Barbatia) candida Helbling (ARCIDAE,
  (White Bearded Ark) Arcinae)
- Barbatia (Acar) domingensis Lamarck (")
  (White miniature Ark)
- Barmea (Anchomosa) truncata Say (PHOLADIDAE)
  (Fallen Angel Wing) Pholadinae)
- Brachidontes (Hormomya) exustus Linne (MYTILIDAE)
  (Scorched Mussel) Tribe: Mytilini)
  (Yellow Mussel) & Var: citrinus Roding
- Brachidontes (Ischadium) recurvus Linne (")
  (Hooked Mussel)

- Cardita (Pteromeris) perplana Conrad (CARDITIDAE)
  (Flattened Cardita)
- Cardita (Pleuromeris) tridentata Say (")
  (Three-toothed Cardita)
- Caryocorbula contracta Say (CORBULIDAE)
  (Contracted Corbula) ='Aloididae'
- Chama (Chama) congregata Conrad (CHAMIDAE)
  (Little Corrugated Jewel Box)
- Chama (Chama) macerophylla Gmelin (")
  (Leafy Jewel Box)
- Chione (Chione) cancellata Linne (VENERIDAE,
  (Cross-barred Venus) Chioninae)
- Chione (Timoclea) grus Holmes (")
  (Gray Pygmy Venus)
- **Chione (Chione) intapurpurea Conrad (VENERIDAE)
  (Lady-in-waiting Venus)
- Chione (Lirophora) latilirata Conrad (")
  (Imperial Venus)
- Corbula (see Caryocorbula)
- Crassostrea virginica Gmelin (OSTREIDAE)
  (Eastern Oyster)
- Crenella (Crenella) glandula Toffen (MYTILIDAE
  (Glandular Crenella) Tribe: Orenellini)
- Cumingia tellinoides Conrad (SEMELIDAE)
  (Tellin-like Cumingia)
- *Cyclinella tenuis Recluz (VENERIDAE,
  (Atlantic Cyclinella) Cyclininae)
- Cyrtopleura (Scobinopholos) costata (PHOLADIDAE,
  (Angel Wing) Linne Pholadinae)
- Dinocardium robustum Solander (CARDIIDAE,
  ='magnum' Born NON Linne Laevicardiinae)
  (Giant Atlantic Cockle)
- Diplodonta (Diplodonta) punctata Say (DIPLODONTIDAE)
  ='Taras' (Common Atlantic Diplodon)
- Diplodonta (Phlyctiderma) semiaspera Philippi (")
  ='Taras' (Pimpled Diplodon)
- Divaricella (Divalinga) quadrisulcata (LUCINIDAE)
  (Cross-hatched Lucine) d'Orbigny
- Donax (Serrula) variabilis Say (DONACIDAE)
  (Coquina)
- Dosinia (Dosinidia) discus Reeve (VENERIDAE,
  (Disk Dosinia) Dosiniinae)
- Dosinia (Dosinidia) elegans Conrad (")
  (Elegant Dosiniia)
- Echinochama cornuta Conrad (CHAMIDAE)
  (Florida Spiny Jewel Box)

**Ensis directus Conrad (SOLENIDAE)
(Atlantic Jackknife Clam)

Gemma gemma Totten (VENERIDAE)
(Amethyst Gem Clam)

Glycymeris (Glycymeris) americana (GLYCYMERIDAE)
(Giant American Bittersweet) Defrance

Glycymeris (Glycymeris) pectinata Gmelin (")
(comb Bittersweet)

Glycymeris (Glycymeris) undata Linne (")
(Atlantic Bittersweet)

Hiatella arctica Linne (HIATELLIDAE)
(Arctic Saxicave) ='Saxicavidae'

Labiosa (Labiosa) lineata Say (")
='Anatina' ='Raeta' (Smooth Duck Clam)

Labiosa (Labiosa) plicatella Lamarck (MACTRIDAE)
='Anatina' Schumacher, NON Bosc
='Raeta', Gray ='canaliculata, Say
(Channelled Duck Clam)

Laevicardium (Laevicardium) laevigatum (CARDIIDAE,
(Common Egg Cockle) Linne Laevicardiinae)

Laevicardium (Laevicardium) mortoni Conrad (")
(Morton's Egg Cockle)

Lima (Limaria) pellucida C.B. Adams (LIMIDAE)
(Autillean Luna or File-shell)

Lithophaga (Myoforceps) aristata Dillwyn (MYTILIDAE,
(Scissor Date Mussel) Tribe: Lithophagini)

Lithophaga (Diberus) bisulcata d'Orbigny (")
(Mahogany Date Mussel)

Lucina (Parvilucina) multilineata (LUCINIDAE)
Tuomey & Holmes (Many-lived Lucine)

*Lyonsia (Lyonsia) beana d'Orbigny (LYONSIIDAE)
(Pearly hyonsia)

Lyonsia (hyonsia) hyalina Conrad (")
(Glossy Lyonsia)

*Lyropecten (Nodipecten) nodosus Linne (PECTINIDAE,
(Lion's Paw) Pectininae)

**Macoma balthica Linne (TELLINIDAE)
(Balthic Macoma)

*Macoma (Macoma) constricta Bruguiere (TELLINIDAE)
(Constricted Macoma)

**Macoma tenta Say (TELLINIDAE)
(Tenta macoma)

Macrocallista (Macrocallista) maculata (VENERIDAE,
(Checkerboard or Calico Clam) Linne Pitarinae)

Macrocallista (Macrocallista) nimbosa (")
(Sunray Venus) Solander

Mactra (Mactrotoma) fragilis Gmelin (MACTRIDAE)
(Fragile Atlantic Surf Clam or Mactra)

**Martesia cuneiformis Say (PHOLADIDAE)
(Wedge-shaped Martesia)

Martesia (Martesia) striata Linne (PHOLADIDAE
(Striate Martesia) Martesiinae)

Mercenaria campechiensis Gmelin (VENERIDAE,
(Southern Quahog or Hard Clam) Chioninae)

Mercenaria mercenaria Linne (")
(Northern Quahog or Hard Clam)

Modiolus (Modiolus) americanus Leach (MYTILIDAE,
='Volsella tulipa' 'Linne' or 'Lamarck'
(duct.) (Tulip mussel) Tribe: Modiolini)

Mulinia lateralis Say (MACTRIDAE)
(Dwarf Surf Clam)

Musculus lateralis Say (MYTILIDAE,
(Lateral Musculus) Tribe: Lithophagini)

Mya (Arenomya) arenaria Linne (MY(AC)IDAE)
(Long-neck or Soft-shell Clam)

Mytilus (Mytilus) edulis Linne (MYTILIDAE,
(Blue Mussel) Tribe: Mytilini)

Noetia (Eontia) ponderosa Say (ARCIDAE,
(Ponderous Ark) Noetiniae)

Nucula (Nucula) proxima Say (NUCULIDAE)
(Atlantic Nut Clam)

Nuculana (Saccella) acuta Conrad (NUCULANIDAE,
='Leda (Pointed Nut Clam) Nuculaninae)

Ostrea (also see Crassostrea)

Ostrea (Ostrea) equestris Say (OSTREIDAE)
(Crested Oyster)

*Ostrea (Ostrea) permollis Sowerby (")
(Sponge Oyster)

Panope bitruncata Conrad (HIATELLIDAE)
(Atlantic Geoduck) ='Saxicauidae'

Papyridea soleniformis Bruguiere (CARDIIDAE,
(Spiny Paper Cockle) Trachycardiinae)

*Pecten (Envola) raveneli Dall (PECTINIDAE,
(Ravenel's Scallop) Pectininae)

*Pecten (Envola ziczac Linne (")
(Zigzac scallop)

Pecten (also see Aequipecten)

Periploma (Cochlodesma) leanum Conrad (LATERNULIDAE,
(Lea's Spoon Clam) Periplomatinae)

Petricola (Petricolaria) pholadiformis (PETRICOLIDAE)
(False Angel Wing) Lamarck

Pholas (Thovana) campechiensis Gmelin (PHOLADIDAE,
(Campeche Angel Wing) Pholadinae)

Pinctada radiata Linne (PTERIIDAE)
(Atlantic Pearl Oyster)

● Pitar (Pitar) morrhauna Linsley (VENERIDA, Pitarinae)
(Morrhau Venus)

● Placopecten magellanicus Gemlin (PECTINIDAE)
(Atlantic Deep-sea Scallop)

● Plicatula gibbosa Lamarck (PLICATULIDAE)
(Kitten's Paw)

● Polymesoda caroliniana Bosc. (CORBICULIDAE)
Carolina Marsh Clam)

● Pteria (Pteria) colymbus Roding (PTERIIDAE)
(Atlantic Wing Oyster)

Quadrans lintea Conrad (TELLINIDAE)
(Lintea or Linen Tellin)

● **Rangia cuneata Gray (MACTRIDAE)
(Common Rangia)

● Rupellaria (Rupellaria) typica Jonas (PETRICOLIDAE)
(Atlantic Rupellaria or Rock-borer)

● Semele (Semele) proficua Pulteney (SEMELIDAE)
(White Atlantic Semele)

● Semele (Semele) purpurascens Gmelins (")
(Purplish Semele)

● Solemya (Petrasma) velum Say (SOLEMYIDAE)
(Common Atlantic Awning Clam)

Solen (Solen) viridis Say (SOLENIDAE)
(Green Razor or Jackknife Clam) Soleninae)

● Spisula (Hemimactra) solidissima Dillwyn (MACTRIDAE)
VAR: similis Say
(Atlantic Surf Clam)

Strigilla (Strigilla) carnaria Linne (TELLINIDAE)
(Rosy Carnaria or Large Strigilla)

● Tagelus (Mesopleura) divisus Spengler (SANGUINOLARIIDAE
(Purplish Tagelus or False Razor) ='ASAPHIDAE'=
'GARIIDAE'

● Tagelus (Tagelus) plebeius Solander (")
(Stout Tagelus or False Razor)

Tellina (Angulus) agilis Stimpson (TELLINIDAE)
='tenera' Say
(Northern Dwarf Tellin)

● Tellina (Eurytellina) alternata Say (")
(Alternate Tellin)

● Tellina (Scissula) iris Say (")
(Iris Tellin)

Tellina (Scrobiculina) magna Spengler(")
(Great Tellin)

● **Tellina (Angulus) versicolor DeKay (")
(DeKay's Dwarf Tellin)

● Teredo bartschi Clapp (TEREDINIDAE)
(Bartsch's Shipworm)

● Trachycardium (Trachycardium) egmontianum
Shuttleworth (CARIIDAE)
(Prickly Cockle) Trachycardiinae

Trachycardium (Dallocardia) muricatum Linne (")
(Yellow Cockle)

● Trigonocardia (Americardia) media Linne (")
(Atlantic Strawberry Cockle) Fraginae

(E) CLASS: CEPHALOPODA (='Head-footed')

*Argonauta argo Linne (ARGONAUTIDAE)
(Common Paper Nautilus)

● Loligo (Loligo) pealei Lesueur (LOLIGINIDAE)
(Atlantic Long-finned Squid)

● Lolliguncula brevis Blainville (")
(Brief Squid)

● Octopus vulgaris Lamarck (OCTOPODIDAE)
(Common Octopus) Octopodinae)

Rossia (Semirossia) tenera Verrill (SEPIOLIDAE)
(Atlantic Bob-tailed Squid) Rossiinae

● Spirula (Spirula) spirula Linne (SPIRULIDAE)
(Common Spirula)

* -Commonness questioned by Editor.
**-Added by Editor.

MEMBERSHIP LIST — NORTH CAROLINA SHELL CLUB
July 1966
*Denotes Charter Member
( )Denotes wife's maiden name or
collecting interest, when known.

Adams, Mrs. Katherine H. (Hinton), 204 Meade St., Greenville, N.C. 27834. Phone PL2-5295 (Florida shells).

Amos, Mrs. Kenner, 407 Hillcrest Drive, High Point, N.C.

Amos, Miss Laura, 407 Hillcrest Drive, High Point, N.C.
Junior Member.

Anderson, Mrs. Bertha P, Rodanthe, N. C.

Barker, Mr. & Mrs. W. L., 409 Gatewood Ave., High Point, N. C.

Bates, Mrs. C. Richard, Route 3, Box 338, Wilmington, N.C. 28401

Beetle, Mrs. Dorothy, 1658 Sterling Rd., Charlotte, N. C. (Western U.S.A. land and freshwater shells).

*Bell, Mrs. Graham, Box 149, Fayetteville, N. C.

*Bell, Miss Lila, 1620 St. Mary's Street, Raleigh, N. C.

Bell, Mrs. Mae B., P.O. Box 442, Rocky Mount, N. C.

Berry, Mrs. Ruth M., 709 Parker St., Durham, N. C.

Bertling, Dr. M. H., 2312 Princess Anne St., Greensboro, N. C. Vice-pres., 1964.

Bertling, Mrs. M. H., 2312 Princess Anne St., Greensboro, N. C. Vice-pres., 1965.

Biron, Mrs. Mavis R., (Rowlett), 4317 Dinglewood Ave., Charlotte, N.C. 28205. Phone FR5-2954. (General collecting and Cowries).

Blake, Mrs. Lucille, Rt. 2, Box 249, Leland, N. C.

Brantley, Mr. Kenneth, 301 Lillian Rd., Wilson, N. C. Junior Member.

Brooks, Miss Eleanor, 921 St. Marys St., Raleigh, N. C.

Brown, Mr. & Mrs. Wade G., (Nancy Browning), 1317 Arnette Ave., Durham, N.C. 27707. Phone 489-3140. (North Carolina & Western shells, Murex & Pectens).

Bryan, Mr. & Mrs. W. Carroll, 210 Woodlawn Drive, Jacksonville, N. C.

Buck, Mrs. Bessie E., Box 12042, Raleigh, N. C.

Burr, Mr. & Mrs. Fred S., 315 S. Second St., Wilmington, N. C. 28401.

Caldwell, Mr. Robert, 722 Naha Drive, Tarawa Terrace, N.C.

Carroll, Miss Camille, Box 954, Wilmington, N. C. 28401

Carson, Mrs. Herbert, Sr., Lillington, N.C.

Chandler, Mrs. M.M., Rt. 1, Free Union Parsonage, Pinetown, N. C.

Charles, Mrs. G. A., (Kate Cochran), 2516 Edgewater Drive, Fayetteville, N.C. Phone HU4-2001. (World-wide, North Carolina, Marine, Estuarine, and Fossil.)

Clark, Miss Martha, Route 5, Box 588, Greensboro, N. C.

Clarke, Mrs. Mary G., (Louise Gill), Timberlake Estate, Route 1, Chapel Hill, N. C. Phone 942-7021. (Marine forms - World-wide and North Carolina).

Cobb, Mrs. Collier, 6 W. Bayshore Blvd., Jacksonville, N.C.

Covington, Mrs. W. C., Jr., (Donna), 1016 Manchester Drive, Raleigh, N. C.

Crawford, Mrs. Lucille, Rt. 1, Box 263, Swansboro, N.C. 28584

*Davis, Mr. Harry T., Box 2281, N.C. State Museum of Natural History, Raleigh, N.C. 27602. Phone 829-7451. (North Carolina - Marine, Estuarine, Fresh water, Land & Fossil shells).

*Dawley, Dr. Charlotte, Biology Dept., Univ. North Carolina - Greensboro, Greensboro, N.C. 27412. (U.S. Fresh-water shells).

Dehart, Mr. & Mrs. Allen, Louisburg College, Louisburg, N. C.

Deyoe, Miss L. Marguerite, C/O State School for Blind, Raleigh, N. C.

Divine, Miss Betty, 416 South Front St., Wilmington, N.C. 28401

Dixon, Mr. B. A., 711 Parker St., Durham, N.C. (World-wide, U.S. & North Carolina Marine Shells).

Dixon, Mrs. B. A., (Ruth Stallings), 711 Parker St., Durham, N.C. (World-wide, U.S., and N.C. Marine & Fossil shells). Phone: 682-1501.

Dorsey, Mr. W. Kendall, Box 83, Wrightsville Beach, N.C.

Dubois, Miss Charlotte A., 4301 Lawndale Drive, Greensboro, N. C.

Duncan, Ensign & Mrs. A.R., 12812 Evanston St., Rockville, Maryland.

Edgerton, Mrs. N.E., Jr., Tatton Hall, 1625 Oberlin Road, Raleigh, N. C.

Ennis, Mr. W. H., 4404 Chesapeake Drive, Charlotte, N.C.

Evans, Miss Eve, 1211 Alabama Avenue, Durham, N. C.

*Ferenczi, Dr. Istvan, 1511 22nd St., N.W., Apt. 103, Washington 7, D.C. 20037. (Fossil shells).

Ferguson, Dr. John H., 226 Glandon Drive, Chapel Hill, N.C. 27514. Phone 942-4375. (Taxonomy of Fossil and Living World-wide Shells). Vice-pres., 1961.

Ferguson, Mrs. John H., (Doris Cummings), 226 Glandon Drive, Chapel Hill, N.C. 27514. Phone 942-4375. (World-wide Marine & Fossil shells).

Fidler, Dr. Don, 2640 Royston Road, Charlotte, N.C.

Formyduval, Mrs. Elsie H., Hallsboro, N. C.

Fortune, Miss Julee K., 4312 Groometown Road, Greensboro, N.C. 27407. Phone CY9-5041. Junior Member. (U.S. & N. C. Marine & Fossil shells).

Fortune, Mrs. Roy, (Reva Ingram), 4312 Groometown Road, Greensboro, N.C. 27407. Phone CY9-5041. (U.S. & N.C. Marine & Fossil shells).

Fountain, Mrs. J.L., Anderson Drive, Raleigh, N.C.

Foust, Mrs. J. M., Jr., Ramseur, N.C. 27316

Freeman, Mr. James G., Jr., 5873 Maine Court, MEMQ, Camp Lejeune, N. C.

Gaw, Mrs. John G., 323 W. Blvd., Laurinburg, N. C.

Gentry, Mrs. Orphia A., 209 Morgan St., Roxboro, N. C.

Gill, Mr. & Mrs. T. J., Box 103, Laruinburg, N. C.

Grady, Miss Elizabeth, 108 Nun St., Wilmington, N. C. 28401. Phone 762-7956.

Graham, Mrs. Allen, Sr., P. O. Box 218, Ramseur, N. C. 27316.

Green, Mr. & Mrs. A. M., (Barbara), 157 Picadilly Drive, Winston-Salem, N.C. 27104. Phone 765-2214. (World-wide Marine Gastropods).

*Green, Mrs. Charlotte Hilton, 3320 White Oak Road, Raleigh, N. C.

Griffith, Miss Emily C., 1307 Carolina Street, Durham, N.C.

Hall, Mr. Warner L., 727 Queens Road, Charlotte, N. C.

Hammett, Mr. William L., N.C. State Museum of Natural History, P.O. Box 2281, Raleigh, N.C. 27602. Phone 829-7451. (U.S. & North Carolina Shells).

Harper, Miss Neva, Box 74, Fremont, N. C. Phone 242-4326. (World-wide Marine & Fossil shells).

Harrington, Mr. & Mrs. Maxwell P., Willis Landing, Rt. 1, Box 186, Hubert, N. C.

Harris, Mrs. Emmett, Swansboro, N. C. 28584.

Hayworth, Mrs. Williams, 721 Westward Ave., High Point, N. C. 27262.

Heizer, Mr. & Mrs. James S., 1320 Arnette Ave., Durham, N. C.

Hewett, Mrs. Lloyd G., Box 652, Shallotte, N. C.

Highfill, Miss Hollyce, Box 445, Greensboro, N. C.

Highfill, Mrs. Mary, 540 S. Aycock St., Greensboro, N.C.

Hobson, Mrs. Pat, 409 Elliott Road, Chapel Hill, N.C.

Hooks, Mr. & Mrs. Barden D., 2427 Medway Drive, Raleigh, N. C.

Horton, Mrs. Marilu C., (Cobb), 410 South Front St., Wilmington, N. C. 28401. Phone RO3-8644. (World-wide marine shells).

Humphries, Mrs. Margaret, First Presbyterian Church, Rocky Mount, N. C.

Honeycutt, Mr. & Mrs. J. H., Box 293, Pineville, N.C.

Hurley, Mrs. D. W., Box 145, Biscoe, N.C.

Jackson, Mrs. Dan, (Marian McGill), Rt. 1, St. Paul, N.C. 28384. Phone 865-8681. (World-wide, U.S. & North Carolina shells).

Jeffreys, Paul, Fremont, N. C. Junior Member.

Jeffreys, Mrs. Ernest, Fremont, N. C.

Jennewein, Mr. Paul R., Box 394, (209 Water St.), Wrightsville Beach, N.C. Phone AL6-2532. (North Carolina Marine and Estuarine shells). President, 1965-1966.

John, Mrs. Thomas, (Dibba Williams), 415 West Boulevard, Laurinburg, N. C. 28352. Phone CR6-1797. (North Carolina south to the Caribbean Islands).

*Johnson, Mrs. Kenneth L., (Charlotte), 3206 Sussex Road, Raleigh, N.C. 27607. Phone 787-4022. (World-wide Marine & Fossil shells particularly Cowries, Pectens & Wentletraps). President 1960.

Johnson, Mr. & Mrs. T. Moyle, Bowling Creek Road, Chapel Hill, N. C.

Jones, Mr. & Mrs. R. Fleming, P. O. Box 441, Myrtle Beach, S. C.

Koonce, Mr. Calvin B., Rt. 2, Raleigh, N. C. 27610. Phone EM2-2133. (World-wide Marine & Fossil shells).

Koonce, Mrs. M.B., Box 2250, Raleigh, N.C. 27602. Phone TE2-5770. (U.S. & N.C. Estuarine, Fresh-water & Land Shells).

Kuder, Dr. & Mrs. G. Fredrick, Box 6907, College Station, Durham, N.C.

Kunkle, Miss Rachel Jane, 1212 Watauga St., Raleigh, N.C.

Kugler, Mr. & Mrs. Charles B., Box 513, Myrtle Beach, S.C.

Leager, Mrs. S. R., 1306 Mayfair Road, Raleigh, N. C.

Leaman, Mrs. Betty, Court Capri, 2610 N. Ocean Blvd., Myrtle Beach, S. C.

Lewis, Mrs. Jo Anne, Cape Carterette, Swansboro, N. C.

Lovering, Miss Helen, Box 954, Wilmington, N.C. 28401

Lovin, Mr. & Mrs. A. K., Box 688, Red Springs, N.C.

Lovin, Bill, Cindy, and Timmy, Box 688, Red Springs, N. C. Junior members.

Lowry, Mr. Walter, 5404 Overlook Drive, Rt. 1, Raleigh, N.C. 27609. Phone 828-4270 (World-wide & North Carolina Marine and Fossil Shells).

Lowry, Mrs. Walter G., (Nelle), 5404 Overlook Drive, Rt. 1, Raleigh, N. C. 27609. Phone 828-4270. (World-wide & North Carolina Marine Shells).

Lytle, Miss Roberta E., A-3, Raleigh Apt., Raleigh, N.C. Sec.-treas., 1958-1959.

MacDonald, Miss Hughrena, Box 534, New Bern, N.C. 28561. Phone ME7-2210. (General)

MacDonald, Mrs. H.C., (Sallie Wynne), Box 534, New Bern, N.C. 28561. Phone ME7-2210. (General)

Marsh, Miss Edith, 2702 Mayview Road, Raleigh, N.C.

Mason, Miss Gladys, Box 458, 6 Natahla St., Badin, N.C. 28009. Phone 422-3881. (General).

Mathews, Mrs. Elizabeth T., (Tate), 311 S. Second St., Wilmington, N.C. 28401. Phone RO2-5149. Treasurer, 1964-1966.

Mattocks, Mr. James, Professional Bldg., High Point, N.C. 27261.

McCollum, Misses Sara J. and Margaret G., 330 Patrick St., Leaksville, N.C. Junior Members.

McCollum, Mr. & Mrs. M. H. Jr., 330 Patrick St., Leaksville, N. C.

McCoy, Mrs. Donald W., (Kathryn Charles), 2516 Edgewater Drive, Fayetteville, N.C. Phone HU4-2001. (North Carolina, Bahamas, & Gulf Coast Marine shells.)

McGowen, Mr. Edward, Turkey, N.C.

McGraw, Mrs. Charlotte Ann, Rt. 4, Louisburg, N.C.

McInnes, Mrs. R. C., (Cornelia), F-6 Raleigh, Apts., Raleigh, N.C. 27605. Phone 832-6995. (World-wide Marine shells).

McKinley, Mrs. Russell, (Elizabeth), 314 Hillsboro St., Raleigh, N.C.

McLean, Mrs. Rose C., Sr. Eagle Springs, N.C.

McLean, Mr. Wm. Roger, Eagle Springs, N.C.

*Meacham, Mr. F.B., 2716 Everett Ave., Raleigh, N.C.

Meadows, Miss Phoebe, Rt. 1, Box 312A, Swansboro, N.C. 28584. Phone EA6-4497. (North Carolina Marine shells)

Meredith, Mrs. Dixie C., 513 Princess Street, Wilmington, N.C. 28401

Merritt, Mrs. B.K., Rt. 3, Box 114, Wilmington, N.C. 28401

Merritt, Mr. Kermit, Jr., Rt. 3, Box 114, Wilmington, N.C. 28401. Junior member.

Merritt, Mrs. Carl, (Frances), 327 Tipperary Lane, Winston-Salem, N.C.

Merritt, Ricky, 327 Tipperary Lane, Winston-Salem, N.C. Junior member.

Mitchell, Miss Marie, 128 Lawrence St., Greensboro, N.C.

*Moore, Mr. Jimmy, Box 604, Cary, N.C.

Moore, Mrs. Joe P., 308 E. 17th St., Lumberton, N.C.

Moreing, Mrs. Georgia, 211 Park Ave., Morehead City, N.C. 28557

Morrison, Chris, 1804 Market St., Wilmington, N.C. 28401. Junior member.

Musaus, Mrs. Marcus H., (Adele) P.O. Box 581, Carolina Beach, N.C. 28428. Phone LG8-5593. (U.S. & in particular N.C. & Florida shells).

Nance, Miss Josephine M., Rt. 1, Box 259, Shallotte, N.C.

Neville, Mr. & Mrs. Gus, Box 188, Spring Hope, N.C.

Newbold, Mrs. Jesse H., No. One Church St., Wilmington, N.C. 28401.

Oneta, Mr. & Mrs. Julian, Hotel Carolinian, Nags Head, N.C.

Oden, Mrs. Carlos D., The Sea Gull Motel, Hatteras, N.C.

Otts, Mrs. Jennings, (Ruth) 415 S. 5th St., Wilmington, N.C. 28401.

Overstreet, Mr. & Mrs. Linton, 113 W. Erskine Drive, Greensboro, N.C.

Parker, Mrs. Meredith, Swansboro, N. C. 28584.

*Peacock, Mrs. John, Fremont, N.C.

Peders, Mrs. Viola Shaw, 1805 Perry Ave., Wilmington, N.C. 28401

Petit, Mr. Richard E., P.O. Box 133, Ocean Drive Beach, S.C

Piper, Mr. & Mrs. E. H., Gloucester, N.C. 28528. (North Carolina shells).

Pittman, Mrs. Robert, Swansboro, N.C. 28584.

*Porter, Hugh J., Rt. 1, Box 177A, Morehead City, N.C. 28557. Phone PA6-4265. (N.C. shells and Cassididae).

*Porter, Mrs. Hugh J., (Dorothy Pinkerton), Rt. 1, Box 177A, Morehead City, N.C. 28557. Phone PA6-4265. (World-wide shells).

Powers, Mrs. Russell H., (Betty Atkins), Box 128, 512 W. Broad St., St. Pauls, N.C. 28384. Phone 865-4051. (World-wide & N.C. shells).

Proctor, Mrs. J. K., Jr., 105 N. Harding St., Greenville, N.C.

Proctor, Mrs. James Dick, N. Lee St., Whiteville, N.C.

Pullian, Miss Margie, 413 West Sixth St., Newton, N.C.

Reeder, Mr. & Mrs. George, Yaupon Beach, N.C.

Rice, Mrs. J.E., (Sada Latimer), 2312 Princess Anne St., Greensboro, N.C. 27408. Phone 274-2297. (General collecting).

Richardson, Dr. Ernest C., Jr., 1616 Lucerne Way, New Bern, N.C. 28561.

Roberts, Miss Betsy, 2224 Circle Drive, Raleigh, N.C.

Rogers, Miss Elizabeth, High Point Medical Center, Suite 113, 624 Quaker Lane, High Point, N.C. Junior member.

*Rogers, Dr. Max P., High Point Medical Center, Suite 113, 624 Quaker Lane, High Point, N.C. Vice-pres., 1957-1958.

Rogers, Mrs. Max P., High Point Medical Center, Suite 113, 624 Quaker Lane, High Point, N.C.

Ross, Mrs. Neil, Lillington, N.C.

Savage, Mr. & Mrs. C. E., 824 Lake Boone Road, Raleigh,N.C.

Scarborough, Mrs. Q. J., 1103 Norwood St., Fayetteville, N.C.

Scott, Miss Isabel, 2414 Market St., Wilmington, N.C. 28401

Sellers, Miss Sue, 527 Jefferson St., Greensboro, N.C. Junior Member.

Shannon, Mrs. Thomas, 502 Cherokee Drive, Jacksonville,N.C.

Skaale, Mrs. A. J., 1006 Lake Boone Trail, Raleigh, N.C.

Slidewell, Miss Patricia, 128 Lawrence St., Greensboro,N.C.

Smith, Mr. & Mrs. Caveness G., 829 Kenly Road, Goldsboro, N.C.

Smith, Mr. & Mrs. John M., (Sibyl Elizabeth McGowan), P.O. Box 2302, New Bern, N.C. 28562. Phone ME7-5670. (N.C. & Florida shells).

Smith, Mr. William L., 1318 Richmond Place, Charlotte, N.C. 28209. Phone 523-8972. (World-wide Marine & Cypraea, Conus & Volutes).

Snider, Mrs. Wm. D., 1405 Briarcliff Road, Greensboro, N.C. Phone 272-5416. (N.C. Marine shells).

Strickland, Mrs. Raymond, Louisburg, N. C.

Stroud, Mrs. L. A., (Maggie Felton), 410 W. Fifth St., Greenville, N.C. 27834. Phone PL8-1588. (U.S., North Carolina & Pectens).

Summerell, Miss Mary D., Box 165, Boone, N. C.

Taylor, Mr. David, Lakewood, Rt. 1, McLeanville, N.C.

Thacker, Mrs. Grady, 1808 Rolling Road, Greensboro, N.C.

Thomas, Mrs. Jack, 403 Summer Rest Road, Wrightsville Sound, Wrightsville Beach, N. C.

Thomas, Miss Marguerite T., Rt. 1, Box 312A, Swansboro, N.C. 28584. Phone RA6-4497. (U.S. & NC. Marine shells).

Thompson, Mrs. Blake, 712 Sunset Drive, High Point, N.C.

Tinder, Mr. & Mrs. W. F., (Lora Hardesty), P.O. Box 96, McCain, N.C. 28461. Phone WI4-2351. (N.C. shells).

Traister, Mrs. Helen, Rt. 3 Box 13, Wilmington, N.C. 28401.

Tregembo, Mrs. Josephine, Rt. ", Box 356AA, Wilmington, N. C. 28403.

Tregembo, Mrs. Mildred R., (Mildred Robin O. Ondrasky), Rt. 2, Box 356AA, Wilmington, N. C. 28403. Phone 762-2327. (World-wide & N.C. shells).

Turnage, Mrs. Thelma, Camp Lejeune, N. C.

*Turner, Rev. G. Scott, Box 2281, Shallotte, N.C. President 1957-1959.

Tysinger, Mr. & Mrs. T. R., (Genevieve Hunley), P. O. Box 515, Badin, N. C. Phone HA2-3146. (N.C. shells)

Upchurch, Dr. & Mrs. Jack B., 604 Olive St., Apex, N.C.

*Wadsworth, Mr. James E., Wilson Court, Chapel Hill, N.C. Phone 942-3897. (World-wide shells). President, 1961-1962; Vice-pres., 1959-1960.

Wadsworth, Mrs. James E., Wilson Court, Chapel Hill, N.C. Phone 942-3897.

Warren, Mr. Edward S., 207 Pine Road, New Bern, N.C. 28561. Junior member.

Watkins, Mrs. Dorothy, Box 6011, Raleigh, N.C.

Watson, Mrs. D.C., (Estelle), 707 Market St., Wilmington, N.C. 28401. Phone RO2-8203. (N.C. shells).

Watson, Mrs. R. D., (Elizabeth Cleveland), 2825 Rathgeb Drive, Raleigh, N.C. 27609, Phone TE4-3265.

Watson, Mrs. G. M., (Jennie Lloyd), Box 214, Bethel, N.C. 27812. Phone VA5-5956. (World-wide & N.C. Marine shells).

Weatherspoon, Mr. W. H., 1010 Cowper Drive, Raleigh, N.C.

Wheeler, Dr. W. H., Dept. of Geology, Univ. North Carolina, Chapel Hill, N. C. 27515. Phone 933-1212. (Marine and Fossil shells).

Whiteside, Mrs. Smith, (Jeanne), 1516 Kent St., Durham, N.C. 27707. Phone 489-2214. (N.C., Florida & Caribbean Marine & Fossil shells). Vice-pres., 1963.

Wiggs, Miss Mary D., Fremont, N. C.

Williams, Mr. Robert E., 207 N. 7th St., Wilmington, N.C.

Wilson, Mr. Carl, 212 Nun St., Wilmington, N.C.

Wilson, Mrs. Louise White, 2512 St. Mary's St., Raleigh, N. C.

Wilson, Dr. Margaret, 510 Professional Building, Raleigh, N.C.

Winslow, Mrs. Lucille, Hotel Carolinian, Nags Head, N.C.

Withrow, Mr. Carl C., 2010 Dalehurst Drive, Charlotte 5, N. C. 28205. Phone 376-4117. (World-wide Marine shells particularly the Volutacea, Muricacea, Conidae and Strombidae). President, 1963-1964. Vice-pres., 1962.

Withrow, Mrs. Carl C., (Elizabeth Hogg), 2010 Dalehurst Drive, Charlotte 5, N.C. 28205. Phone 376-4117. (World-wide Marine particularly the Wentletraps).

Wise, Dr. George C., 408 32nd Ave.N., Myrtle Beach, S.C. 29577.

Wolfe, Dr. Douglas A., Radio Biological Lab., Bureau of Commercial Fisheries, Beaufort, N.C. 28516.

Wood, Mr. & Mrs. Carl S., (Mozelle Virginia Garner), P. O. Box 1232, High Point, N.C. Phone 888-4954. (World-wide shells).

Woodward, Miss C. Lee, 410 South Front St., Wilmington, N.C.

*Wooten, Mr. & Mrs. Edward F., (Nancy Broadhurst), 2539 Lullington Dr., Winston-Salem, N.C. 27103. Phone PA2-8382. (World-wide Marine shells).

Worrall, Mrs. Wallace W. (Jenny Frye), Bath, N.C. 27808. Phone 923-3641. (World-wide shells).

Wright, Miss Barbara and Mr. Tommy, 708 Brookside Drive, High Point, N.C. Junior Members.

Yarbrough, Mr. & Mrs. T. W., (Moss), 1117 Montpelier Drive, Greensboro, N.C. 27410. Phone 299-6626.

Yelvington, Miss Ann, Rt. 1, Box 208, Clayton, N. C.

DUES PAID AND ARE TO BE VOTED IN AT NEXT MEETING:

Davis, Mrs. W. Edwin, (Patricia Adams), Rt. 1, Long Acres Farm, Seven Springs, N.C. 28578.

NECROLOGY

Mrs. Mattie S. Nance
March, 1965

HONORARY MEMBERS

Chestnut, Dr. A. F., Univ. of North Carolina, Institute of Fisheries Research, Morehead City, N.C. 28557.

Daniels, Mr. Moncie, Box 86, Manteo, N. C.

Howard, Mr. Doyle, Cookville, Tennessee.

Menzies, Dr. Robert J., Duke University, Marine Laboratory, Beaufort, N. C. 28516.

O'Hanlon, Mr. I. H., 3605 Morganton Road, Fayetteville, N. C.

Williamson, Mr. Odell, Shallotte, N. C.