Scotch Bonnet

NUMBER 8

# NORTH CAROLINA SHELL CLUB BULLETIN

DECEMBER, 1975

## DEDICATION
## WADE GILLIES BROWN
### September 16, 1909 — September 12, 1975

Wade Gillies Brown died at his home September 12, 1975. He had been in declining health for several years and was confined to his house for the last year and a half.

He was the son of Wade Hampton Brown and Beth Gillies Brown; born in Chicago, Illinois, September 16, 1909; lived in New York and adopted North Carolina in 1939. He was a graduate of UNC and while there, he met a Duke student Nancy Browning from Hillsborough and married her. Nancy and Wade had one son, Gordon Rives Brown and two grandchildren.

A member of the North Carolina Shell Club for eleven years, Vice-President-1966, President — 1967-1968 and member of the Executive Committee from 1967—1975.

His interest in shells began when he was very young but his knowledge of shells and his collection reached a peak in the last twenty years. Wade and Nancy used to vacation at Ocracoke twice a year. An occasional trip to Florida - the west coast of course - and then the trip to Jamaica pushed the interest even more. Wade's collection consisted of the Western Atlantic Ocean shells, and the Carribbean was the "Thesauri". Intermittently, he took every opportunity to add to his collection and in addition to the Shell Club's field trips he and Nancy covered the Carolina coast very well. He was very proud of his collection. As all true collectors do, he set aside a room in his house, very logically it was called "The Shell Room", and he had show cases, metal file cabinets, open shelf cases, a work table and a work light and in this room Wade spent many hours cleaning labeling, sorting and filing the myriad shells he had acquired. Shell articles written by Wade appeared in the 1966 and 1971 Shell Club Bulletins. This was the last hobby he enjoyed to its fullest.

Hobbies! With each one he was an expert, not because he had read about it, but because he experienced the collection and final result of each: plant collector (philodendron, bromeliads, succulents), stamps, photography, speaker, teacher. A man who strived for perfection and was not content until he achieved it.

Incidentially, he did work for the City of Durham in the Water Resources Department and was the Director from 1960 until he retired in 1974. "Mr. Water" could have been another name for him because here, too, he devoured knowledge and used it to benefit his employer and employees and the public. Because he was highly respected in his field, the U. S. Government AID program sent him to Jamaica in 1962 and to Peru in 1967 to teach proper purification and to study the use of American funds for water facilities.

Wade was sought after as a speaker at civic clubs, garden clubs, etc. and his favorite subjects included: shells, water, sewer, plants, and photography.

(Note: This information was supplied to us by his secretary Helen Leontis.)

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## PRESIDENT'S MESSAGE

Ruth S. Dixon, President

1974 – 1975

We have witnessed a steady growth since our 10th Anniversary and are looking forward to our 20th Anniversary in 1977 with a goal of growth in membership both of the very young and the more mature.

Our 17th and 18th years have been a new era in which our officers have all been females, whereas in the past there had been only one female President. This has alerted the present officers to endeavor to do an especially good job.

The committees have cooperated outstandingly well. Not wishing to mention names, I would like to commend two very important committees, the 1974 Shell Show Committee and the 1975 Publication Committee. The devoted, conscientious effort of each of these individuals made it possible for the Third North Carolina Shell Show to be such a success that the University Mall in Chapel Hill was anxious to bring our Show back this year, and this 8th publication of the North Carolina Shell Club Bulletin will speak, not only for the work of the Publication Committee, but also for those who have contributed articles.

As shell collectors, we have become increasingly aware of our environment and of how we have ignored the wisdom of conservation. We have gone merrily along for realizing that the wonderful things given to us by God, our Creator, could someday be depleted (some already have been), leaving nothing for our children and future generations to enjoy. We must become as aware as the Indians, who were the first Americans, that man was meant to live in harmony and maintain a good, clean land for all children to come. It is necessary to establish a right relationship with the land and its resources; otherwise destruction of the resources will be followed by the destruction of ourselves.

## NORTH CAROLINA SHELL CLUB
## CONSTITUTION

(As revised to date)

This club shall be called THE NORTH CAROLINA SHELL CLUB.

MEMBERSHIP shall be open to any persons interested in the collection of shells or the study of Malacology. New members may be received by consent of the club at any regular meeting. ANNUAL DUES for Adults shall be $1.50, For JUNIOR MEMBERS, $.50. Junior membership shall include all individuals of grade school age or younger. SUSTAINING MEMBERSHIPS are offered at $5.00 and SPONSORING MEMBERSHIPS at $10.00. Those members three or more years behind in their dues shall have their membership terminated after due notice.

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.

The following OFFICERS shall be elected annually, by ballot on the last meeting of the year: President, Vice-President, Secretary and Treasurer.

An EXECUTIVE COMMITTEE shall consist of the above officers, all past presidents, and one member who shall be elected annually. It shall be the duty of the Executive Committee to arrange programs for the meetings and supervise the affairs of the club.

The constitution may be altered by a majority vote of the total membership at any regular meeting, but written notice shall be given for any proposed change.

### OFFICERS 1976

**MR. HUGH J. PORTER, PRESIDENT**
University of North Carolina
Institute of Marine Sciences
Morehead City, N. C. 28557

**MRS. J. STACY WALTON, TREASURER**
13 East Bayshore Blvd.
Jacksonville, N. C. 28540

**MRS. JOHN MOBLEY, VICE-PRESIDENT**
201 Colonial Drive
Wilmington, N. C. 28401

**MISS. MARGUERITE T. THOMAS, RECORDING SECRETARY**
Rt. 1, Box 312A
Swansboro, N. C. 28584

**PAUL R. JENNEWEIN, CORRESPONDING SECRETARY**
P. O. Box 394
Wrightsville Beach, N. C. 28480



### OFFICERS 1975

**PRESIDENT** . . . . . RUTH DIXON
**VICE-PRESIDENT** . . . . . SALLY NUNNALLY
**TREASURER** . . . . . CAROLYN REYNOLDS
**CORRESPONDING SECRETARY** . . . . . CAROLYN REYNOLDS
**RECORDING SECRETARY** . . . . . MARTHA ELLIOTT

## NORTH CAROLINA SHELL CLUB
## 1975
## COMMITTEES AND ASSIGNED RESPONSIBILITIES

PROGRAM COMMITTEE
- Sally Nunnally, Chairman
- Hugh Porter
- Dr. Brantley Watson
- Bill Mansfield

MEETING AND ARRANGEMENTS
- Alta and Van Landingham
- Sally Nunnally
- Paul Jennewein

FIELD TRIP COMMITTEE
- Ann Yelvington, Chairman
- Van Van Landingham
- Ed McGowan
- Mrs. La Rae Guthrie
- Dr. Rowland Shelley

JUNIOR MEMBER ACTIVITIES
- Mrs. Lincoln (Nancy) Sherk, Chairman
- Miss Elizabeth Sherk
- Mr. Joe Quinerly

PUBLICITY
- Paul Jennewein, Chairman
- Mrs. K. L. (Charlotte) Johnson
- Jim Wadsworth
- Hortense Bailey

MEETING REGISTRATION
- Marion Reaves, Chairman
- Mrs. Bruce (Pauline) Huffaker
- Sara McCollum

SHELL SHOW COMMITTEE
- Marguerite Thomas, Chairman
- Hugh Porter
- Mrs. Nancy Sherk
- Dr. Rowland Shelley
- Lucille Piper
- Jim Wadsworth
- Dr. John Ferguson

SHELL AUCTION COMMITTEE
- Jim Wadsworth, Chairman
- Mr. Bruce Huffaker
- Miss Ann Yelvington
- Mrs. H. J. Porter (Pinky)
- Dr. John Ferguson

PUBLICATION COMMITTEE
- Mr. Carl Truckner, Chairman
- Mrs. Carl (Janet) Truckner
- Mr Hugh J. Porter

EDITING COMMITTEE
- Paul Jennewein
- Hugh Porter
- Dr. John Ferguson
- Mrs. Doug Nunnally (Sally)

HOSPITALITY COMMITTEE
- Mrs. Lucille ( E.H.) Piper
- Mrs. Wilma Reusch
- Mrs. Brantley Watson
- Mrs. Lucille Crawford
- Mrs. Alta Van Landingham
- Mrs. Cora Staples

DECORATIONS
- Mrs. Elizabeth McKinley, Chm.
- Mrs. Marion Reaves

LEGAL COMMITTEE
- Dr. Brantley Watson, Chairman
- Mrs. Nancy Sherk

TRANSPORTATION COMMITTEE
- Mr. George Crumpler, Chairman
- Mr. Paul Jennewein
- Mr. T. R. Tysinger

DOOR PRIZE COMMITTEE
- Mrs. Lucy (E.H.) Piper
- Mr. Carl Withrow
- Mr. Stanley Watson

PHOTOGRAPHY COMMITTEE
- Paul Jennewein, Chairman
- Mr. H. L. Reed
- Hortense Bailey

EDUCATION COMMITTEE
- Dr. John Ferguson, Chairman
- Dr. Jack Upchurch
- Mr. Hugh Porter
- Mr. Douglas Nunnally
- Dr. Rowland Shelley

LITERATURE COMMITTEE
- Marguerite Thomas, Chairman
- Barbara McIntyre
- Dr. Brantley Watson

LULA B. UPCHURCH MEMORIAL SHELL COLLECTION
- Dr. Rowland Shelley, Chairman
- Dr. John Ferguson
- Dr. Jack Upchurch

MEMBERSHIP COMMITTEE
- Mrs. Carolyn Reynolds, Chm.

HISTORIAN COMMITTEE
- Mrs. Charlotte Johnson

CONSERVATION COMMITTEE
- Mr. Douglas Nunnally, Chm.
- Mrs. Jeanne Whiteside

TRAVELING SHELL DISPLAY COMMITTEE
- Mrs. Nancy Sherk, Chairman
- Mrs. Hugh Porter



## NORTH CAROLINA SHELL CLUB
## TREASURER'S REPORT
## SEPTEMBER 22, 1975 – NOVEMBER 14, 1975

| | | |
|---|---|---|
| Balance Forward – September 22, 1975 | | $337.24 |
| Receipts: | | |
| Dues | $ 34.50 | |
| Donation | $ 10.00 | |
| Books | $ 12.50 | |
| Shell Auction | $ 49.50 | |
| Total Receipts | | $ 106.50 |
| Disbursements: | | |
| Telephone | $ 7.69 | |
| Postage | $ 30.00 | |
| Caldwell Printing | $ 37.96 | |
| Total Disbursements | | $( 75.65) |
| | | $30.85 |
| Total Balance On Hand | | $368.09 |

| | |
|---|---|
| Check Book Balance | $368.09 |
| Cash | 10.75 |
| Balance on Hand | $378.64 |
| Savings Account | $985.64 |
| TOTAL BALANCE | $1,364.48 |

Respectfully submitted
Carolyn B. Reynolds
Treasurer

# NORTH CAROLINA SHELL CLUB ACTIVITIES

From Fall 1973 through Summer 1975

By: Martha C. Elliott, Recording Secretary

1973 FALL MEETING was held September 21–23 at the NOAA Atlantic Estuarine Center on Pivers Island in Beaufort. Nearly 100 people jammed in to hear Mrs. Edith Lord tell how to prepare weathered wood for decorative purposes. Carl Truckner auctioned off around $134.25 worth of shells.

About 50 people took the field trip on Saturday morning to Bird Shoals.

At the business meeting on Saturday evening, President Doug Wolfe showed slides on the NOAA Atlantic Estuarine Fisheries Center, Ecology Division.

Four cases of North Carolina seashells were exhibited and reported on by Nancy Sherk; these will be a traveling educational display to be shown first at the North Carolina State Fair in Raleigh, October 12 – 20. Hugh Porter gave a program on shells dredged off Charleston, South Carolina. Forty-four hardy souls set forth on the boat Diamond City from Atlantic to Portsmouth Island and visited the town, church and some houses.

Total membership stood at 408.

1973 WINTER MEETING was held November 3, 1973 at the Carolina Inn in Chapel Hill with sessions in the new ballroom. Shells were displayed at the informal meeting, with a workshop presided over by Dr. John Ferguson, Dr. Doug Wolfe and Hugh Porter. Membership to date was 414. The Truckners received a round of applause for the work done on the Shell Club Bulletin. Guest speaker, Dr. Marc Imlay of the office of Endangered Species in Washington, D. C., talked on "Activities of the Office of Endangered Species and International Activities of the Bureau of Sport Fisheries and Wildlife with Special Emphasis on Mollusks."

The following officers for 1974 were elected: Ruth Dixon, President; Ann Yelvington, Vice President; Cornelia McInnes, Recording Secretary; Janet Truckner, Treasurer and Corresponding Secretary; and Dr. John Ferguson, Executive Committee Member at Large.

On November 4, Drs. Imlay and Shelley led about 12 members on a field trip to Tar River. Eight or nine species were found, including a spiny clam by Doug Wolfe and son Nicky.

1974 SPRING MEETING was held March 22–23, 1974, at Wrightsville Beach. Sixty-one attended the informal meeting and heard Hugh Porter report on the scallop industry in North Carolina. Paul Jennewein took 30 people on a rainy field trip next day to Fort Caswell on a chartered bus.

Sixty-four attended the business meeting. Total membership was 421. Shell door prizes were given away. Speaker Dr. John Ferguson showed slides on pen shells and mussels and displayed specimens of these.

1974 SUMMER MEETING was held May 3 – 4 at Emerald Isle. Seventy-three people attended the Friday night meeting including former president Carl Withrow and his wife, Bess. An auction brought in $60.00 more or less. Two films were shown: Coral Wonderland (Great Barrier Reef off Australia), and North Carolina, the Goodliest Land.

Saturday's field trip was split between mud flats and sand flats. Those who went on the sand flats trips were able to watch whelks laying egg cases.



Fifty-five attended the business meeting at Windy Point. Membership was 423. Shell Show plans were revealed by Marguerite Thomas. As a prolog to the program Doris Ferguson read Charlotte Johnson's poem, "To a Precious Wentletrap". Dr. Ferguson spoke on Wentletraps and Janthinas and illustrated his talk with color slides and the beautiful shells themselves. Carl Withrow received an award for bringing the most spectacular exhibit of wentletraps, some breathtaking in their beauty.

Next day's field trip to Shackleford Banks via the Diamond City was cancelled due to inclement weather.

1974 FALL MEETING was held September 27 – 28 at Atlantic Beach with head quarters at Oceanana Motel. Hugh Porter conducted a quiz on shell identification and showed slides he took at the AMU meeting. President Ruth Dixon showed slides and shells and told of her trips to Cozumel Island and Puerto Penasco, Mexico.

Seventy-six people took the Spanish Main from Atlantic Beach to Shackleford Banks for the field trip next day and had varying degrees of success in collecting.

At the Saturday night business meeting members were encouraged to enter exhibits in the Shell Show. Membership was 394. Harry Davis was voted a lifetime honorary membership to the club. He is a former director of the N. C. Museum of Natural History and one of the two founders of the N. C. Shell Club.

Paul Jennewein gave a verbal and pictorial behind-the-scenes view of the 1974 annual AMU meeting in Springfield, Mass. Speaker Harriet Riggs told of her shelling experiences on the Bahama Island of Eleuthera in November 1973, and displayed identified species numbering about 200. Many door prizes were distributed to members and visitors.

1974 WINTER MEETING was held November 9 in Chapel Hill in conjunction with club's third Shell Show, which is described elsewhere in this Bulletin. That evening, a dinner for members and guests was held at the Carolina Inn. Membership stood at 409. Elected officers for 1975 were: PRESIDENT, Ruth Dixon; VICE PRESIDENT, Sally Nunnally; RECORDING SECRETARY, Martha Elliott; TREASURER AND CORRESPONDING SECRETARY, Carolyn Reynolds; and EXECUTIVE COMMITTEE MEMBER AT LARGE, Dr. John Ferguson.

The du Pont Trophy was presented to Harriet Riggs by Russ Jenson of the Delaware Museum of Natural History and one of the judges of the 1974 Shell Show. Janet Truckner was recognized and presented with a gift in appreciation of her 4 years work as Treasurer, Corresponding Secretary and Chairman of the Membership Committee. Outgoing officers were recognized along with those who contributed to the Shell Show. Russ Jenson gave an interesting and hilarious talk on shell of Bermuda, illustrated by his own underwater color movies and personal asides that kept the members in stitches.

1975 SPRING MEETING was held March 21 – 22 at Wrightsville Beach at the Little Church on the Boardwalk Presbyterian Church. Eighty members were present. Susan Bondurant from the Sierra Club discussed a proposal to make Masonboro Island a wilderness state park. Doug Nunnally showed slides of Lake Waccamaw and Greenfield Lake, comparing the two – one clear and clean, the other dirty and polluted. Paul Jennewein showed slides taken at the Chapel Hill Shell Show. $111.00 was brought by a shell auction.

A reception followed this meeting to bid goodbye to former President Doug Wolfe and his family who were leaving North Carolina. They were presented with a green plant in appreciation for all the work and time spent for the Shell Club and were sadly wished well on their move west. A great loss for the Club.

Thirty people went to Masonboro Island for the field trip next day and found only fair shelling and cool weather, choppy water and exciting boat rides back to and from the Island.

The business meeting featured a workshop on the Superfamily Strombacea by Dr. John Ferguson including slides and shells from many parts of the world.

1975 SUMMER MEETING was held May 23–24 at Islander Inn on Emerald Isle. Doug Nunnally spoke on conservation, citing Jack Rudloe, known as "Mr. Conservation" in Florida, for his efforts against bad conservation practices of big development companies. He also showed slides and spoke on Big Bend in Florida which was purchased by a doctor and presented to Shorter College in Rome, Georgia for use in biological studies. Doug further spoke on material sent by Jeane Whitesides asking shell club members to help save Marco Island in Florida by writing letter of protest to the Corps of Engineers. Door prizes were given out.

The field trip next day to Hammock's Beach was pleasant, though few shells were found. Good bird watching, however, and some live moons, coquinas and wentletraps were found.

At Saturday night's business meeting Hugh Porter spoke on the Turridae family many of which are microscopic. His talk was enhanced with slides made with a new type computer camera which greatly magnifies allowing us to enjoy all the fine details.

1975 FALL MEETING was held October 4th at Ocracoke, North Carolina at the Fire Station Community Hall, with approximately 90 attending. Doug Nunnally showed a movie and the Van Landinghams told of their experiences on one of Kirk Anders' shelling expeditions to Martinique. Van auctioned off $49.50 in shells.

Although Saturday dawned bright and beautiful, waves from a hurricane had swept the beaches clean except for Elk's Horns, Olives and Florida Fighting Conchs. That evening Norman G. Messinger (Chief of Interpretation for the Cape Hatteras Seashore) spoke and showed slides on overwash, beach erosion and migration of barrier dunes. Paul Jennewein showed slides and told about the July AMU meeting in San Diego. An energetic nominating committee was appointed.

1975 WINTER MEETING opened with an informal shell workshop in the morning of November 15 at Carolina Inn in Chapel Hill, North Carolina. Hugh Porter reported on the progress of the bulletin – probably to be ready March 1976. The following officers were elected for 1976: PRESIDENT, Hugh Porter; VICE PRESIDENT, Mary Ann Mobley; RECORDING SECRETARY, Marguerite Thomas, CORRESPONDING SECRETARY, Paul Jennewein, TREASURER, Olise Walton, DIRECTOR-AT-LARGE, Dr. John Ferguson.

An auction brought in $73.75.

A banquet was held that evening for about 60 shellers. Dr. Ferguson showed slides and presented a program on the Family Pecten, which was enhanced by a display of many of these beautiful shells.

Everyone thanked everyone else for a good year and Ruth Dixon presented the gavel to Hugh Porter. Next meeting will be March 1976 at an undetermined location.



## OUR THIRD SHELL SHOW

The North Carolina Shell Club held its third shell show on November 9, 1975 in the University Mall in Chapel Hill, North Carolina.

A committee appointed by the president was composed of: Marguerite Thomas, chairman: Hugh Porter; Nancy Sherk; Rowland Shelley; Martha Elliott and Jim Wadsworth. Many months of preparation by this committee and other club members were necessary for the final outcome of the show.

There were thirteen categories for entry into the show with many sub-divisions. Thirty-two members exhibited with a total of 113 cases.

Judges for the show were: Mr. Russell H. Jensen, Assistant Curator of Mollusks at the Delaware Museum of Natural History in Greenville, Delaware; Dr. Charles E. Jenner, Professor of Zoology at the University of North Carolina in Chapel Hill and Mrs. Mae B. Bell, Director of the Rocky Mount Children's Museum in Rocky Mount, N. C. At the last moment Mrs. Bell was unable to attend due to illness so Mrs. Charles Jenner ably assisted the other two judges with the difficult task of awarding trophies and ribbons.

For this show we were very fortunate to have a Du Pont Trophy presented by the Delaware Museum of Natural History for the most outstanding exhibit which contributed most to the success of the show and which was the most instructive and/or inspiring to visitors because of its attractiveness, educational value and scientific accuracy. This trophy was awarded to Mrs. Harriet Riggs of Swansboro, N. C. for her specialized collection of Pectens.

Two silver bowls were presented for Shell of the Show and for Best Overall Collection. Both were won by Dr. K. Brantley Watson of Durham, N. C.

Blue Ribbons were awarded to: Mrs. Harriet Riggs (specialized collection), Joe Carter (junior marine collection), Dr. K. B. Watson (worldwide marine), Dr. K. B. Watson (genus-volutes), Mrs. Emmett Piper (educational), Mrs. Ruth Dixon (self-collected regional), Mrs. Ruth Dixon (photography), Linda Warner (miniatures), Mrs. Mary Heffner (shellcraft), Dr. Douglas Wolfe (N.C. freshwater), Dr. Douglas Wolfe (N. C. land), Kathy Quinerly (junior land), Mary Elizabeth Sherk (regional marine), Mrs. Harriet Riggs (live land snails-terrarium), Dr. John Ferguson (N.C. marine, self-collected).

Red Ribbons were awarded to: Mrs. Janet Ollis (worldwide marine), Mr. Bruce Huffaker (specialized growth series), Mrs. Olese Walton (educational), Mrs. Ralph Lawrence(shellcraft), Mr. and Mrs. Carl Truckner (regional marine), Mrs. Betsy Higgins (live marine mollusks), Mr. George Crumpler (regional marine), Mary Elizabeth Sherk (junior marine), Mrs. Harriet Riggs (N.C. marine shells), Mrs. Harriet Riggs (genus-pectens), Mrs. Harriet Riggs (miniature fossil shells).

White Ribbons were won by: Robin Hayes (worldwide marine), Eloise Walton (regional self-collected marine), Mrs. Ralph Lawrence (shellcraft), Dr. K. B. Watson (specialized growth series), Mr and Mrs. Carl Truckner (N.C. marine), Mrs. Cornelia McInnes (educational), Mrs. Elizabeth McKinley (miniatures), Mrs. Marian Reaves (genus-murex), Raymond Bily (junior marine).

Hundreds of shoppers in the mall admired the exhibits – some returned many times during the day to look and question the exhibitors who were present.

The Committee feels that the show was a great success and earned for our club much recognition and quite a few new members. The Club was flattered recently when we were asked by the mall to return this November with another show – however, due to the short notice this was not feasible at this time.

Marguerite T. Thomas
Chairman of the Third
N. C. Shell Show

## A TRIP TO ELEUTHERA (BAHAMA ISLANDS)
### By Harriet H. Riggs

In November, Cornelia McInnes, Thelma Turnage and Ann Yelvington decided they were going shelling, and in seven days, there they and I were --four ladies in Eleuthera.

The flight over from Miami was smooth, the weather was clear, with beautiful views of the turquoise water and green and gold Bahama Islands below us. The approach to North Eleuthera Airport was over palm trees. After landing we enterd a 15' by 40' building which bore a sign that read "Eleuthera International Airport". Pleasant customs officials took our landing cards and stamped our luggage. In an old Ford station wagon down a two-lane road which quickly became a one-lane road, and fifteen minutes and a couple of narrow misses later, we arrived at Current, North Eleuthera.

The town of Current is not developed for tourists. The one small motel faces east across Middle Ground Bay. Many small fishing skiffs along the waterfront, fish traps made of palm leaves, and piles of Queen Conch shells with the characteristic slit halfway up the spire attested to the abundant sea life which awaited us.

It was twilight by the time we were settled in our cottages, but we rushed the hundred yards or so to the waterfront, a coral sand beach, and were delighted to find lots of Long-spined Star shells, Codakia, Sunrise Tellins, and Olives - - all dead, but promise of what was available at our front door.

Low tide came early in the morning, and before breakfast we went to the water, and turned left to the northeast. There was a large coral sand flat exposed before us. We followed tiny trails and found beautiful white Olivellas, tiny yellow Transanella clams and a species of Bittium. Also found on the flats were True Tulips, King Venuses, and Netted Olives (olorinella form) - - a beautiful creamy white with an acute spire that is so different from our familiar Lettered Olives. In a grassy area at the far end were Saw-toothed Pen Shells and a herd of eight-inch immature Queen Conchs, camouflaged by algal growths.

Along the low tide mark was a stretch of stone and rocks. We worked this area, turning and returning rocks and found a Gold-mouth Triton, Tinted Cantharuses, and an Apple Murex, slender and with external sculpture resembling the Lace Murex, and with a yellow aperture. Such a contrast to our chubby, unfronded pink-mouthed Apple Murex of North Carolina.

As the tide had risen considerably in a short time (variation is about six feet) we embarked on land exploration. It was a short hike of about a mile from our motel to The Current, a narrow cut between Eleuthera and Current Island, through which the tide pours at about twenty knots. Lush foliage of Australian pines, bananas and even a few Norfolk Island Pines lined the road. Several species of land snails were found, as well as some sea snail shells with the red-orange-blue-purple land hermits in them. The trail turned upward and from a considerable height we saw The Current - - the sound of the swiftly moving water, the eddies, and the swirling froth made a truly awesome impression.

If upon leaving the motel you turned to the right and went toward The Current by the water route, the coral sand beach soon became eroded coral limestone. The grey, weathered stone was razor sharp. Above the water line, even up in the pine trees, were Beaded Periwinkles, some measuring over an inch. The pockets in the wave-washed rocks yielded five types of Nerites, seven types of Periwinkles and three kinds of Limpets including the Barbados Keyhole Limpet with its soft spring-green interiors. The fuzzy girdled West Indian Chitons were everywhere, and we found a number of West Indian Top-shells, but only small ones.



Further along we came upon a broken rock area, and following our turning and returning habit, we found Brown-lined Latirus, Red-brown Arcs, tiny mussels, and an Ornate Scallop. This area was our most rewarding one, for over the next few days we found Partridge Tuns, Amber Pen Shells, Doghead Tritons, Rustic Rock-shell and a truly handsome West Indian Chank, a little over twelve inches long. The Chank, like Queen Conchs, was traveling incognito--but there was something familiar about the dark profile against the light sand.

On two different days we rented a car--not a Hertz, but a privately owned automobile. The unattended gas station was at Lower Bogue. A colorfully dressed lady came across the road and pumped Shell gasoline -- 78 cents per gallon in 1973! Not so astounding a price today. The roads are narrow, rather poorly maintained and full of potholes--with the exception of the main road which follows the ridge of the island. The major portion of the island is like our Outer Banks in size and shape -- long and ranging in width from almost nothing to a few miles.

On one day we traveled in the northern area. We drove up to the Bluff, around by Spanish Wells, so-called because the Spanish Galleons gathered their water for the return trip to Spain from these pure water wells.

We retraced our route and took the road to a landing across from Harbour Island. The government operates a passenger ferry across the sound, but we chose to ride in a rather small launch (a skiff, actually) with one of the native fishermen. Harbour Island is the seat of the British Community and except for that rather comfortable looking group, living conditions seemed rather impoverished and labor very cheap. The Pink Sand Beaches of Eleuthera are supposed to be even more pink at Harbour Island. We walked over to the Atlantic side so that we could compare these beaches with the pink ones at Current. We couldn't tell any difference.

Back we went to the mainland in a small even more rickety boat on a wind-stirred sea. It was a rather wavy return and I was very glad that I knew how to swim. Our Captain joked, laughed, and talked reassuringly every splash of the way.

Up to this point the shelling on the car trip was almost nil. We turned southward and our first stop was Boiling Hole. Apparently the Atlantic was rougher at times than at this time, for in the potholes atop the cliffs were the ubiquitous live Periwinkles, and dead Cones, Limpets, Star Shells, Trivias, small Murex species, Cowries, numerous other gastropods, even a badly bleached Milk Conch. The force of storm driven waters at this spot must be horrifying. How exciting, though, to think what must be living down the cliffs beyond our reach!

We drove on down the island, through areas of beginning real estate development, past a large dairy operation and stopped and bought some of the locally made pineapple rum. We shelled at various easily accessible spots along the way and realized that Caribbean littoral fauna is pretty much the same all along Eleuthera. We did find a group of freshly dead Milk Conchs, apparently dropped by a fisherman. We also saw hundreds of "Peanut" shells in the water's edge.

On our return to Current, we stopped at the Glass Window, so called because of the existence in the past of a natural bridge. Boatmen passing by could see across the ridge of the island from the Atlantic into the calm waters of Ciquateo Bay. Evening was upon us. The molluscs sensed this too, for they began crawling from under the rocks and we made the most of those last few remaining minutes of sunlight. We saw many Magpie Shells, Moduluses, and Tegulas--a rich-looking location.

On another day, we hired a larger boat to take us to snorkeling areas at surrounding islands. We followed along the southeast side of Current Island, went through The

Current to an abandoned man-made harbor where our guide had promised us jillions of Limas. We returned with no Limas, one unspiny Spiny Oyster and saw jillions of Angulate Periwinkles.

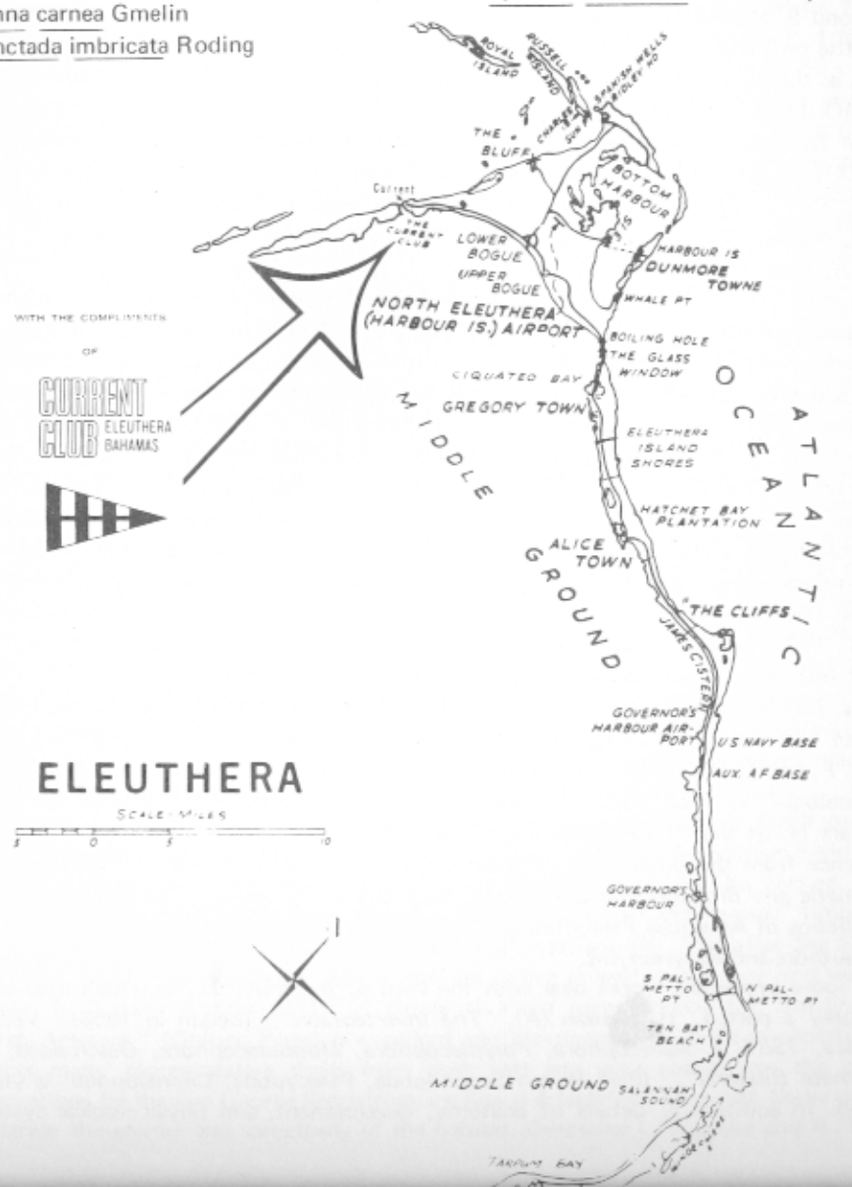
In the town of Eleuthera was one tourist shop, in the sewing room of a charming lady named Mrs. Monica Algren. Many women in the Bahamas are skilled at making hats, baskets, slippers, etc., from the local palm leaves. She also decorated many items with embroidery and shells and made shell jewelry. Mrs. Algren had shells of specimen quality. Her husband is a fisherman and collects for Mrs. Algren. She cleans the shells correctly and is a most pleasant and interesting person to talk with.

A list of our findings is included - - a list that should whet anyone's appetite for a trip to Eleuthera!

Diodora listeri (Orbigny)
Diodora dysoni (Reeve)
Fissurella barbadensis (Gmelin)
Fisurella fasicularis Lamarck
Fissurella nodosa (Born)
Fissurella sp.
Acmaea leucopleura (Gmelin)
Acmaea pustulata (Helbling)
Calliostoma pulchrum (C. B. Adams)
Cittarium pica (Linne)
Tegula excavata (Lamarck)
Tegula fasciata (Born)
Astraea phoebia Roding
Nerita fulgurans Gmelin
Nerita peroloronta Linne
Nerita tessellata Gmelin
Nerita versicolor Gmelin
Puperita pupa (Linne)
Neritina reclivata (Say)
Littorina angulifera (Lamarck)
Littorina lineolata Orbigny
Littorina ziczac (Gmelin)
Echininus nodulosus (Pfeiffer)
Tectarius muricatus (Linne)
Columbella mercatoria (Linne)
Columbraria lanceolata (Menke)
Heliacus bisulcatus (Orbigny)
Planaxis lineatus (da Costa)
Modulus carchedonius (Lamarck)
Batillaria minima (Gmelin)
Cerithium eburneum Bruguiere
Diastoma sp.
Olivella floralia (Duclos)
Mitra barbadensis (Gmelin)
Mitra nodulosa (Gmelin)
Prunum apicinum (Menke)
Conus daucus Hwass
Conus jaspideus Gmelin
Conus jaspideus stearnsi (Conrad)
Conus mus Hwass
Conus regius Gmelin
Hipponix antiquatus (Linne)
Cheilea equestris (Linne)
Xenophora conchyliophora (Born)
Strombus costatus Gmelin
Strombus gigas Linne
Trivia quadripunctata (Gray)
Trivia pediculus (Linne)
Cypraea cinerea Gmelin
Cypraea spurca acicularis Gmelin
Cyphoma gibbosum Linne
Natica canrena (Linne)
Natica livida Pfeiffer
Morum oniscus (Linne)
Cassis tuberosa (Linne)
Cymatium moritinctum caribbaeum (Clench & Turner)
Cymatium nicobaricum (Roding)
Cymatium pileare maritinianum Orbigny
Tonna maculosa (Dillwyn)
Murex pomum Gmelin
Murex sp.
Morula nodulosa (C. B. Adams)
Thais rustica (Lamarck)
Pisania auritula (Link)
Leucozonia nassa (Gmelin)
Leucozonia ocellata (Gmelin)
Latirus virginensis Abbott
Fasciolaria tulipa (Linne)
Oliva reticularis forma olorinella Duclos
Spondylus americanus Hermann
Linga pensylvanica (Linne)
Codakia orbicularis (Linne)
Divaricella quadrisulcata (Orbigny)
Chama macerophylla (Gmelin)
Trachycardium egmontianum (Shuttleworth)
Papyrdea soleniformis (Bruguiere)
Americardia media (Linne)
Tellina fausta Pulteney



Terebra hastata (Gmelin)
Terebra protexta forma limatula Dall
Crassispira fuscescens (Reeve)
Crassispira sp.
Bulla striata Bruguiere
Landsnails – 6 unidentified species
Acanthopleura granulata (Gmelin)
Arca imbricata Bruguiere
Barbatia cancellaria (Lamarck)
Barbatia domingensis (Lamarck)
Glycymeris undata (Linne)
Botula fusca (Gmelin)
Geukensia demissa (Dillwyn)
Pinna carnea Gmelin
Pinctada imbricata Roding
Isognomon alatus (Gmelin)
Isognomon radiatus (Anton)
Chlamys ornata (Lamarck)
Tellina listeri Roding
Tellina radiata Linne
Asaphis deflorata (Linne)
Periglypta listeri (Gray)
Chione cancellata (Linne)
Chione intapurpurea (Conrad)
Chione paphia (Linne)
Transennella cubaniana (Oribigny)
Transennella stimpsoni Dall
Sphenia antillensis Dall & Simpson



## BOOKS FOR CLASSIFICATION AND IDENTIFICATION OF SHELLS

Dr. John H. Ferguson, Chapel Hill, N. C.

In our Shell Club Workshops we are attempting to present the shells and their animals (Mollusks) in a scientific order. This means that we must rely upon some authority (or authorities) and, occasionally, use our best personal judgment when these authorities differ. Club members may like to know what books we choose to follow. In our selections we'll indicate (in parentheses) three categories: (A) high scientific works; (B) popular illustrated shell books, with descriptions; (C) check lists (illustrated or otherwise) and catalogs.

The Geological Society of America and the University of Kansas (with sponsorship of a number of Palenotological Societies), under the direction and editorship of Dr. Raymond S. Moore, since 1953, have published a series of volumes in a comprehensive "Treatise on Invertebrate Paleontology" (A). These volumes have appeared in haphazard order, as the various parts are completed by the respective specialists and collaborators. The MOLLUSCA volumes (A) completed are: (Treatise) *"Part I. Mollusca 1 (Mollusca general features, Scaphopoda, Amphineura, Monoplacophora, Gastropoda general features, Archaeogastropoda, mainly paleozoic Caenogastropoda and Opisthobranchia),"* 1960; *"Part K. Mollusca 3 (Cephalopoda general features, Endoceratoidea, Actinoceratoidea, Nautiolidea, Bactritoidea),"* 1964; *"Part L. Mollusca 4 (Ammonoidea),"* 1957; *"Part N. Mollusca 6 (Bivalvia),* 1969, Vols. 1, 2, Vol. 3, is just on the Oysters. Still in preparation are: *"Part J Mollusca 2 (Gastropoda, Streptoneura (exclusive of Archaeogastropoda), Euthyneura);" and* "Part M. Mollusca 5 (Coleoidea); *and Part X. Addenda and Index."* These volumes will eventually cover all genera (and subgenera) of mollusks, fossil and recent; marine, land and freshwater. Meanwhile, some supplementary general references are necessary and we use the following (A): W. Henz, Gastropoda (Teil 1) 1938–1944, in Schindewolf *"Handbook der Paleozoologie, Bd.6;"* and A. Zilch, *"Gastropoda (Teil 2)",* 1959–1960, *ibid,* same volume (in German). These excellent German authorities cover both fossil and recent Gastropod genera very exhaustively, with black-and-white photographic illustrations. The volumes are still available in photo-reproduction. The earlier German work (A) of J. Thiele, *"Handbuch der systematischen Weichtierkunde"* (= 'Handbook of systematic knowledge of the mollusks') Vol. 1, 1931; Vol. 2, 1935, is also useful, but is more out-dated, and deals only with recent (non-fossil) mollusks and 'type' choices. It does, however, include the five main Classes, just omitting Monoplacophora. Our arbitary numbering of Families and Superfamilies is based on (C) *"An outline of Gastropod Classification",* by D. W. Taylor and N. F. Sohl, of the U. S. Geological Survey, Washington, D. C.,published in the journal "Malacologia" in 1962, Vol. 1 (1), page 7 – 32. For Bivalvia (=Pelecypoda), we follow (A) Part N. of the *"Treatise on Invertebrate Paleontology"* (above), which has a few difference from the preliminary listings in (C) H. E. Vokes, *"Genera of the Bivalvia: a Systematic and Bibliographic Catalogue",* 1967 (June 16), published as Vol. 51, No. 232, of Bulletins of American Paleontology. The latter is good for quick reference, especially as to authors and to synonyms.

Some important works deal with the lives of the mollusks, in which their shells play only a part. L. H. Hyman (A), *"The Invertebrates"* (Begun in 1958), *Vol. VI Mollusca, 1967, I. Aplacophora, Polyplacophora, Monoplacophora, Gastropoda, the Coelomate Bilateria",* (Part II, on Scaphopoda, Pelecypoda, Cephalopoda, is yet to appear). In addition to details of anatomy, development, and physicological systems, this work discusses the basis of classificiation (= systematics, or taxonomy). An important original work, which set a pattern for other investigators to follow, was V. Fretter and A. Graham, (A) *"British Prosobranch Molluscs: Their Functional Anatomy and Ecology.,* 1962, printed for the Ray Society, London, Great Britain. Karl M. Wilbur (Duke University) and C. M. Yonge (University of Glasgow, Scotland) have collaborated to edit (A) *"Physiology of the Mollusca,"* (Academic Press, N.Y., N.Y.) Vol. 1, 1964; Vol. 2, 1966; and from the University of London comes R. D. Purchon, (A) *"The Biology of the Mollusca",* 1968 (Pergamon Press). Of course, our greatest interest is in the identification of individual species, including variants. The best sources for this information, apart from specialized books on the separate families (which will not attempt to cover here are in various books which take up shells (and their mollusks) on a regional basis, and this necessitates a fairly extensive library.

Dr. K. Boss has recently replaced Dr. Wm J. Clench (Harvard) as editor for the journal (A) *"Johnsonia: Monographs of the Marine Mollusks of the Western Atlantic."* Its first number appeared in 1941 (Oct. 25), and current numbers, in the 50's are in Vol. 5. Some updating is required for certain items in older numbers, and review numbers appear from time to time. Jean Andrews, (A,B) *"Sea Shells of the Texas Coast,"* 1971 published by University of Texas Press is an excellent work and sets a new pattern which is most helpful to the serious collector, especially in that region. A similar, but wider, coverage is provided (A,B) by R. Tucker Abbott (Delaware Museum of Natural History) in his new 2nd (1974) edition of *"American Seashells: The Marine Mollusca of the Atlantic and Pacific Coasts of North America",* published by Van Nostrand Reinhold Co. This work is very thorough and is more scientific than (B) Abbott's 1st. ed. (1954), which, however, should still be consulted for more of the popular accounts of the natural history and lives of the mollusks. Dr. Abbott is also editor of a very fine and continuing series of definitive monographs (A) *"Indo-Pacific Mollusca: Monographs of the Marine Mollusks of the Tropical Western Pacific and Indian Oceans".*Starting with Vol. 1, No. 1, in 1959 (March 31), it is now into the 3rd loose-leaf volume. Listings of species under the various genera include mention of those other regions, so that they are reasonably complete, and they include fossils as well as recent forms. Charts of geographic locations are valuable when descriptive features are supplemented by information to show that closely allied forms may have definite differences in habitat. There is now (1971) a revised 2nd edition of (A, B) A. Myra Keen's, *"Sea Shells of Tropical West America: Marine Mollusks from Baja, California to Peru"* (Stanford Univ. Press, Stanford, Calif.). It is extensively illustrated with black-and-white photographs, some drawings, and a number of fine colored plates. A. Myra Keen and E. Coan (1974) have a new revised 2nd edition of (C) *"Marine Mollusca Genera of Western North America",* which is an excellent identification book and a compendium of molluscan information.

Wm. J. Clench's (B) revised 3rd ed. of Percy A. Morris' *"A Field Guide to Shells of the Atlantic and Gulf Coasts and the West Indies,"* 1973 "(The Peterson Field Guide Series"), is extensively illustrated in black-and-white and in color. The 2nd ed. (B) of Percy A. Morris' *"A Field Guide to Shells of the Pacific Coast and Hawaii,"* 1966 (same series as above) has 1396 photos. S. Quirck and B. Harrison (B) *"Hawaiian Sea Shells,"* 1972, is a good little handbook, which includes native as well as common and scientific names. R. Tucker Abbott (B,C) *"A Guide to Field Identification* (of) *Sea Shells of North America,"* (Golden Press) is excellent and inexpensive, available in paperback. It selects many representative shells from both east and west coasts, and the colored illustrations by the late George Sandstrom are fine and faithfully executed. Some of them illustrate the animal and something of the habitat. Germaine L. Warmke and R. Tucker

Abbott (B) *"Caribbean Sea Shells: a Guide to the Marine Mollusks of Puerto Rico and other West Indian Islands, Bermuda, and the Lower Florida Keys,"* 1961 (Livingston Publ. Co., Narberth, Pa.) is a valuable contribution from this area. R. Tucker Abbott (A,B) *"The Marine Mollusks of Grand Cayman Island, British West Indies,"* 1958 paperback, is No. 11 of Monographs of the ANSP (Academy of Natural Sciences of Philadelphia). It makes some original and useful observations. E. C. Rios (B) *"Coastal Brazilian Sea Shells,"* 1970, covers the area to the south of the Caribbean. Hugh J. Porter and Jim Tyler (C) *"Sea Shells Common to North Carolina,"* 1971 (Published by N. C. Dept. of Natural and Ec. Resources) is a useful key to 180 local species.

B. R. Wilson and K. Gillett, (A, B) is an excellent work on *"Australian Shells, Illustrating and Describing 600 Species of Marine Gastropods found in Australia"* (1971). Long the standard popular work (B) 'down under', Joyce Allan, *"Australian Shells, with Related Animals living in the Sea, in Freshwater and on the Land,"* 3rd ed. revised 1962, gives wide coverage, but its unqualified acceptance of Tom Iredale's names may create some difficulties. Iredale (and others) coined many new names based on the not-always-valid assumption that the geographic isolation of Australia requires separation from even apparently closely-related forms from other parts of the world. Moreover, Iredale is 'splitter' who creates new names for sub-species and ecological variants. Nonethe-less, Iredale ranks as one of the world's great malacologists and as a careful researcher in taxonomic matters. T. Iredale and D. F. McMichael (C) *"A Reference List of Marine Mollusca of New South Wales,"* 1962 paperback, is Memoir 11 of the Australian Museum, Sydney.

It includes many of the 'new'names and is helpful in citation of type species. J. Hope MacPherson and G. J. Gabriel (A,B) *"Marine Molluscs of Victoria,"* 1961, is a comprehensive semi-popular presentation of seashells of that region, and it contains G. J. Brown's pen drawings which are useful and can supplement the illustrations in Joyce Allen, which are distinctly poor. H. Suter (A) *"Manual of New Zealand Mollusca,"* 1913; with Atlas of Plates, 1915, is the old standard reference for that region, and it is helpfully supplemented by A. W. B. Powell (C) *"Shells of New Zealand: An Illustrated Handbook,"* 4th. ed., revised 1961 (Whitecombe and Tombs Limited) with detailed lists that include the more recently described forms. G. J. H. Moon and J. R. Penniket (B) *"New Zealand Shells in Color,"* 1970, is highly recommended.

Several Japanese works have become famous for the excellence of their colored shell illustrations, produced at considerable cost, however. Originally appearing with Japanese text, but Latin (English) shell names and indexing, as (C) *"Coloured Illustrations of the Shells of Japan,"* Vol. 1, by T. Kira (1955; 1959), and Vol. II, by T. Habe (1961) published by Haikusha Publishing Co. of Osaka, Japan, these are now available in English, with some revision by the same respective authors, under the title (B) *"Shells of the Western Pacific in Color,"* Vol. I (1962); Vol. II (1964) and published by the same company. A somewhat less successful earlier work by S. Hirase (1951), revised by I. Taki (1954) is (C) *"An Illustrated Handbook of Shells in Natural Colors, from the Japanese Islands and Adjacent Territory"* (Japanese text + Latin names). It is now of historic interest as the unique record of the fine specimens in the Yoichiro Hirase collection, which were destroyed in World War II by the incendiary bombing of the Research Institute for Natural Resources, in Tokyo. Dr. T. Kuroda and Mr. K. Oyama (in MS) amended the scientific names and classifications. T. Kuroda and T. Habe (A,C) published a *"Checklist and Bibliography of the Mollusca of Japan,"* 1952. *"The Sea Shells of Sagami Bay,"* 1973, by T. Kuroda, T. Habe, and K. Oyama, is a monumental book (A,B)



of 1556 pages (490 in English, 742 in Japanese), with 105 color plates and 16 in black-and-white. It covers the Japanese emperor's fabulous collection and other shells of Japan, with records of 30 new genera and 104 new species (or subspecies). *"Shells of the World in Colour"* (B,C), *"Vol. I, the North Pacific,"* by Habe and Ito, 1965; and "Vol. II, the Tropical Pacific (including the Philippines)," *by Habe and Kosuge, 1966, with Japanese text + Latin names, are further examples of the beautiful oriental color illustrating. The same is true of T. Skikama (A, C) "Selected Shells of the World illustrated in Colours,"* Vol. I, 1963; Vol. II, 1964. Inclusion of rare species and some non-marine forms are again noteworthy features, and the text is valuable to the serious student if he is fortunate enough to be able to read the Japanese. Alan Hinton (B) *"Shells of New Guinea and the Central Indo-Pacific,"* 1973, with equally superb illustrations, is a valuable new book, especially in its coverage of many shells which are unique to this area. Increasingly popular, also, are the two volumes of (A,B) *"Marine Shells of the Pacific, Vol. I,"* revised ed., 1971; Vol. II, 1972, by Walter O. Cernohorsky, of Fiji.

From across the Indian Ocean, in what is now Tanzania, comes J. F. Spry (C) *"The Sea Shells of Dar-es-Salaam, Part I, Gastropodia; Part II, Pelecypoda."* These are reprints from the old Tanganyika Notes and Records (March 1961, et seq.). The colored illustrations are rather amateurish, but the lists are useful for checking the commoner shells of this not much-covered-area. Much the same applies to D. H. Kennerly (B,C)" "Marine Shells of South Africa," 1964; and to the earlier (1951) K. H. Barnard, *"A Beginner's Guide to South African Shells,"* which suffers from lack of author names and from use of many Latin names which are now to be regarded as junior (invalid) synonyms. Brian Kensley (B) *"Sea Shells of Southern Africa,"* 1973, I believe, is the latest and best available book on this region. B. L. Cock (C) *"A Preliminary Listing of South African Marine Shells, recorded from the Natal and Zululand Coasts,"* 1965, gives 546 species, together with 60 obtained ('ex pisces') from the stomach of fishes off the 300-mile coast. M. Nickles (B,C) *"Mollusques Testaces Marins de la Cote Occidentale d' Afrique"* (='Shelled Marine Mollusks from the West Coast of Africa), with French Text and Latin names, is a helpful introduction to this area. It overlaps J. Arrecgros (C) *"Coquillages Marins: Coquilles de Principales Especes de Gasteropodes* et de Lamellibranches de la Manche, de 1'Ocean, et de la Mediterranee," (Sea Shells: 'Shells of the Principal Species of Gastropods and Bivalves from the English Channel, the Atlantic Ocean and the Mediterranean'). P. Parenzan (C) *"Carta d' Identita delle Conchighlie del Mediterraneo,"* 1970 ('Identification Chart of the Shells of the Meditteranean'), is also helpful, with black-and-white illustrations, having Latin, as well as Italian, names. R. Winchworth (C) *" The British Mollusca"* is a valuable check list, available as a reprint from the Journal of Conchology, Vol. 19, No. 7, June, 1932; with emendations and corrections, *ibid.,* Vol. 23, 5 March, 1951. It may be used in conjunction with (B) E. Step (revised by A. L. Wells, 1960) *"Shell Life: An Introduction to the Bristish Mollusca."* 'A Classified List of British Mollusks', with up-dated taxonomy, is given in an Appendix.

We'll omit several very fine modern volumes, which are to be prized for their artistic merit, even more than the accompanying scientific information. We will just mention, however, (C) A. Gordon Melvin, *"Sea Shells of the World with Values,"* which has colored or black-and-white photographic illustrations of over 1100 shells from all over the world, with a fair suggestion of values (1972). Also, von Nostrand's (C)" *Standard Catalog of Shells,"* 2nd ed., 1967, by Robert J. L. Wagner and R. Tucker Abbott, and published by van Nostrand Co., Princeton, N. J. which attempts a fair appraisal of current values based on the relative abundance of each species. It deals only

with recent species, as far as the authors have worked them up. Some genera, e.g. the popular Cones (Conidae), Cowrie (Cypraeidae), Volutes (Volutidae), Vases (Vasidae), Slit Shells (Pleurotomaria), and Conchs (Strombidae), are reasonabley complete, with sub species, variants, and synonymies. Family, and higher, classifications are indicated and all six classes of mollusca are mentioned. Reginal 'Quick Lists' are provided for Eastern and Western North America, the Caribbean, the British Isles, and Southern Australia.

a couple of references which are helpful for the region between Virginia and Florida. Julia A. Gardner's two monographs (A), on *"Mollusca from the Miocene and Lower Pliocene of Virginia and North Carolina,"* appeared as U. S. Geological Survey Professional Papers 199a, 1943; 199b, 1948. No. 8 in the series of ANSP (see earlier) monographs is (A) *"Pliocene Mollusca of Southern Florida, with Special Reference to those from North Saint Petersburg,"* by Axel A. Olsson and Anne Harbison; with special chapters on Turridae, by Wm. G. Fargo, and on Vitrinellidae and Fresh-water Mollusks, by Henry A. Pilsbry, 1953. This fine work deals extensively with the Caloosahatchie Formation of Southern Florida, which was made famous through the monumental work of Dr. William H. Dall on the Tertiary Paleontology of Florida, 1890 – 1903.

We have done little, so far, with Land and Fresh-water Mollusks, which have a tremendous professional literature, but very few popular works. H. A. Pilsbry (A) *"Land Mollusca of North America (north of Mexico),"* 1939–1948, is No. 3 of the series of ANSP (above monographs and its 'two' volumes, each appeared in two parts (i.e. 4 books in all). *"How to know the Eastern Land Snails,"* by John B. Burch, 1962, and published by Wm. C. Brown Co. Publishers, Dubuque, Iowa is a popular introduction and pictured key (C). Bryant Walker (A,C) *"A Synopsis of the Classification of the Fresh-water Mollusca of North America (north of Mexico),"* and *"A Catalogue of the More Recently Described Species, with Notes,"* 1918, is the University of Michigan Museum Publication No. 6. It is a very useful handbook to initiate this special interest, but now needs to be dated. For want of space, many worthy publications, especially of older works must needs be omitted, and we won't discuss the various journals and bulletins, such as *"Hawaiian Shell News."* We will end, therefore, by mentioning just two more works which we select because of the attention they pay to the living animals. F. Nordsieck (C) *"Die europaischen Meeresschnecken"* ('Sea Shells", in German), 1968 and 1969 (published by Gustav Fischer Verlag, Stuttgart) has many indexed plates of black/white and coloured drawings, many designed to show the animal. B. Grzimek's *"Animal Life Encyclopedia"* (A, B) Vol. 3, pp. 19-225 (1973) covers the Mollusca, according to L. V. Salvini - Plawen and R. Tucker Abbott. Assemblying, identifying, classifying, and housing an extensive world-wide shell collection, even for the hobbyist, is a long-time occupation, including many hours spent in referring to available source books. We trust this bibliographic venture may help our fellow-shellers on their way, perhaps with the admonition of Robert Louis Stevenson, that . . . . .

"To travel joyfully is better than to arrive,
and the true success is to labour". . . . .



## KIRK ANDERS SHELLING TRIP TO COZUMEL, MEXICO

Ruth S. Dixon

Cozumel, Mexico lies 11 miles east of the Mexico-Yucatan mainland and only about one hour's flying time from Miami. Cozumel is different, rustic, quiet and not crowded. The Caribbean Sea is so clear that one can see a Shiny Atlantic Auger plowing through the sand in 5 or 6 feet of water and also see 200 feet down into some of its lagoons. There are fascinating coral formations and beautifully colored tropical fish.

After meeting our tour group at the Miami International Airport, we flew to Cozumel on a Mexicana plane arriving there about 2:40 p.m. which gave us time to check into our individual villas at the Playa Azul Hotel. The hotel and the villas were in a beautiful tropical setting with profusely blooming Hibiscus bougainvillaea, flowering tropical trees, banana and coconut trees. Brightly colored parrots and other tropical birds were flying overhead filling the air with music. We had time to unpack and explore the lay of the land around our hotel before dinner.

After a 7:00 a.m. breakfast on Tuesday morning, we met back at the hotel where safari jeeps were waiting us to carry us out for an entire day of shelling. We went shelling on the rocks on the eastern side where we found Nerites, among which were some of the largest Bleeding Teeth that I have ever seen; Squamose Chitons, Wide-mouthed Purpuras, Deltoid Rock-shells, West Indian Top-shells, Four-toothed Nerites and Tessellate Nerites. We had lunch at Punta Morena which was an interesting place in a thatched roof outdoor dining area. The seafood was delicious and the fellowship with our fellow shellers was wonderful. After shelling on the beach in this area, we drove to the south end of the island where those of us who could swim, snorkled in the beautiful, clear water finding Milk Conchs, Caribbean Vases, Western Indian Chanks, and Imbricated Star Shells. The only thing that bothered me was the large number of black sea urchins sitting everywhere on the sandy bottom. Of course, they do not bother you unless you brush against them. This was a full day of shelling and when we returned to the hotel, all of us were completely fatigued. After a social hour in Kirk Anders' suite, and a delicious dinner, everyone was ready to fall in bed to regain strength for the next day.

We took a boat trip to San Francisco Beach on North Island Wednesday. While on the boat, the men, who were experienced scuba divers, strapped on their tanks and gear and dived off the boat for deep water shelling. They came back with Milk and Hawk-wing Conchs, Contracted Cowrie-helmets, King and Flame Helmets.

The Mexicans, who were operating the boat, drove to another area where they went overboard and speared fish and lobsters and picked up beautiful Queen Conchs for our lunch, the latter which we would have later on the beach. The fish were so beautiful that I hated to see them die. We went to shore on North Island where a delicious beach barbecue was prepared over an open fire and a salad was made from the freshly taken conchs. After lunch, we walked over to the other side of the island where we found some live mollusks in the shallow water and many nice dead shells on the beach such as Carrot and Mouse Cones, King Venuses, Thick Lucinas and Contracted Cowrie-helmets. Again, we returned to the hotel tired and happy but not as tired as the previous day. Even though the boat trip was more restful, I think we were also getting accustomed to the pace, for Kirk had every moment planned.

Thursday, we had a long day which was called a "25 Kilometer Day". It was suggested that we carry a pillow to sit on. I wished I had before the day was over, for after shelling on some beaches along the way, we left the paved highway and drove on a dirt road which finally became only a rocky, bumpy path through the jungles where we saw all kinds of birds, iguanas, tropical plants and trees along the way. After coming to the lighthouse, which was located at the far end of the island, we found a beautiful beach with picnic tables. After swimming and snorkeling in the water where we found it quite profitable, we had a box lunch. The Mexicans, who lived in the lighthouse area, came down with their children who had shells for sell. The food that we did not eat, which was ample, was given to one of the families which I am sure they shared with others.

Driving back over the rock road we had a flat tire and being the last jeep in the cavalcade, we had to wait until we were missed before help came back. Our hotel looked wonderful with delicious food for dinner and our comfortable beds. During our social hour we displayed and discussed the shells we had found.

Friday, we were on our own. We went to San Miguel, the only town on the island where we went into the many gift shops such as Zazaar Cozumel, La Casita and El Paso. In some of the shops you can barter and haggle. This was a terrible hot day in spite of the fact that the temperature is supposed to stay between 72 and 82 year around.

On Saturday, we drove back into town, not to shop, but to shell on the beach in town and then south. The shelling here was quite good with a less number of sea urchins. A Rooster-tail Conch was found and also many Hawk-wing Conchs. We also saw beautiful coral gardens.

This being our final night, we met in Kirk's suite again where each one of us was given a number. Kirk had previously arranged his findings in groups in the bathroom. As our numbers were called out, each person went in and selected the pile that he or she wanted.

On Sunday we said goodbyes after breakfast, packed our bags and taxied to the airport where we had to weigh in our bags. One warning - travel light, for all overweight is costly, 50 cents per pound. Weight is not too important going over but coming back is something else. I think it cost me about $12.00 overweight charges. I just chalked it up to expenses.

I highly recommend this trip for the hale and hardy. You cannot possibly go on your own as cheaply and could never shell on as many beaches in a week's time, for Kirk has completely investigated every inch of the area and supplies every convenience for one's needs. As we flew away, leaving beautiful Cozumel with its lovely skies and clear, clear water, we returned to the United States satisfied with our findings and with the trip as a whole.



## SHELLS COLLECTED AT COZUMEL, MEXICO

Family – Trochidae
- Cittarium pica (Linne)

Family – Turbinidae
- Astraea tecta (Lightfoot)

Family – Neritidae
- Nerita peloronta Linne
- Nerita tessellata Gmelin
- Nerita versicolor Gmelin

Family – Strombidae
- Strombus costatus Gmelin
- Strombus gallus Linne
- Strombus gigas Linne
- Strombus raninus Gmelin

Family – Cassidae
- Cassis flammea (Linne)
- Cassis tuberosa (Linne)
- Cypraecassis testiculus (Linne)

Family – Muricidae
- Purpura patula (Linne)
- Thais delloidea (Lamarck)

Family – Turbinellidae
- Turbinella angulata (Lightfoot)
- Vasum muricatum (Born)

Family – Conidae
- Conus daucus Hwass
- Conus mus Hwass

Family – Chitonidae
- Chiton squamosus Linne

Family – Lucinidae
- Lucina pectinata (Gmelin)

Family – Veneridae
- Chione paphia (Linne)

## CLAMS ANYONE ?
### By Paul Jennewein

If you would like to translate your knowledge of mollusks into cash, there's no better way now than to raise clams commercially. The field is wide open. Rewards are high. Investment is still low. Why more haven't entered the field is a mystery.

The market is there. Clams (Mercenaria mercenaria) remain alive in their shells under ice for periods of up to a week. They can be shipped to all parts of the country by refrigerated vehicles.

North Carolina's climate is ideal, providing suitable growing weather for 10 months of the year. Given the proper nutrients, a half-inch clam can grow to marketable cherrystone cocktail size in nine months.

Given a site on a saltwater estuary or bay, you can produce clams grossing as much as $40,000 an acre at current retail prices. And you don't even need unpolluted water except for the last few weeks before harvesting.

Harvesters of clams grown naturally in sand or mud flats receive about four cents a clam from the wholesaler. If these harvesters were to go into farming of the clams, as they do with oysters, there would be losses incurred from predators, disease and changes of food supply.

A better way of raising clams, however, is on concrete sluiceways, where nutrients are pumped constantly over beds of clams and where precautions may be set up to prevent predators from invading the beds. The process can be controlled most of the way. Up to a million clams can be raised on an acre of this type.

Up to last year, it would have been difficult to obtain the half-inch clams to use in raising them to marketable size over the few months' period. It takes at least another nine months to raise clams from seed to half-inch size.

Last year, a commercial clam hatchery turned the corner in profits and began doing a little better than breaking even in producing millions of half-inch clams for planting by clam growers.

Fortunately for us Tar Heels, the hatchery is in Morehead City and is ready to supply you with the half-inch or smaller clams at a rate of about $5 at 1,000. The hatchery can also provide you with other information on likes and dislikes of the Mercenaria mercenaria to keep it happy and thriving.

Hugh J. Porter had a hand in training the head of that hatchery. Elwood Bayer has been in charge of obtaining the nation's first commercial hatchery over the past six years. He started with the Institute of Fisheries Research and worked with Hugh and with Dr. Al Chestnut. The hatchery is owned by Coastal Zone Resources Inc. of Wilmington. The firm is headed by Dr. David A. Adams as president.

The Coastal Zone Resources lab for the hatchery is on Pelletier Creek behind one of the boatyards. The creek is polluted but it doesn't bother the clams which appear to thrive once they've left the sanitary confines of the lab, used in the preliminary stages. The latter water is filtered with nutrients introduced under controls.

The whole process starts in the lab. Chemical stimuli are used to cause a male and a female to spawn. The microscopic results are placed in plastic trays and sequestered inside a plastic-sheeted section of the lab for seven to 14 days.

Sterilized water, some fertilizer and seed culture go into the plastic incubation trays. About 50 millimeters of algae (Nannochloris) goes to feed each 100,000 larvae in the incubator pans. Each spawning can produce seven million larvae.



At least 24 hours after fertilization, the larvae develop shells, but are free swimming. They are kept in the incubation area at 25 degrees centigrade (about 77 degrees Fahrenheit). About two weeks after fertilization, the tiny clams settle to the bottom of the plastic pans.

The infants are then removed from the plastic pans to larger wooden trays, arranged in stacks, in the "open" section of the lab, still inside the building. Plastic pipes carry filtered salt water and nutrients to the top wooden tray. Gravity carries the water down the 10-tray stack. Fouling by bryozoa and tunicates slows the flow of water. The growths have to be cleaned off periodically.

The clams, about a million to each tray, grow rapidly under the controlled conditions. The initial 90 per cent mortality rate decreases the older the clams grow. Six weeks after being placed in the wooden trays, the clams are moved to the cement raceways, where fast flowing salt water from the creek bathes them. The sluiceways are covered by dark green corrugated fiberglass sheets to keep out dust, animals, leaves and possible predators.

About 1,000,000 clams grow in each shallow concrete trough, left there anywhere from nine months to a year, before they are large enough to ship out in plastic foam coolers. The price of the cooler is part of the shipping cost.

The clams come from registered stock. Records are kept on each brood. The lab has about 900 brood clams, each with a number engraved on its shell with a diamond-tipped drill. Over the past five or so years, clams are being produced that mature faster and grow bigger than when the project was started. The numbered clams provide selective breeding.

Another way growth can be accelerated, the lab has discovered, is to grow clams in the dark. An experiment by a group of high school students from Morehead City showed that. A batch of half-inch clams was selected and the clams painted on one side with a harmless red enamel. The batch was divided, with half put under lights that corresponded to daytime and nighttime periods. The other batch was covered. Both batches were in wooden trays kept in the controlled system of the lab, fed the controlled nutrients the tiny ones were getting. Periodically during that semester, the students measured the growth from the edge of the shell to the red enamel. The clams that spent their time in perpetual darkness grew bigger faster.

As in any operation, there are some drawbacks. Raising of clams is a seven-day-a-week operation, so far. The pumps carrying salt water have to operate continually, with at least another stand-by pump on hand in case one breaks down. A sharp reduction in salinity can affect an entire batch, as can introduction of certain types of chemical poisons in the water supply. The incoming water has to be checked periodically. The equipment has to be kept relatively clean. If you go into production of clams for human consumption, licenses have to be obtained and health regulations met.

But for any amateur malacologist, raising clams would be an easy way of translating the knowledge into cash – even close to the possible $40,000 an acre.

# AN INVERTEBRATE FIELD TRIP TO MARINE HABITATS IN THE AREA OF WRIGHTSVILLE BEACH

**Charles Jenner and Anne McCrary**

As in any field excursion into a marine area, the critical factor in where to go and what can be seen is the stage of the tide. Activities should be planned in such a way as to take the greatest possible advantage of the available low tides because the lower the tide, the greater the number of marine organisms available to the collector. There are a number of habitats which can easily be sampled during high tide, however, so that marine organisms are always available to the serious student.

One obvious high-tide activity is that of studying plankton, for a few minutes spent pulling a plankton net along the side of any pier or bridge will yield a variety of interesting forms during the day and, frequently, even more exciting ones at night. The specific forms collected vary of course with the time of year, but will almost always include a variety of copepods, a few chaetognaths, a hydromedusa or two, barnacle nauplii and cyprids, veligers of gastropods and bivalves, and numberous annelid larvae. During the warmer months, decapod zoeae of many shapes and sizes abound, and at any time of year one should look for some of the more delicate and beautiful larvae of the benthic invertebrates; for the bipinnaria brachiolaria, and plutei of echinoderms, the pilidia of nemertea, the mitraria of the oweniid polychaetes, and the tornaria of hemichordates. If the tows are made at night, you may be treated to the sparkling bioluminescence of some of the dino-flagellates, especially Noctiluca, or of the ctenophore, Mnemiopsis.

Another interesting high tide activity is the examination of floating or sunken material which can be pulled in and examined. Microscope slides which have been placed overboard at the WMBL pier for varying periods of time afford interesting living microcommunities of organisms which can be placed in sea water in a large finger bowl and examined directly under a dissecting microscope. A surprising diversity of life may be observed on a single slide. Bryozoa, barnacles, hydroids, sea squirts, bivalves, sabellarians, serpulids, sponges, and even amphipods, pycnogonids, rhabdocoels, and brittle stars move into these tiny communities at an early stage. By supporting the slide and examining it from either side, it is possible to watch the sabellarians and serpulids as they move within their tubes. Just don't become so engrossed with your observations that you forget to keep an eye on the clock and fail to be properly prepared in time for low tide.

The tide level is not quite as critical for examining the sandy beach community of the open surf zone, and this study can be carried out either before or after the low tide studies on the mud flats and rocks within the sound itself. The number of species which trhrive in the pounding, shifting sands of the open beach are limited. It is helpful to have a shovel and a large sieve for this phase of operations, and, with luck, you should find the highly specialized mole crabs, Emerita talpoida, some burrowing amphipods, the coquina clam, Donax variabilis, spionid annelids such as Scolelepis, and nemertea. A fine-meshed dip net is an asset if the working area is near pilings, rocks, or other hard substrates. These support growths of hydroids, algae, barnacles, and mussels with associated amphipods and isopods, and pools at the base of pilings where the tide is low occasionally yield mysids, "opossum shrimp."

In order to see as many interesting animals as possible it is desirable to visit as many different habitats as can be arranged. A brief stop at a sandy flat on the beach side of Banks Channel should reward you with specimens of the polished little snail, Prunum apicinum, which moves along just beneath the surface of the sand. Occasionally specimens of amphioxus, the brachiopod, Glottidia, or a phoreni may be taken here. If you choose to work under a bridge, there is an added advantage. The pilings afford a suitable substrate for sedentary organisms such as sea squirts and you should find Styela plicate, Ascidia interrupta, and colonies of tiny, green Perophora virids. The sun sponge, Hymeniacidon, and the garlic sponge, Lissodendoryx (all right, you smell it!), grow here as well as the bryozoans Bugula, Amathia, Anguinella, and Schizoporella; the hydroids, Obelia, Tublaria, Pennaria, and Eudendrium, and the ivory barnacle, Balanus eburneus. You will see oyster drill snails among the barnacles which may be white or distinctly yellow. Look closely for their egg capsules which are yellow and shaped like minature urns, each one separately attached at the base. Another, slightly different, habitat is available to you here. Try lifting and turning over submerged shells and rocks (but be careful to replace them in their former position). You will probably find mud crabs, Panopeus herbstii, beneath rocks, and on their under surfaces you should find not only sea squirts and bryoza, but also the sea anemones, Aiptasia pallida and A. erupterantia, small sea urchins, Arbacia punctulata, and varicolored brittle stars, Ophiothrix angulata. There may be white or yellowish encrusting colonies of Didemnum, a colonial sea squirt with calcareous spicules, small colonies of the coral, Astrangia, or perhaps a small starfish, Asterias forbesi. Dip-netting around the pilings should yield many specimens of the ghost shrimp, Palaemonetes, and of the small hermit crabs Pagurus longicarpus, and P. annulipes. On the pilings scurrying about above water level there are usually "wharf roaches," large isopods of the genus Ligia. Try to catch one. They're fast.

You might like to scrape some of the material off the pilings to carry back to the laboratory. If left undisturbed for a period of several hours in an open shallow tray, many animals begin to come "out of hiding" and a number of annelids such as the red-banded syllid, Autolytus fasciatus, the nereid, Nereis succinea, the phyllodoeid, Nereiphylla fragilis, the dorveilliid, Dorvillea sociabilis, and the sabellid, Sabella microphthalma, usually crawl into view. Nemertea, copepods, amphipods, isopods, and mud crabs aggregate around the edges of the tray. You should see tiny snails with crescent moon-shaped markings, Mitrella lunata, the dove shells, Anachis avara and A. translirata, and perhaps a banded tulip, Fasciolaria hunteri, and the nudibranch, Polycera hummi. Searching a tray of "piling scrapings" is obviously another good "high tide" sport.

Whenever an exceptionally low tide occurs, the southern end of Harbor Island affords an easily accessible sandy flat, and adjacent to it, an area where piles of rock and tiles shelter an interesting fauna. Look first at the sandy flat where just below low tide level there is a beautiful bed of the large Ceriantheomorpha brasiliensi with a few Ceriantheopsis americana interspersed. With a little digging you should be able to find specimens of Moira atropos, the heart urchin, Dosinia discus, the disc clam, and perhaps a large sipunculid, echiuroid, great heart cockle, or brachiopod. Look for the living snails, Cerithium floridanum, Busycon carica, B. canaliculatum, and Polinices duplicatus.

Beneath the rocks here you will find the sea squirts, bryozoa, sponges, and brittle stars that you found at the bridge, but there are other forms as well— — calcareous sponges and red, spicule-less sponges of the genus Halisarca, masses of the lovely flower like sabellids, Pseudopotamilla reniformis, tiny Spirorbis, Eunice rubra, Loimia medusa, Polycirrus eximius, gaudy purple, violet, and gold nudibranchs, Chromodoris aila, the opisthobranch, Pleurobranchus, small sea cucumbers, the anomuran crabs, Petrolisthes galathius and Megalobrachium soriatum, red and white striped shrimp, Hippolysmata wurdemanni, snapping shrimp, Synalpheus fritzmulleri, the jingle shells Anomia simplex

and A. aculeata, Chione grus, Arca reticulata, A. umbonata, Lima pellucida, Pteria, bearded mussels, thorny slipper shells, Crepidula aculeata, the limpet Diodora, the top shell Callisotoma, and on the algae the smooth, gray snail Erato. These are only some of the animals we have found here, and every good low tide seems to result in new additions to the list. On the deeper rocks there are the common alcyonarian sea whips, Leptogorgia virgulata. Examine a few to see the interesting commensals often associate with them, the barnacle, Balanus galeatus, the lovely delicate snails, Neosimnia, and, if you are fortunate, the little shrimp, Neopontonides beaufortensis.

No visit to the coast of North Carolina is complete without at least a few minutes spent in a Spartina marsh. In the higher portions of the marsh turning over a few pieces of drift wood should be enough to see the tiny brown pulmonate snail, Melampus bidentatus, and perhaps the flat squarish-looking "wharf" crabs, Sesarma cinera, and assorted amphipods. As you move into the lower portions of the marsh note the white snails, Littorina irrorata, clinging to the Spartina, and the burrows of Uca, the fiddler crab, or perhaps large droves of the crabs themselves feeding in the marsh or on the mud flat.

As you walk onto the open mud flats, you will undoubtedly notice hundreds of back mud snails, Nassarius obsoletus. Examine a few shells or rocks to see if you can find their egg capsules. If you observe carefully, you may notice that the different size classes of snails appear to have a different distribution on the flat. At first glance, except for the snails, the flat may appear to be quite barren, but a closer look provides evidence of the teeming diversity of life to be found here. The jelly egg masses of maldanids and of Arenicola, the projecting tubes of Diopatra and of Chaetopterus, the casting mouds of Balanoglossus, and innumerable holes of many shapes and sizes which indicate the presence of animals below. A shovel is apparently the prime prerequisite of a successful exploration of the mud flats. Almost any shovelful of sand will contain the long, fragile "thread" worms, Drilonereis, and a host of ther polychaetes are available for the searching . . . . . Amphitrite ornata, Lysilla alba, Enoplebranchus sanguineus, Clymenella mucosa, C. torquata, Branchioasychis americana, Pseudeurythoe ambigua, Magelona, Notomastus hemipodus, N. lobatus, Sthenelais boa, Ammotrypane sp., Loimia viridis, Onuphis michrocephala, Glycera dibranchiata, Ceratonereis irritabilis, Aricidea fragilis, Marphysa sanguinea, Arabella iricolor, Mesochaetopterus taylori, Spicchaetopterus oculatus, Orbinia ornata, etc. Two echiuroids may be found here, Thalassema mellita, and T. hartmani; a solitary burrowing anemone, Haloclava producta; the burrowing brittle stars, Micropholis gracillima and M. atra, and the apodous sea cucumber, Leptosynapta inhaerens. Bivalves too are hidden here below the surface; the commercial clam Mercenaria mercenaria, the stout razor clam, Tagelus, and occasional specimens of a less familiar razor clam, Solen viridis. The bright litte protobranch, Solemya, and in areas of old Spartina peat,burrowing Barnea are common. Look, too, for the gaping valves of Atrina which resemble longitudinal slits in the sand. In little pools or attached to rocks there may be small scallops, Aquipecten irradians, the ark shells, Noetia, and Anadara, and young mussels, Brachiodontes. Turning over oyster clumps is always interesting in any habitat, and here you should be rewarded with bright orange specimens of onchidorid or a bright, multicolored species of aeolid nudibranch, as well as the tiny snails, Odostomium. Sweeping a dip net through the puddles under these rocks often means the capture of a pair of snapping shrimp, Alpheus heterochaelis, and numbeous Palaemonetes. Snapping shrimp may also be dug from burrows, and large holes on the flats may indicate the presence of Upogebia affinis of Squilla empusa.



One of the more interesting aspects of life on the mud flats is the number of commensal associations to be found here. Be very careful as you dig to examine each burrow for the presence of guests. In the burrow of Upogebia we have found a snapping shrimp, Leptalpheus forceps, a polyclad, an amphipoda, Sextonia, and an unidentified species of copepod. Amphitrite ornata may serve as host to the polynoid, Lepidiametria commensalis, pinnixid crabs, and to two different amphipods, Sextonia and Listriella. Thalassama hartmani usually has Pinnixa cylindrica and the small clams, Paramya subovata in its burrow, and may have small clams of the genus Mysella as well. Leptosynapta may have the little clam Montacuta percompressa attached to it or lying in its burrow, and may shelter the hesionid Podarke and an amphipod, Listriella barnardi. The burrow of Squilla is home for the marvelous little "snail clam" Lepton, and specimens of the snail, Circulus have been found there twice. The most interesting assemblage of all, however, is that associated with the large capitellid polychaete, Notomastus lobatus. Notomastus may have a highly modified clam of the genus Entovalve living attached to its integument, and in each Notomastus burrow there is almost invariably a single large polynoid, Lepidasthenia varia. A second species of clam, also of the genus Entovalva lives associated with the Lepidasthenia, and a loxosomatid entoproct may be found attached to either Notomastus or Lepidasthenia or both. In these burrows, we have also found pilargid polychaetes some of which had commensal copepods, hesionid polychaetes, and the pinnidix crab, Pinnixa sayanna.

## PUERTO PENASCO, MEXICO
### Ruth Dixon

Driving through Organ Pipe Cactus National Monument park on U. S. 85, we crossed the border at Lukeville, Arizona into Sonora, Mexico where we took highway No. 8 and drove on a good highway 62 miles to Puerto Penasco, Sonora, Mexico (Rocky Point) on the Gulf of California. Arriving there on Saturday afternoon without reservations, we finally found a place for the night at the El Dorado, which I would not recommend. Sunday morning, we drove down to the beach to inquire about reservations. We were greeted by eager, aggressive Mexican boys selling shell necklaces and some good specimen shells quite reasonably.

While waiting for the weekend Americans from California to depart, we had breakfast and went shelling on the rocks at the business end of town. Fortunately, the tide was low, so I climbed over the fence down onto the rocks where I found the usual Nerites and rock shells. I meant to go back later to check out the different populations on the rocks, but after shelling became so profitable on the reefs, I did not get back. We hurried back to the beach and waited until rooms were available on the waterfront at the Playa Hermosa Resort. The motel was comfortable and very inexpensive, 1 person /$7.00, 2 persons /$8.60 in 1973. You can fly or drive to Rocky Point. Also, a passenger train comes in each day. We found a very good restaurant near our motel that had excellent food that was very clean and used bottled water in everything. For reservations, get in touch with your local agent or write or phone 795–1095, Andy Chersin, 3294 East Broadway, Tucson, Arizona 85716.

I was fortunate to have two low tides each day, 6:00 A.M. and 6:00 P.M. It took all of my energy catching both low tides, out on the beach at 6:00 A.M. without breakfast and back on the beach by 4:00 P.M. Shelling on this beach at low tide does not require swimming or snorkeling, for I only had to walk down the beach toward what appeared to be a mountain in the distance at low tide until I reached the exposed coral reefs. On the reefs, I found Murex erythrostomus (Pink-mouthed Murex) and M. nigritus (Northern Radix Murex) in tidal pools and also on and under ledges of the reef. The second morning as the sun was beginning to come up (not quite light), I looked out across the exposed reef and saw something that looked like a plastic bottle. I hurried across the reef to investigate just what it was and found to my delight a Strombus galeatus (Giant Eastern Pacific Conch). It was quite heavy and is one of the mollusks that the Mexicans use for food. I found Olivia and Cardiidae along the edges of the water in the sand. There was a large variety of dead shells on the beach, some not too bad.

I recommend this as one of the easiest beaches on which to shell, it is very inexpensive, and I was rewarded with more shells here in the short time I stayed than in most places. I only regret that I did not have the time to go on to Guaymas and Puerto Vallarta.



In three days I found the following:

Family–Glycymeridídae
Glycymeris gigantea (Reeve)
Family–Mytilidae
Adula diegensis (Dall)
Family–Pteriidae
Pinctada mazatlanica (Hanley)

Family–Chamidae
Chama mexicana Carpenter
Family–Cardiidae
Trachycardium pristipleura (Dall)
Family–Acmaeidae
Acmaea stanfordiana (S.D. Berry)
Family–Cerithiidae
Cerithium nicaraguense Pilsbry & Lowe

Family–Crepidulidae
Crucibulum spinosum (Sowerby)
Family–Strombidae
Strombus galeatus Swainson
Family–Eratoidae
Trivia sp.
Family–Cypraeidae
Cypraea cervinetta Kiener

Family–Cassidae
Cassis centiquadrata (Valenciennes)
Family–Muricidae
Murex nigritus (Phillippi)
Murex erythrostomus (Swainson)
Family–Thaididae
Acanthina lugubris (Sowerby)
Acanthina angelica Oldroyd
Purpura columellaris (Lamarck)
Family–Melongenidae
Melongena patula (Broderip & Sowerby)
Family–Olividae
Argaronia testacea (Lamarck)
Oliva incrassata Lightfoot
Oliva porphyria (Linne)
Oliva spicata (Roding)
Family–Turbinellidae
Vasum caestus (Broderip)
Family–Conidae
Conus ximenes Gray

# NOTES ON SPECIES OF THE FAMILY TURRIDAE FOUND IN NORTH CAROLINA WATERS

HUGH J. PORTER

(Based on a discussion presented by the author during May 24, 1975 North Carolina Shell Club Meeting)

The Turrids comprise a large, complex and often mis-identified group of gastropods (toxoglossate) = radula having arrow or harpoon-like teeth, the latter in some genera are believed to be neurotoxic. The large Japanese Turrid-Thatcheria mirabilis Sowerby (sometimes called a Pagoda Shell) is an example found frequently in general world-wide shell collections - it must be noted, however, that this shell has recently been changed to the Thatcheriidae, a closely related family. The major distinguishing characteristic of Turrids is the presence of the so-called "turrid notch". This notch may be a slit, a notch, or a U-shaped canal and is found at the posterior end or top of the outer lip. (Unfortunately, particularly with juvenile specimens and in some adult forms, this characteristic is hard to see.)

Abbot, 1974 states that probably the family Turridae can be divided into at least 500 genera and subgenera and several thousand species. He lists about 275 species as occurring in our Western Atlantic waters and of these 53 are recorded as existing in North Carolina waters. In an atlas of the published records of North Carolina marine mollusca and North Carolina-collected mollusks catalogued in the UNC-IMS (=University of North Carolina, Institute of Marine Sciences) collection, Porter (1974) lists about 100 different Turridae species. The difference between Abbott and Porter is due mainly to recent collections made in offshore North Carolina waters aboard the Duke University M/V Eastward; N. C. Dept. of Economic Resources M/V Dan Moore; and by Mr. Wm. Mansfield (Bill) aboard the Cape Fear Tech. M/V Advance (there also are probably some unrealized synonyms present in Porter, 1974).

The discussion that follows will be primarily by Subfamily. McLean in Keen (1971) points out that the radula is the best single character for subdivision of the Turrids. However, Powell (1966) has suggested that the character of the protoconch or nuclear whorl is valuable in segregation of generic or subgeneric groups. It must be noted that earlier studies based much of the Turrid classification on the kind of "turrid notch" present. The following is based upon the above, Abbott (1974 - based in part upon the considerable experience of Mrs. Virginia Orr Maes at the Phila. Academy of Sciences), the late Mr. Dan Steger, and my own feelings.

Mention must be made here of Dan Steger. Word of the death of Dan was received just before presentation of this discussion to the North Carolina Shell Club. Much of the identifications of the Turrid material in the UNC, IMS collection is based upon Dan Steger identifications and specimens which were in his extensive collection. The time he spent on on the UNC, IMS material and in discussion with the author concerning it must be gratefully acknowledged. Dan's knowledge and understanding of this complex group as it occurred in the Western Atlantic was well known and respected. An obituary notice concerning Dan was published by Abbott (1975).



Subfamily – TURRICULINAE

Large shell for Turrids (2 to 3 inch length), smooth nuclear whorl, no parietal callus, sinus on shoulder, shell narrow with tall spire and a long siphonal canal.

All North Carolina representatives seem to be from deep water. Three species of Leucosyrinx have been brought up from off Cape Fear (by Wm. Mansfield) – L. subgrundifera (Dall), tenoceras Dall, and one which may be an unknown reported species. The "Common Star Turrid" - Cochlespira radiata (Dall), is one of our prettiest shells and not uncommon in deep water collections

Subfamily – TURRINAE

Smooth nuclear whorls; no parietal callus; sinus on periphery is V-shaped or a slit, except for the latter, very similar to Turriculinae. Subfamily includes a West Coast genus Antiplanes which is sinistral (left-handed).

Polystira vibex Dall in certain 150-meter dept stations can be quite common. Except for size difference, I see no difference between this and the "White Giant Turrid" Polystira albida (Perry).

Subfamily – BORSONIINAE

Smooth nuclear whorls, no parietal callus, poorly developed shoulder sinus, may have columellar plicae, and shell is small.

Several genera reported from our waters; however, have collected only the very small Microdrillia comatotropis (Dall) and this from moderate depths.

Subfamily - CLAVINAE

Smooth or carinate nuclear whorl, parietal sinus present, U-shaped sinus on shoulder, 1/4 to 1/2 inch length with a tall spire and a short truncated anterior canal. A large group with much complex and confusing variation.

Drillia actinocycla Dall & Simpson (picture in Dall & Simpson, 1901, and D. enae Bartsch (?), both unlisted by Abbott (1974), are found at about 100 meter depth; the former seems to have a rather widespread occurrence.

The genera Neodrillia and Cerodrillia, as pointed out by Abbott (1974), are almost alike except for nuclear whorl differences; Powell (1966) points out that Neodrillia also has a notched anterior canal. N. cydia Bartsch, C. bealiana Schwengel & McGinity and C. simpsoni (Dall), the latter a common pretty shiny pale-pink shell, are found in our shallow offshore waters and thus frequently in seastar stomachs. Abbott (1974) lists Viridrillia as a subgenus of Cerodrillia, I question this. V. cervina Bartsch is common on our offshore reefs.

Crassispira is listed by Abbott (1974) as having no varix present; however, the original description of this genus indicates the presence of a major thickening (varix?). The species C. tampaensis Bartsch & Rehder occurs at about 100 meter depth off our coast.

The commonest Turrid on our outer reefs is probably Inodrillia aepynota (Dall). I. dalli (Verrill & Smith) has also been found in shallower waters. Dan and I disagreed over the existence of I. miamia Bartsch - it may occur off our coast.

The genus Splendrillia has a heavy entering callus, surface may be smooth and glassy and nuclear whorls are smooth, bluntly rounded. S. janetae (Bartsch) and S. halidorema Schwengel occur at 50–100 meters depth off our coast; an unknown species previously called S. moseri (Dall) by Dan and me, is not uncommon in seastar stomachs.

Comsodrillia eucosmia var canna (Dall), unrecorded by Abbott (1974) was found in deep water off Cape Lookout as recorded by Dall (1889).

Hindisclava alesidota (Dall) as characteristic for the genus, has no varix- this to me seems to be the major reason for not placing it in the genus Crassispira which has one (see above).

Subfamily - MANGELIINAE

Smooth, subcarinate, or cancellate nuclear whorl; callus may or may not be present sinus on shoulder; no operculum present. Group is based on greatly on radular characteristics. Shells are small sometimes ovate and with a short canal.

Both the small chubby, somewhat oval Mangelia (Brachycythara) biconica C. B. Adams and the M. (B.) barbarae (Lyons) are common in our shallow offshore waters. The latter is shiny whereas the former is not because of prominent spiral striae. The latter is named in honor of Mrs. Barbara Steger, widow of Dan Steger.

Also common in our shallow waters and, like the two previous, frequently found in seastar stomachs are: Mangelia (Glyphoturris) rugirma Dall, Cryoturris citronella Dall, C. fargoi McGinty, Kurtziella atrostyla Dall, K. cerina (Kurtz & Stimpson) (?), K. limonitella (Dall), and K. rubella Bartsch & Rehder. All are somewhat alike and have caused me to spend much time and headaches in differentiating them-Dall (1889) should be checked. Cryoturris is noted for its frosty surface; the nuclear whorls of C. fargoi are brown and slightly larger than those of C. citronella. The nuclear whorls of Kurtziella have a characteristic second whorl which is reticulated and not smooth; K. limonitella has punctuations between ribs; K. rubella is smoother and well-named -"Reddish Mangelia."

The genus Ithycythara, as Abbott (1974) points out, has a deeply set denticle just above the middle of the outer lip and smaller denticles below; the following species of this genus: cymella (Dall) lanceolata (C. B. Adams), psila (Bush), and parkeri Abbott are found off North Carolina – only the last named in shallow offshore waters.

Both Nannodiella oxia (Bush) and N. vespucicina (Orbigny) occur and should be looked for in seastar stomachs or our shallow offshore sediments. Glyphostoma gabbii Dall is found in our deeper offshore waters. Abbott (1974) placed Glyphostomops hendersoni Bartsch in the preceding genus; specimens off North Carolina have an operculum which is not characteristic of the Subfamily Mangeliinae. Glyphostomops, I believe, should be in the Subfamily Turrinae near the genus Hindsclava and should be continued at a genus level.

The Pyrogocythara species are all quite small - Abbott's (1974) description is good. The species dubia C. B. Adams and metria Dall are found in our shallow offshore waters while plicosa (C. B. Adams) is somewhat common on "eel grass" in our estuaries.

Subfamily – DAPHNELLINAE

Nuclear whorls are diagonally reticulate - a character not existing in any other of our North Carolina Turrids; the sinus is at the suture; a parietal callus may be present; and the anterior canal is short. All of our representatives, except Daphnella elata (Dall) (?), have come from our deeper offshore areas. D. corbicula Dall and D. lymneiformis (Kiener) are some of the more striking and commoner species present.

The genus Pleurotomella is the genus for some of the larger Turrids which Bill Mansfield recently found in the deeper waters off Cape Fear. One of these is P. c. f. rathbuni (Verrill) which is listed by Abbott (1974) in the genus Propebela (Subfamily-Mangeliinae); Morris (1973) is probably correct in using the genus Pleurotomella as our specimen has the diagonally reticulate nuclear whorl which to me seems to be one of the hallmarks of the Daphenllinae.

Where should one look in North Carolina waters to collect Turrids? So far I have not found any in beach samples. Stomachs of the common blue and orange seastar Astropecten articulatus, which are sometimes brought into fish-houses in unsorted fish or Calico Scallop hauls, are about the only source I know of unless one can get an offshore boat to dredge up offshore sediments for him or her. One caution, do not concern yourself much about our North Carolina Turrids unless you have access to a good source of magnification - identifications are impossible without such. Good luck if you become interested.



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## THE SHELL

L. Keiter

Little shell,
You came to me
From out of the sea.
There's just we three.
I say we three?
Yes, Thee and Me
And the God who made
Both you and me.
No varmint to mar
The beauty of thee,
No man to throw
A dart at me,
A moment caught
With just us three.

## FORT FISHER INVERTEBRATES

Sally Nunnally

The only exposed natural rock outcropping on the North Carolina beachfront is at Kure Beach near the Fort Fisher Museum and State Underwater Archaeology Preservation Laboratory. These rocks are submerged for some one quarter to one half mile offshore, then exposed on the eroding beach front where they then disappear underground to reappear at "Snow's Cut," a section of the Intracoastal Waterway which runs from Masonboro Sound to the Cape Fear River (see map). This hard substrate is a most unusual feature for the North Carolina coast at present sea level, and provides a sheltered attachment for a variety of invertebrates including many mollusks. The rock is a yellowish-orange coquina and according to Fallaw (1973), contains the following species: in abundance, Donax variabilis; commonly, Crassostrea virginica; rarely, Dinocardium robustum, Mercenaria campechiensis, Mulinia lateralis, Noetia ponderosa, and Busycon carica.

Access to the area is gained from a parking lot just above the rock area. Spilling down the steep embankment above the rock outcrop is a tumble of quarried rip-rap full of embedded sharks' teeth and ancient mollusk casts and impressions. The blocks were placed there to slow the rapid erosion of the shoreline. Now, millions of years later, the fossils are again splashed and inundated by the sea. These shells and teeth may be collected by gently tapping and lifting them from the rather crumbly limestone. At the foot of this mass, the rock outcrop rises out of the water and up the slope of the beach. The most noticeable feature as you look down upon the rocks is the bright glistening algaeal covering of Entermorpha sp. that resembles long green hair drying in the sun. Above this, the so-called "black zone" of blue-green algae traces an outline of the high water mark. The first mollusk encountered in the splash zone is the small Scorched Mussel, Brachidontes exustus, found crowded with the equally small barnacle Chthalamus fragilis which has a fleshy rather than a cemented mode of attachment. Carefully stepping across the slippery rocks you may kneel and part the algae strands to reveal fat anemones clinging to the underside of rocks or burrowed in the sand between with only a faint circle betraying their presence. These flaccidly drooping or lumpily contracted creatures give no clue to the hidden flowerlike beauty revealed when they expand their tentacles and feed in the shadowed recesses. If removed to an aquarium they will sometimes reproduce by "stepping," a method whereby the animal moves from one point of attachment to another leaving behind a portion of its basal disc which then grows into a complete anemone. Sometimes an individual will do this until a small colony of anemones in various stages of development traces the route the original anemone took across the aquarium glass. In the same sheltered area the Greedy Doves, Anachis avara, and Florida Rock Shells, Thais haemostoma floridana, glide through the handing algae forests. In cool tidepools trapped Sea Hares, Aplysia wilcoxi gently undulate. Thse bovine mollusks will color the water purple if disturbed as they graze on algae. When placed in an aquarium they have a proclivity for extruding bead-like strings of greenish colored eggs.

Wedged in crevices the Purple Sea Urchin, Arbacia punctulata, is sometimes present in great numbers as well as the sea-star Asterias forbesi. A small bushy growth seemingly matted with gray sediment is reality Anguinella plamata or "dirty" bryozoan found at low water. An occasional blue crab Callinectes sp. may venture into this open beach habitat. Clinging to the algae strands, the tiny skeleton shrimp Caprella auctifroms arches and bends, arches and bends endlessly.



Offshore, you may dive to find soft and hard corals on the rocks and on historic shipwrecks (Note: A permit must be obtained from the Preservation Lab to dive on the wrecks). The nearby historical museum and Underwater Archaeology Pavilion are further points of interest, and the "Rocks" at Federal Point are still another collecting habitat (see map). The "Rocks" are a man-made barrier between the "Basin" waters and the Cape Fear River waters and extend from the tip of land below Fort Fisher, touch Zeke's Island and end in the marshes at the northern end of Bald Head Island. Because the salinity gradient is so great between the waters on either side of the "Rocks."some species are present on one bank and not the other. Interesting ecological comparisons are possible in a small area and because of the unique situation, a larger number of organisms may be observed.

A field trip can be as strenuous or relaxing as you choose with special appeal to the "dry" or "wet" collector. A salt water aquarium can be filled with many diverse forms in only one collecting trip to this location. Naturally different species turn up at different times of the year and under varying conditions. The special attraction of this area is the interesting geologic features plus the man-made habitats that make the animal diversity, past and present, possible.

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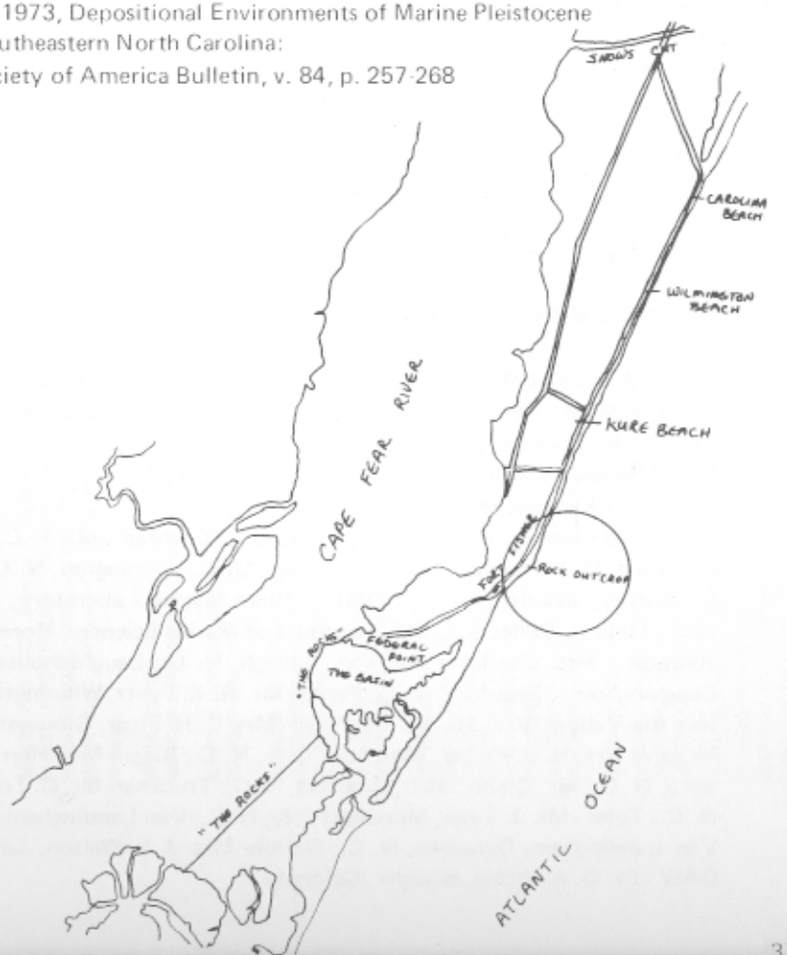

# RECORD SIZES OF NORTH CAROLINA MOLLUSKS
## LIST NO. 4

Hugh J. Porter
U. N. C. Institute of Marine Sciences

This fourth listing is a review of Lists Numbers 1–3, published in North Carolina Shell Club Bulletins, Numbers 5–7. Additional or more recent records have been included. No gastropod species of less than 6mm (0.25 inches) or bivalve species or less than 15mm (0.59 inches) have been included.

These listings were created partly because of their value to molluscan ecologists and /or taxonomists. More importantly, however, they were created to stimulate the amateur collector's interest in his North Carolina shells and to serve as a partial guideline for determining approximate shell values when merchandising or bartering is involved. This latter, of course, is important when one has shells in his collection or wishes to add unattainable specimens to it.

To be eligible for listing, specimens must have been found initially in North Carolina (if from scallop shell piles, piles must be of North Carolina caught shells). Additional records will be kept of live taken specimens if these are not as large as a recorded empty shell. Measurements must be verified by a member of the North Carolina Shell Club's Executive Committee. It would be hoped that upon the dismantling of a collector's collection, recorded record-sized specimens would be offered to a well-known collection of North Carolina shells whether it be amateur or museum.

Measurements used are according to the Van Nostrand Catalogue, volume 2, page 276. Many of the IMS species measurements may seem small and possibly are in regard to those species, the IMS Collection, which these listings were bascially developed from, may have had just a few small specimens. Nomenclature is based primarily on Abbott, 1974 (2nd Edition - American Seashells).

## NOTES CONCERNING LISTINGS:

H= Height of shell (hinge edge or apex to ventral edge in a perpendicular direction.)
L = Length of a shell (maximum anterior to posterior measurement).
W = Width of a shell (maximum width)
SF= Offshore North Carolina Calico Scallop Fishery.
* = Live taken specimen

Specimens reside in the following collections: Cochran - Mr. F. C. Cochran, Atlantic Beach, N. C.; Crews - Dr. J. M. Crews, UNC, Wilmington, N. C.; Dudley - Mrs. D. Dudley, Beaufort, N. C.; DMR - Duke Marine Laboratory, Beaufort, N. C.; IMS - Mollusk Collection, UNC, Institute of Marine Sciences, Morehead City, N. C.; Johnson - Mrs. Charlotte Johnson, Raleigh, N. C.; Laughinhouse - Mr. Billy E. Laughinghouse, Beaufort, N. C.; Pentz - Mr. R. K. Pentz, Wilmington, N. C.; Petuch (see the Veliger, Vol. 15, No. 1); Piper - Mrs. E. H. Piper, Gloucester, N. C.; Porter-Mr. and Mrs. H. J. Porter, Morehead City, N. C.; Riggs - Mrs. Harriet Riggs, Swansboro, N. C.; Mr. Glenn Safrit, Beaufort, N. C.; Truckner- Mr. C. Truckner, Durham, N. C.; Tyler - Mr. J. Tyler, Morehead City, N. C.; Van Landingham- Mr. and Mrs. W. Van Landingham, Ocracoke, N. C.; Walton- Mrs. J. S. Walton, Jacksonville, N. C.; DAW - Dr. D. A. Wolfe, Boulder, Colorado.



LIST NO. 1 REVISION

CHITONS, GASTROPODS AND TUSK SHELLS

| | | | |
|---|---|---|---|
| AMAEA RETIFERA (Dall) Reticulate Wentletrap | 1.02 inch (43mm) | Riggs | (S. F) Beaufort |
| ARCHITECTONICA NOBILIS Roding (Common Sundial) | 2.32 inch (59mm)w | DAW No. 1762 | Offshore Beaufort |
| | 2.09 inch (52mm)w | Walton* | (S. F.) Beaufort |
| ASTRAEA PHOEBIA Roding (Long-spined Star Shell) | 1.70 inch (43mm) | IMS No. 4035.1 | (S. F.) Beaufort |
| | 1.42 inch (36mm) | IMS No. 4035.2* | (S. F.) Beaufort |
| BALCIS CONOIDEA (Kurtz & Stimpson) (Conical Melanella) | 0.43 inch (11mm) | IMS No. 467 | Bogue Sound Beach |
| BALCIS INTERMEDIA (Cantraine) (Cucumber Melanella) | 0.41 inch (10.4mm) | IMS No. 1032 | Cape Lookout area |
| BULLA STRIATA (Bruguiere) (West Indian Bubble) | 1.85 inch (47mm) | DAW No. 1532 | Offshore Beaufort |
| BURSA BUFO (Bruguiere) (Chestnut Frog Shell) | 2.44 inch (62mm) | Cochran | (S. F.) Beaufort |
| | 2.24 inch (57mm) | Walton - now IMS No. 4141*? | (S. F.) Beaufort |
| BURSA THOMAE (Orbigny) (St. Thomas Frog Shell) | 0.98 inch (25mm) | IMS No. 4349.1* | SE of Cape Lookout |
| BUSYCON CANALICULATUM (Linne) (Channeled Whelk) | 8.42 inch (214mm) | Laughinghouse | Bogue Sound? |
| | 7.60 inch (193mm) | IMS No. 1534* | Off Shackleford Banks |
| BUSYCON CARICA (Gmelin) (Knobbed Whelk) | 11.15 inch (283mm) | Piper* | Cape Lookout |
| BUSYCON CONTRARIUM (Conrad) (Lighting Whelk) | 12.52 inch (318mm) | Laughinghouse-IMS | (S. F.) Beaufort |
| | 11.70 inch (297mm) | Piper-IMS* | Cape Lookout |
| BUSYCON SPIRATUM (Lamarck) (Pear Whelk) | 5.30 inch (135mm) | IMS No. 1015* | Off Drum Inlet |
| CALLIOSTOMA EUGLYPTUM (A. Adams) (Sculptured Top Shell) | 0.89 inch (22.5mm) | IMS No. 1832* | SE New River Inlet |
| CALLIOSTOMA PULCHRUM (C.B. Adams) (Beautiful Atlantic Top Shell) | 0.45 inch (11.5mm) | IMS No. 1648* | Morehead City State Port |
| CALLIOSTOMA YUCATECANUM Dall (Yucatan Top Shell) | 0.47 inch (12mm)w | IMS No. 2286 | Onslow Bay |
| CANCELLARIA RETICULATA (Linne) (Common Nutmeg) | 2.28 inch (58mm) | Walton | (S. F.) Beaufort |
| | 1.70 inch (43mm) | IMS No. 1824* | SE New River Inlet |
| CANTHARUS MULTANGULUS (Philippi) (False Drill) | 1.38 inch (35mm) | IMS No. 1816 | SE New River Inlet |
| CASSIS MADAGASCARIENSIS (Lamarck) (Emperor Helmet) | 6.6 inch (157mm+) | DAW | Off New River Inlet |
| CASSIS MADAGASCARIENSIS SPINELLA Clench | 10.60 inch (274mm) | IMS No. 2307* | Off Cape Fear |
| CERITHIUM ATRATUM (Born) (Florida Cerith) | 1.66 inch (42mm) | IMS No. 2277.1* | Bogue Inlet |
| CHAETOPLEURA APICULATA (Say) (Common Eastern Chiton) | 0.71 inch (18mm) | IMS No. 383* | Back Sound |
| CIRSOTREMA DALLI Rehder (Dall's Wentletrap) | 1.30 inch (33mm) | Laughinghouse | (S. F.) Beaufort |
| COLUBRARIA LANCEOLATA (Menke) (Arrow Dwarf Triton) | 1.14 inch (29mm) | IMS No. 1844 | ESE New River Inlet |
| CONUS DELESSERTII Recluz (Sozon s Cone) | 4.06 inch (103mm) | Laughinghouse* now IMS No. 4728 | (S. F.) Beaufort |
| CONUS FLORIDENSIS Sowerby (Floridensis Cone) | 1.38 inch (35mm) | IMS No. 1829.2* | SE New River Inlet |
| CORALLIOPHILA CARIBAEA Abbott (Caribbean Coral Shell) | 1.02 inch (26mm) | Laughinghouse | (S. F.) Beaufort |
| CREPIDULA ACULEATA (Gmelin) (Spiny Slipper Shell) | 0.95 inch (24mm) | IMS No. 1887.5* | SES New River Inlet |
| CREPIDULA FORNICATA (Linne) (Common Atlantic Slipper Shell) | 2.48 inch (63mm) | DAW No. 598 f | Banks of Core Creek |
| | 1.85 inch (47mm) | Piper* | |
| CREPIDULA PLANA (Say) (Eastern White Slipper Shell) | 1.58 inch (40mm) | IMS No. 491* | Bogue Sound |
| CRUCIBULUM STRIATUM (Say) (Striate Cup and Saucer) | 1.62 inch (41mm) | Piper* | Above Cape Hatteras |
| CYMATIUM CINGULATUM (Lamarck) (Paulson's Triton) | 2.76 inch (70mm) | IMS No. 1106.1 | SE of Cape Lookout |
| CYMATIUM KREBSII (Morch) (Krebs' Triton) | 2.76 inch (70mm) | Cochran | (S. F.) Beaufort |
| | 2.44 inch (62mm) | IMS No.3384.1*? | (S. F.) Beaufort |

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|---|---|---|---|
| CYMATIUM PARTHENOPEUM (von Salis) (Von Salis' Triton) | 6.18 inch (157mm) | Piper* | (S. F.) Beaufort |
| CYPHOMA MACGINTYI Pilsbry (McGinty's Cyphoma) | 1.22 inch (31mm) | IMS No. 518 | Fort Macon Beach |
| CYPRAEA CERVUS Linne (Atlantic Deer Cowrie) | 5.91 inch (150 mm) | Pentz* | E of Cape Fear (13fm) |
| CYPRAEA SPURCA ACICULARIS (Gmelin) (Atlantic Yellow Cowie) | 0.83 inch (21mm) | IMS No. 33* | Onslow Bay |
| CYPRAECASSIS TESTICULUS (Linne)(Reticulated Cowrie-helmet) | 2.80 inch (71mm) | Laughinghouse | (S. F.) Beaufort |
| DENTALIUM EBOREUM Conrad (Ivory Tusk) | 1.95 inch (49mm) | IMS No. 511 | Bird Shoal |
| DENTALIUM LAQUEATUM Verrill (Panelled Tusk) | 1.93 inch (49mm) | IMS No. 1213* | SE of Cape Lookout |
| DENTALIUM TEXASIANUM Philippi (Texas Tusk) | 0.98 inch (25mm) | IMS No. 751 | Fort Macon Beach |
| DIODORA CAYENENSIS (Lamarck) (Cayenne Keyhole Limpet) | 1.10 inch (30mm) | IMS No. 1010* | SE of Cape Lookout, N. C. |
| DISTORSIO CLATHRATA (Lamarck) (Atlantic Distorsio) | 2.87 inch (73mm) | Truckner* | (S. F.) Beaufort |
| DISTORSIO MCGINTYI Emerson & Puffer (Florida Distorsio) | 1.81 inch (46mm) | Walton | (S. F.) Beaufort |
| EPITONIUM ANGULATUM (Say) (Angulate Wentletrap) | 0.90 inch (23mm) | IMS No. 574 | Fort Macon Beach |
| EPITONIUM HUMPHREYSI (Kiener) (Humphrey's Wentletrap) | 0.67 inch (17mm) | IMS No. 750 | Fort Macon Beach |
| EPITONIUM MULTISTRIATUM (Say) (Many - ribbed Wentletrap) | 0.36 inch (9mm) | IMS No. 1042 | Just off Cape Lookout |
| EPITONIUM RUPICOLA (Kurtz) (Brown - banded Wentletrap) | 0.55 inch (14mm) | IMS No. 742 | Fort Macon Beach |
| EUPLEURA CAUDATA (Say) (Thick - lipped Drill) | 1.14 inch (29mm) | IMS No. 559* | Holden's Beach |
| FASCIOLARIA LILIUM HUNTERIA (Perry) (Banded Tulip) | 4.53 inch (115mm) | IMS No. 1108* | Off Cape Lookout |
| FASCIOLARIA TULIPA (Linne) (True Tulip) | 9.45 inch (240mm) | IMS No. 4597.1* | (S. F.) E of Cape Lookout |
| FICUS COMMUNIS (Roding) (Common Fig Shell) | 4.42 inch (112mm) | Laughinghouse | (S. F.) Beaufort |
| HALIOTIS POURTALESII Dall (Pourtales' Abalone) | 0.59 inch (15mm) | IMS No. 4144 | SE of Cape Lookout |
| ILYANASSA OBSOLETUS (Say) (Eastern Mud Snail) | 0.85 inch (21.5mm) | IMS No. 1632* | Bogue Sound |
| LITTORINA IRRORATA (Say) (Marsh Periwinkle) | 1.06 inch (27mm) | IMS No. 1654* | North River |
| LUNATIA HEROS (Say) (Common Northern Moon Snail) | 4.25 inch (108mm) | IMS No. 1112.2 | Off Oregon Inlet |
| FAVARTIA CELLULOSA (Conrad) (Pitted Murex) | 0.79 inch (20mm) | IMS No. 2431 | SE of Cape Fear |
| MORUM DENNISONI (Reeve) (Dennison's Morum) | 1.57 inch (40mm) | Petuch | ESE of Cape Fear |
| MUREX FLORIFER DILECTUS A. Adams (Lace Murex) | 2.84 inch (72mm) | IMS No. 2306* | Off Cape Fear |
| MUREX FULVESCENS (Sowerby) (Giant Atlantic Murex) | 7.08 inch (180mm) | Piper* | Cape Lookout |
| MUREX LEVICULUS (Dall) (Thin - ribbed Murex) | 0.67 inch (17mm) | IMS No. 2356* | SE of Cape Hatteras |
| MUREX POMUM Gmelin (Apple Murex) | 3.46 inch (88mm) | Walton* | (S. F.) Beaufort |
| MUREX RECURVIROSTRIS RUBIDUS F. C. Baker (Rose Murex) | 1.33 inch (32.5mm) | IMS No. 1851* | ESE New River Inlet |
| NASSARIUS ACUTUS (Say) (Sharp - knobbed Nassa) | 0.51 inch (13mm) | IMS No. 496 | Bird Shoal |
| NASSARIUS ALBUS (Say) (Variable Nassa) | 0.43 inch (11mm) | IMS | SE of Cape Lookout |
| NASSARIUS ALBUS (Say) form CONSESUS (Ravenel) | 0.49 inch (12.5mm) | IMS | SE of Cape Lookout |
| NASSARIUS TRIVITTATUS (Say) (New England Nassa) | 0.79 inch (20mm) | DML No. 358* | Off Oregon Inlet |
| NASSARIUS VIBEX (Say) (Common Eastern Nassa) | 0.61 inch (15.5mm) | IMS No. 475* | Bird Shoal |
| NATICA CANRENA (Linne) (Colorful Atlantic Natica) | 1.70 inch (43mm) | Piper | |
| NISO HENDERSONI Bartsch (Henderson's Niso) | 1.38 inch (35mm) | IMS No. 1854 | ESE New River Inlet |
| OLIVA SAYANA RAVENEL (Lettered Olive) | 3.58 inch (91mm) | Cochran | (S. F.) Beaufort |
| PHALIUM CORONADOI (Crosse) | 3.46 inch (88mm) | IMS No. 274* | Off Cape Fear |
| PHALIUM GRANULATUM (Born) (Scotch Bonnet) | 3.40 inch (88mm) | Porter | Off Wrightsville Area |
| | 3.00 inch (76mm) | IMS No. 409* | Offshore Beaufort |
| PLEUROPLOCA GIGANTEA (Kiener) (Florida Horse Conch) | 16.25 inch (412mm) | Piper* | Off Beaufort Inlet |
| POLINICES DUPLICATUS (Say) (Atlantic Moon Snail) | 3.58 inch (91mm)w | Van Landingham | Ocracoke |
| | 3.02 inch (77mm)w | IMS No. 348* | Off Beaufort Inlet |
| POLINICES LACTEUS (Guilding) (Milk Moon Snail) | 0.67 inch (17mm) | IMS No. 1728 | SE Beaufort Inlet |
| | 0.43 inch (11mm) | IMS* | SE Beaufort Inlet |

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|---|---|---|---|
| PISANIA TINCTA (Conrad) (Tinted Cantharus) | 1.18 inch (30mm) | IMS No. 351 | Shark Shoal Jetty |
| SCAPHELLA DUBIA (Broderip) (Var. Georgiana Clench) | 4.42 inch (112mm) | DML No. 2511* | ESE Cape Lookout |
| SCAPHELLA JUNONIA (Lamarck) (Junonia) | 5.28 inch (134mm) | Dudley | Fort Macon Beach |
| | 2.76 inch (70mm) | Piper* | Offshore Beaufort |
| SIMNIA UNIPLICATA (Sowerby) (Single-toothed Simnia) | 0.83 inch (21mm) | IMS No. 219* | Bogue Sound |
| SINUM MACULATUM (Say) (Maculated Baby's Ear) | 1.70 inch (43mm)w | DAW* | Offshore Beaufort |
| SINUM PERSPECTIVUM (Say) (Common Baby's Ear) | 1.73 inch (44mm) | DML No. 2309* | Pivers Island |
| STROMBUS ALATUS Gmelin Florida Fighting Conch) | 4.53 inch (115mm) | Piper | |
| | 4.30 inch (112mm) | IMS No. 2740* | SW of Cape Fear |
| STROMBUS COSTATUS Gmelin (Milk Conch) | 6.02 inch (154mm) | Petuch* | ESE of Cape Fear |
| TEREBRA CONCAVA (Say) (Concave Auger) | 0.90 inch (23mm) | IMS No. 1855* | ESE of New River Inlet |
| TEREBRA DISLOCATA (Say) (Atlantic Auger) | 2.20 inch (56mm) | Van Landingham | Ocracoke |
| THAIS HAEMASTOMA FLORIDANA (Conrad) (Southern Oyster Drill) | 3.81 inch (97mm) | IMS No. 238* | Ocracoke |
| TONNA GALEA (Linne)(Giant Tun) | 7.39 inch (188mm) | Van Landingham | Portsmouth |
| | 4.92 inch (125mm) | DAW* | Offshore Beaufort |
| TURBO CASTANEA Gmelin (Chestnut Turban) | 1.65 inch (42mm) | IMS No. 919 | Onslow Beach |
| | 1.54 inch (39mm) | IMS No. 2266* | Bogue Sound |
| TURRITELLA EXOLETA (Linne) (Eastern Turritella) | 2.75 inch (70+mm) | IMS | SE Cape Lookout |
| UROSALPINX CINERA (Say) (Atlantic Oyster Drill) | 1.50 inch (38mm) | IMS No. 1133 | Bogue Sound |
| XENOPHORA CONCHYLIOPHORA (Born) (Atlantic Carrier Shell) | 2.24 inch (57mm)w | Walton | (S. F.) Beaufort |
| | 2.00 inch (51mm)w | IMS No. 1875* | SE of New River Inlet |

## LIST NO. 2 BIVALVES

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| AEQUIPECTEN MUSCOSUS (Wood) (Rough Scallop) | 1.85 inch (47mm)L | IMS No. 1845* | ESE New River |
| AMERICARDIA MEDIA (Linne) (Atlantic Strawberry Cockle) | 1.38 inch (35mm)H | IMS No. 1847 | ESE New River |
| ANADARA BRASILIANA (Lamarck) (Incongruous Ark) | 2.48 inch (63mm)L | IMS No. 762 | Fort Macon Beach |
| ANADARA FLORIDANA (Conrad) (Cut-ribbed Ark) | 4.36 inch (111mm)L | IMS No. 85 | Atlantic Beach |
| | 3.65 inch (92mm) L | IMS No. 1103.3* | SE Cape Lookout |
| ANADARA OVALIS (Brugiere) (Blood Ark) | 2.24 inch (57mm)L | IMS No. 546a* | Holden's Beach |
| ANATINA ANATINA (Spengler) (Smooth Duck Clam) | 2.80 inch (71mm)L | IMS No. 473 | Bird Shoal |
| ANODONTIA ALBA Link (Buttercup Lucine) | 2.76 inch (70mm)L | IMS No. 71 | Atlantic Beach |
| ANODONTIA PHILIPPIANA (Reeve) (Chalky Buttercup) | 3.74 inch (96mm)L | IMS No. 712 | Cape Lookout |
| ?ANOMIA SQUAMULA Linne (Prickly Jingle) | 1.97 inch (50mm)H | DML No. 856* | Off Cape Lookout |
| ANOMIA SIMPLEX d'Orb (Atlantic Jingle) | 1.33 inch (32mm)H | IMS No. 708* | Cape Lookout |
| ARCA IMBRICATA Brugiere (Mossy Ark) | 2.60 inch (66mm)L | IMS No. 1880* | SE New River |
| ARCA ZEBRA (Swainson) (Turkey Wing) | 3.55 inch (90mm)L | IMS No. 1879.9* | SE New River |
| ARCINELLA CORNUTA Conrad (Florida Spiny Jewel Box) | 1.95 inch (49mm) H | IMS No. 2282* | Off Cape Fear |
| ARGOPECTEN GIBBUS (Linne) (Calico Scallop) | 2.96 inch (75mm)L | IMS No. 782d* | Off Bogue Inlet |
| ARGOPECTEN IRRADIANS CONCENTRICUS (Say) (Atlantic Bay Scallop) | 3.46 inch (88mm)L | IMS No. 1791.9* | Bogue Sound |
| ASTARTE BOREALIS (Schumaker) (Boreal Astarte) | 1.18 inch (30mm)L | DML No. 576* | Off Oregon Inlet |
| ASTARTE CASTANEA (Say)(Smooth Astarte) | 1.10 inch (28mm)L | DML No. 1646* | Off Oregon Inlet |
| ASTARTE UNDATA Gould (Waved Astarte) | 1.30 inch (33mm)L | DML No. 1225* | Off Oregon Inlet |
| ATRINA RIGIDA (Lightfoot) (Rigid Pen Shell) | 9.16 inch (233mm)L | IMS No. 407* | Beaufort |
| ATRINA SEMINUDA (Lamarck) (Half-naked Pen Shell) | 7.36 inch (187mm)L | IMS No. 529c | Holden's Beach |
| | 5.91 inch (150mm)L | IMS No. 1797* | Off Shackleford |

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| ATRINA SERRATA (Sowerby) (Saw-toothed Pen Shell) | 9.85 inch (251mm)L | IMS No. 973* | Bogue Banks |
| BARBATIA CANDIDA (Helbling) (White-bearded Ark) | 0.98 inch (25mm)L | IMS No. 2225* | SE Cape Lookout |
| BARBATIA DOMINGENSIS (Lamarck) (White Minature Ark) | 1.18 inch (30mm)L | IMS No. 2265* | SE Cape Lookout |
| BARNEA TRUNCATA (Say) (Fallen Angel Wing) | 2.21 inch (56mm)L | IMS No. 1936 | Newport River |
| BRACHIDONTES EXUSTUS (Linne) (Scorched Mussel) | 0.79 inch (20mm)L | IMS No. 6* | Pamilco Sound |
| CALLISTA EUCYMATA (Dall) (Glory-of-the-Seas Venus) | 1.22 inch (31mm)L | IMS No. 4483 | SE Cape Lookout |
| CHAMA CONGREGATA Conrad (Little Corrugated Jewel Box) | 1.34 inch (34mm)H | IMS No. 939* | Cape Lookout |
| CHAMA MACEROPHYLLA (Gmelin) (Leafy Jewel Box) | 1.46 inch (37mm)H | IMS No. 764 | Fort Macon |
| CHIONE CANCELLATA (Linne) (Cross-barred Venus) | 1.66 inch (42mm)L | IMS No. 3407* | Middle Sound-Wrightsville Beach |
| CHIONE INTAPURPUREA (Conrad) (Lady-in-waiting Venus) | 1.54 inch (39mm)L | Walton | (S. F.)Beaufort |
| CHIONE LATILIRATA (Conrad) (Imperial Venus) | 1.34 inch (34mm)L | IMS No. 2295.1* | E. SS. E. Cape Lookout |
| CRASSOSTREA VIRGINICA (Gmelin) Easter Oyster | 8.34 inch (212mm)H | IMS No. 883.2* | Cedar Island |
| CUMINGIA TELLINOIDES (Conrad) Tellin-like Cumingia | 0.90 inch (23mm)L | IMS No. 763 | Fort Macon |
| CYCLOCARDIA BOREALIS (Conrad) (Northern Cardita) | 1.33 inch (32mm)L | IMS No. 1219* | Off Oregon Inlet |
| CYRTOPLEURA COSTATA (Linne) Angel Wing | 5.76 inch (146mm) L | Van Landingham | Ocracoke |
| | 4.92 inch (125mm)L | IMS No. 241* | Peletier Creek |
| DINOCARDIUM ROBUSTUM (Lightfoot) (Giant Atlantic Cockle) | 4.68 inch (119mm)H | Piper* | Cape Lookout |
| DIPLODONTA PUNCTATA (Say) (Atlantic Diplodon) | 0.79 inch (20mm)L | IMS No. 3133 | SSE Cape Hatteras |
| DIVARICELLA QUADRISCULCATA (D'Orb) (Cross-hatched Lucine) | 0.79 inch (20mm)L | IMS No. 501* | Bird Shoal |
| DONAX VARIABILIS Say (Florida Coquina) | 0.79 inch (20mm) L | IMS No. 2605 * | Bogue Banks |
| DOSINIA DISCUS (Reeve) (Disk Dosinia) | 2.84 inch (72mm)L | IMS No. 647a* | Shackleford Banks |
| DOSINIA ELEGANS Conrad (Elegant Dosinia) | 3.90 inch (99mm)L | IMS No. 396 | Off Bogue Banks |
| | 3.58 inch (91mm)L | IMS No. 1104.1* | SE Cape Lookout |
| ENSIS DIRECTUS Conrad (Atlantic Jacknife Clam) | 5.00 inch (127mm)L | IMS No. 1342* | Newport River |
| EUCRASSATELLA SPECIOSA (A. Adams)(Gibb's Clam) | 2.32 inch (59mm) L | IMS No. 3956 | Off Emerald Isle |
| | 2.28 inch (58mm)L | DML No. 571* | S. Cape Hatteras |
| GEUKENSIA DEMISSA (Dillwyn) (Atlantic Ribbed Mussel) | 5.24 inch (133mm)L | IMS No. 3378.3 | Radio Island |
| GLYCYMERIS AMERICANA (DeFrance) (Giant American Bittersweet) | 4.02 inch (103)L | Piper* | Offshore Scallops |
| GLYCYMERIS PECTINATA (Gmelin)(Comb Bittersweet) | 0.86 inch (22mm)L | IMS No. 644 | Shackleford Banks |
| GLYCYMERIS SPECTRALIS Nicol (Spectral Bittersweet) | 0.98 inch (25mm)L | IMS No. 2713.3* | Cape Fear |
| HIATELLA ARCTICA (Linne) (Artic Saxicave) | 1.30 inch (33mm)L | Walton | New River Inlet |
| | 0.63 inch (16mm)L | IMS No. 2045* | SE New River |
| ISCHADIUM RECURVUM (Rafinesque) (Hooked Mussel) | 1.85 inch (47mm)L | IMS No. 560c* | New River |
| LAEVICARDIUM LAEVIGATUM (Linne) (Common Egg Cockle) | 2.87 inch (73mm)H | Walton | (S.F.) Beaufort |
| | 2.56 inch (65mm)H | IMS No. 2734* | Off Oregon Inlet |
| LAEVICARDIUM MORTONI (Conrad) (Morton's Egg Cockle) | 0.73 inch (18.5mm)H | IMS No. 444 | Bogue Sound |
| LAEVICARDIUM PICTUM (Ravenel's Egg Cockle) | 1.02 inch (26mm)H | IMS No. 1895* | SE New River |
| LIMA SCABRA (Born) (Rough Lima) | 2.60 inch (66mm)H | IMS No. 2704 | SE Cape Fear |
| LINGA PENNSYLVANIA (Linne) (Pennsylvania Lucine) | 2.48 inch (63mm)L | IMS No. 1065 | Off Core Banks |
| | 2.05 inch (52mm) L | DML No. 2508* | E of Cape Lookout |
| LITHOPHAGA ANTILLARUM (d'Orb.) (Giant Date Mussel) | 3.23 inch (82mm)L | IMS No. 1064* | Off Cape Lookout |
| LITHOPHAGA ARISTATA (Dillwyn) (Scissor Date Mussel) | 1.34 inch (34mm)L | DML No. 1160* | Off Cape Lookout |
| LITHOPHAGA BISULCATA (d'Orb) (Mahogany Date Mussel) | 1.22 inch (31mm)L | Walton | Bogue Sound |
| LYONSIA BEANA d'Orb (Pearly Lyonsia) | 1.34 inch (34mm)L | Walton | Off New River |

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| LYROPECTEN NODOSUS (Linne) (Lion's Paw) | 4.72 inch (120mm)L | IMS No. 1842* | ESE New River |
| MACOMA BALTHICA (Linne) (Balthic Macoma) | 1.06 inch (27mm)L | IMS No. 1130.1* | Adams Creek, N. C. |
| MACOMA BREVIFRONS (Say) (Short Macoma) | 0.95 inch (24mm)L | IMS No. 4460 | SE Cape Lookout |
| MACOMA PHENAX Dall | 0.79 inch (20mm)L | IMS No.-* | Neuse River |
| MACOMA TENTA (Say) (Tenta Macoma) | 0.67 inch (17mm)L | IMS No. 1236* | Bogue Sound |
| MACROCALLISTA MACULATA (Linne) (Calico Clam) | 3.39 inch (86mm)L | IMS No. 2738* | S of Cape Lookout |
| MACROCALLISTA NIMBOSA (Lightfoot) (Sunray Venus) | 7.39 inch (1.88mm)L | Landingham* | 60ft. Depth off Ocracoke |
| MACTRA FRAGILIS Gmelin (Fragile Atlantic Mactra) | 1.97 inch (50mm)L | IMS No. 1500* | Bogue Sound |
| MARTESIA CUNEIFORMIS (Say) (Wedge-shaped Martesia) | 0.59 inch (15mm)L | IMS No. 439* | Core Sound |
| MERCENARIA CAMPECHIENSIS (Gmelin) (Southern Quahog) | 5.58 inch (142mm)L | Truckner* | Cape Lookout Bight |
| MERCENARIA MERCENARIA (Linne) (Northern Quahog) | 4.42 inch (112mm) L | IMS No. 98* | Hoop Pole Creek |
| MERCENARIA CAMPECHIENSIS - MERCENARIA HYBRID?? | 5.94 inch (151mm)L | IMS No.-* | Bogue Sound |
| MODIOLUS AMERICANUS (Leach) (Tulip Mussel) - both records may be for the False Tulip Shell (M. modiolus squamosus Beauperthuy) | 1.81 inch (46mm)L | IMS No. 46* | Core Sound |
| | 2.32 inch (59mm)L | Walton | New River |
| MODIOLUS MODIOLUS (Linne) (Northern Horse Mussel) | 4.48 inch (114mm)L | IMS No. 1111* | ENE Oregon Inlet |
| MULINIA LATERALIS (Say) (Dwarf Surf Clam) | 0.86 inch (22mm)L | IMS No.-* | Neuse River |
| MYA ARENARIA Linne (Soft-shell Clam) | 3.65 inch (92mm)L | IMS No. 1627 | Cape Lookout |
| | 3.18 inch (81mm)L | DML No. 2506* | Shackleford Banks |
| MYTILUS EDULIS Linne (Common Blue Mussel) | 2.56 inch (65mm)L | DML No. 786 | N of Cape Hatteras |
| | 2.23 inch (56.5mm)L | IMS No. 693* | Kitty Hawk |
| NOETIA PONDEROSA (Say) (Ponderous Ark) | 2.48 inch (63mm)L | IMS No. 1121.5* | Off Shackleford |
| OSTREA EQUESTRIS Say (Crested Oyster) | 2.05 inch (52mm)H | IMS No. 244C* | Bogue Sound |
| OSTREA PERMOLLIS Sowerby (Sponge Oyster) | 1.66 inch (42mm)H | IMS No.-* | ESE New River |
| PANDORA TRILINEATA Say (Say's Pandora) | 1.10 inch (28mm)L | IMS No. 2549* | W Wimble Shoals |
| | 7.36 inch (187mm)L | Safrit* | Off Atlantic Beach |
| PANOPEA BITRUNCATA Conrad (Atlantic Geoduck) | 7.56 inch (192mm)L | Walton | (S. F.) Beaufort |
| PAPYRIDEA SOLENIFORMIS (Bruguiere) (Spiny Paper Cockle) | 1.50 inch (38mm)L | IMS No. 637 | New Topsail |
| | 0.94 inch (24mm)L | IMS No. 2325.2* | SSE Cape Hatteras |
| PECTEN RAVENELI Dall (Ravenel's Scallop) | 2.76 inch (70mm)L | IMS No. 1885* | SE New River |
| PERIPLOMA LEANUM (Conrad) (Lea's Spoon Clam) | 1.73 inch (44mm)L | IMS No. 1383 | Southport |
| PETRICOLA PHOLADIFORMIS Lamarck (False Angel Wing) | 2.21 inch (56mm)L | IMS No. 747p | Fort Macon |
| | 1.77 inch (45mm)L | DML No. 1845* | Harkers Island |
| PHOLAS CAMPECHIENSIS Gmelin (Campeche Angel Wing) | 3.75 inch (96mm)L | IMS No. 451b | Yaupon Beach |
| PITAR MORRHUANUS Linsley (Morrhua Verus) | 1.46 inch (37mm)L | DML No. 514 | Off Oregon Inlet |
| | 1.42 inch (36mm)L | DML No. 514* | Off Oregon Inlet |
| PHACOIDES FILOSUS (Stimpson) (Northeast Lucinia) | 1.22 inch (31mm)L | DML No. 519* | Off Oregon Inlet |
| PLACOPECTEN MAGELLANICUS (Gmelin) (Atlantic Deep-sea Scallop) | 6.38 inch (162mm)L | Piper* | Above Cape Hatteras |
| PLICATULA GIBBOSA (Lamarck) (Kitten's Paw) | 1.33 inch (32mm)L | IMS No. 4414 | Off Cape Fear |
| PODODESMUS RUDIS (Broderip) (False Atlantic Jingle) | 1.02 inch (26mm)H | IMS No. 363* | SE Cape Lookout |
| POLYMESODA CAROLINIANA (Bosc) (Carolina Marsh Clam) | 2.09 inch (53mm)L | IMS No. 2601* | Calico Creek |
| PSEUDOCHAMA RADIANS (Lamarck) (Atlantic Left-handed Jewel Box) | 2.21 inch (56mm)H | IMS No. 1830* | SE New River |
| PTERIA COLYMBUS (Roding) (Atlantic Wing Oyster) | 3.81 inch (97mm)L | IMS No. 1881* | SE New River |
| RANGIA CUNEATA (Sowerby) (Common Rangia) | 3.18 inch (81mm)L | Wolfe* | Neuse River |

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| RAETA PLICATELLA (Lamarck) (Channeled Duck Clam) | 2.72 inch (69mm) L | IMS No. 732 | Fort Macon |
| RUPELLARIA TYPICA (Jonas) (Atlantic Rupellaria) | 1.10 inch (28mm)L | DML No. 1221* | Off Cape Lookout |
| SEMELE BELLASTRIATA (Conrad) (Cancellate Semele) | 0.83 inch (21mm)L | IMS No. 2512 | Off Cape Fear |
| | 0.67 inch (17mm)L | IMS No. 2210* | SE Cape Lookout |
| SEMELE PROFICUA (Pulteney) (White Atlantic Semele) | 1.38 inch (35mm)L | IMS No. 630b | New Topsail Inlet |
| SEMELE PURPURASCENS (Gmelin)(Purplish Semele) | 1.10 inch (28mm)L | IMS No. 2513 | Off Cape Fear |
| | 1.02 inch (26mm)L | IMS No. 4473 | SE Cape Lookout |
| SOLECURTUS CUMINGIANUS Dunker (Corrugated Razor Clam) | 2.84 inch (72mm)L | IMS No. 1640 | Offshore N. C. |
| SOLEMYA VELUM Say (Boreal Awning Clam) | 0.79 inch (20mm)L | IMS No. 1350* | Bogue Sound |
| SOLEN VIRIDIS (Say) (Green Jackknife Clam) | 1.38 inch (35mm)L | IMS No. 4954 | Atlantic Beach |
| SPENGLERIA ROSTRATA (Spengler) (Spengler Clam) | 1.18 inch (30mm)L | IMS No. 5836* | Off Cape Fear |
| SPISULA RAVENELI (Conrad) (Southern Atlantic Surf Clam) | 4.64 inch (118mm)L | IMS No. | Nags Head |
| | 4.13 inch (105mm)L | IMS No. 1343* | Cape Lookout |
| SPONDYLUS AMERICANUS Hermann (Atlantic Thorny Oyster) | 3.23 inch (82mm)H | IMS No. 4417 | Off Cape Fear |
| | 3.07 inch (78mm)H | IMS No. 2596* | SE Cape Lookout |
| TAGELUS DIVISUS (Spengler) (Purplish Tagelus) | 1.30 inch (33mm)L | IMS No. 504* | Bird Shoal |
| TAGELUS PLEBEIUS (Lightfoot) (Stout Tagelus) | 3.58 inch (91mm)L | IMS No. 503* | Bird Shoal |
| TELLIDORA CRISTATA (Recluz)(White-crested Tellin) | 0.95 inch (24mm)L | IMS No. 929 | Atlantic Beach |
| TELLINA AEQUISTRIATA Say (Lintea Tellin) | 0.90 inch (23mm)L | IMS No. 513* | Bird Shoal |
| TELLINA ALTERNATA Say (Alternate Tellin) | 2.60 inch (66mm)L | Walton | New River Inlet |
| TELLINA LISTERI Roding (Speckled Tellin) | 1.73 inch (44mm)L | IMS No. 2316 | SSE Cape Hatteras |
| TELLINA MAGNA Spengler (Great Tellin) | 4.96 inch (126mm)L | Walton | (S. F.) Beaufort |
| | 4.57 inch (115mm)L | Laughinghouse | (S. F.) Beaufort |
| TELLINA NITENS C. B. Adams (Georgia Tellin) | 1.42 inch (36mm)L | IMS No. 4543* | SE Cape Lookout |
| TELLINA PROBINA Boss (Boss' Dwarf Tellin) | 0.79 inch (20mm)L | IMS No. 4464 | SE New River |
| TRACHYCARDIUM EGMONTIANUM (Shuttleworth) (Prickly Cockle) | 2.96 inch (75mm)H | DML No. 2232 | Cape Lookout |
| | 2.80 inch (71mm)H | Piper* | Cape Lookout Bight |
| TRACHYCARDIUM MURICATUM (Linne) (Yellow Cockle) | 1.66 inch (42mm)H | IMS No. 3406* | Middle Sound - Wrightsville Beach Area |
| VENTRICOLARIA RUGATINA (Heilprin) (Queen Venus) | 1.77 inch (45mm)L | IMS No. 2598* | SE Cape Lookout |
| YOLDIA LIMATULA (Say) (File Yoldia) | 1.66 inch (42mm)L | DML No. 593* | Off Oregon Inlet |
| YOLDIA SAPOTILLA (Gould) (Short Yoldia) | 0.86 inch (22mm)L | IMS No. 1224* | Off Oregon Inlet |