



SHELL-O-GRAM

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JACKSONVILLE SHELL CLUB, INC.

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Volume 44(2)

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March Meeting

The Thursday, March 27th meeting of the Jacksonville Shell Club will be held at the Southeast Branch Public Library at 7:00 PM.

The educational program will be presented by Charlotte Lloyd who will give an illustrated talk on the marine shells of Gobernadora Island, off the Pacific coast of Panama.

Harry Lee will give the Shell-Of-The-Month on *Opeatostoma pseudodon* (Burrow, 1815) [Thorn Latirus] – a species found in Panama.

April Meeting

The Thursday, April 24th meeting of the Jacksonville Shell Club will be held at the usual time and place.

The educational program will be presented by Ruth Abramson on a new perspective on shells which appear on stamps and on coins (conchophilately and conchonomismatics). Husband Frank will surprise us by bringing one of these images to life as the Shell-Of-The-Month.

Freshwater Mussels In Illinois

By David F. Hess

- Introduction -

My first acquaintance with what are known as freshwater pearl mussels harks back to my youth. One hot summer's day, I was wading in the local swimming hole along Tulpehocken Creek in Berks County, Pennsylvania feeling with my toes what felt to be a clam shell in the muddy sand. Many years later I was to renew acquaintance with this fascinating group of mollusks along the muddy banks of the Rock River, northeast of Byron, IL. while on a brief picnic break on the way to teach a summer extension course! This article will be limited to the Mississippi, Illinois and Rock Rivers where I have had about 90% of my observational and collecting experiences with mussels.

Freshwater mussels, also known as freshwater pearl mussels, unionids and naiads, occur throughout much of the United States and Canada, and there are other groups in South America and Asia. Species even occur in Alaska and the Yukon, such as the Yukon Floater, *Anodonta beringiana* Middendorff, 1851! The term naiad comes from the mythical beautiful maidens thought by the Greeks to inhabit lakes, rivers and springs. However, this term is now infrequently used for mussels. (continued on page 3.)



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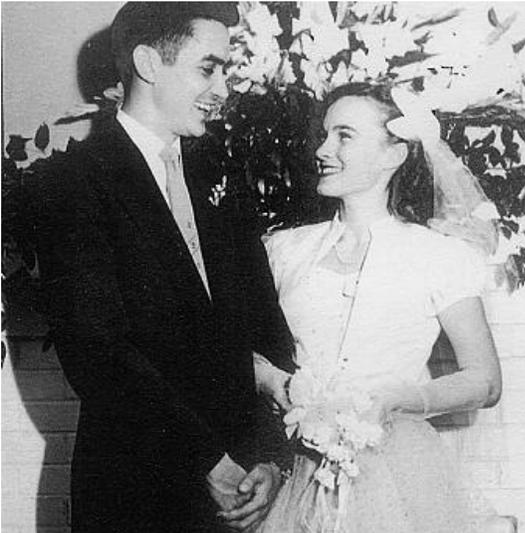
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The Shell-O-Gram is issued bimonthly and mailed to all regular members. Annual membership dues are \$12.50 individual and \$15.00 family (domestic), and \$20.00 (foreign). Lifetime membership is available.

Send dues to: Charlotte M. Lloyd
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The club meets each month, excluding December, at the Southeast Branch Public Library, 10599 Deerwood Park Blvd., Jacksonville Florida. Please address any correspondence to the club's address shown above.

Closing date for article submission is two weeks prior to the first of each month of publication. Articles may be republished provided full credit is given the author and this newsletter and one copy of the complete publication in which the article appears is mailed to Editor at the above address.



The Lyerlys Celebrate Their 50th Anniversary

Betsy and Bill Lyerly celebrated their 50th wedding anniversary with a dinner reception with friends and family on Mar. 1st at Trinity Lutheran Church. They were married Feb. 28, 1953, in St. Matthew's Lutheran Church in Wilmington, NC. Bill and Betsy have three

daughters [Teresa White, Jacksonville; Sheila Jennette, Palatka; and Angela Morton, Ponte Vedra Beach] and four grandchildren and two great-grandchildren.

Youngest Club Member Wins At Broward



Danielle at the Jacksonville Shell Show

The Jacksonville Shell Clubs youngest member, Danielle Wirsansky (age 9) recently exhibited and won two awards at the Broward Shell Club's 38th Annual Shell Show. Danielle received a first place ribbon for her exhibit in the student [grades 1-6] self-collected category and also a trophy for the best student exhibit.

Congratulations to Danielle from all the members of the club for her fine work. As you may recall, Danielle also won a first place ribbon and judges special award at our shell show last year in her exhibiting debut.

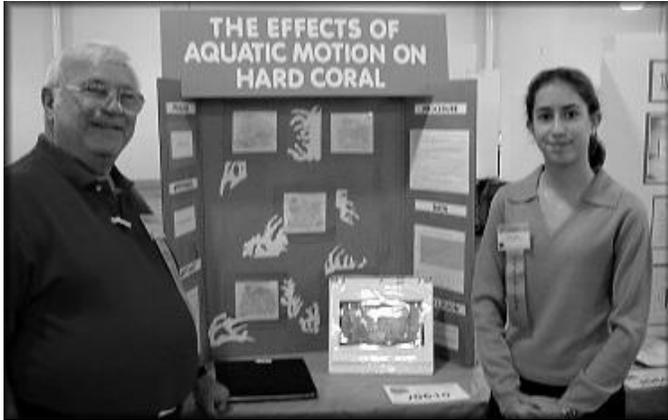
Kiwanis Science and Engineering Fair 2003

On February 25th George Hapsis and Nellie Hawley judged the 48th Annual Kiwanis Northeast Regional Science and Engineering on behalf of the Jacksonville Shell Club. The Fair is open to students in grades six through twelve and was held at the Jacksonville Fair Grounds. Each year the Club offers a cash stipend to the best science projects dealing with Marine Science.

The 1st Place award of \$75.00 was given to Denise Correll an 8th grade student at James Weldon Johnson College Preparatory Middle School. Denise's exhibit was entitled "Effects of Light Intensity on Crustacean Malacostrais." This was a time study including documentation and pictures of the equipment used to study the growth, color, etc. of fiddler crabs under various light intensity.

The runner-up winner, Kate Rapp, was given a check for \$50.00. Kate's exhibit was entitled "The Effects of

Aquatic Motion on Hard Coral." The exhibit reflects the condition & effect of the coral under constant water pressure - the equivalent of the flow of the Gulf Stream. Kate is an 8th grade student at Duncan U. Fletcher Middle School.



George Hapsis with runner-up winner Kate Rapp

Attention Crafters!

Part of the appeal of Sanibel's annual shell fair is their tables of flower arrangements, large and small, made by the members at monthly workshops and sold for the benefit of their club. The Sanibel club members, with whom we talked, seemed to have enjoyed getting together monthly to make the items. Now, the Jacksonville Shell Club is going to try making some items for sale by our club at our shows. At least until we see how things work out, two dates per-month (arbitrarily selected) are being offered in the hope that most of our members will find one or more times convenient. So please mark you calendars, and make an effort to join us.

The workshops will be held at 1451 Classic Oak Rd. West. Classic Oak Rd. West goes north from Monument Rd. between State Rd. 9A and St. John's Bluff Rd. - about a mile-and-a-half past Regency Square. Times will be:

---Second Tuesdays: 1:00-4:00 PM

---Second Thursdays: 6:30-9:30 PM

All members are invited and urged to come to at least one meeting a month, ready to make a flower arrangement for the club. Please bring your own supplies, if you have them. And it would be most helpful if, for at least the first meeting, someone were to come who has actually made a flower!

If you can host a workshop one Saturday or Sunday a month, excluding November and December and any holiday weekend, please contact Barbara Moon to arrange scheduling.

Freshwater Mussels In Illinois (continued)

Most freshwater mussels are in the family Unionidae, but a few such as the Spectaclecase, *Cumberlandia monodonta* (Say, 1829) and the Eastern Pearlshell, *Margaritifera margarifera* (Linnaeus, 1758) reside in the family Margaritiferidae. The major centers of distribution include the Tennessee, Cumberland and Black Warrior River Basins in the southeastern United States; the Mississippi, Illinois and Ohio River Basins in the Midwestern United States; and the Ozarks of northern Arkansas and southern Missouri. All these areas, and most others, have in common, vast terrains of carbonate rock, limestones and dolostones. The dissolved calcium bicarbonate in the waters passing through these regions is necessary for most species of freshwater mussels. It provides the basic material for the shells of adult individuals, including the pearly nacre that is so beautifully displayed on the shell interior. The outer layer is a tan or greenish to dark brown or black epidermis of organic composition. This pearly nacre was the source of the pearl button industry, as these were highly prized in the Orient before the widespread application of plastics during the 1950's. The mussels were, of course, also noted for the occasional freshwater pearls. The mussels are still sought, not only for the pearls, but for nacre plugs which are implanted into pearl oyster beds of Japan, the Philippines and elsewhere to provide "seeds" for the pearl oysters. A "crowfoot bar" or brail, up to 17 feet long and with up to 200 4-pronged hooks is dragged over the bottom of the stream or river, and when it goes over a partially open mussel, the animal closes firmly on the hook, and can be dragged from the bottom by mussel fishermen. The species with thicker shells and larger size are more prized, such as the Washboard, *Megaloniaias nervosa* (Rafinesque, 1820), the Three Ridge, *Amblema plicata* (Say, 1817) and the Purple Wartyback, *Cycloniaias tuberculata* (Rafinesque, 1820).

Sadly, the numbers of species and individuals have declined drastically in recent years; this decline began locally, even in the late 19th century and continued more generally through the 20th century until now. Recent pollution control reversed this somewhat, but the advent of the European Zebra Mussels, *Dreissenia polymorpha* in the early 1990's cast a renewed pall over the eventual fate of the pearl mussels. More about this later in the article. Of nearly 300 species known in North America, about 98, or 33% are either extinct or in very low numbers and endangered; another 40% are either threatened or growing scarcer and of special concern. About 3-4% have unknown status, leaving a little less

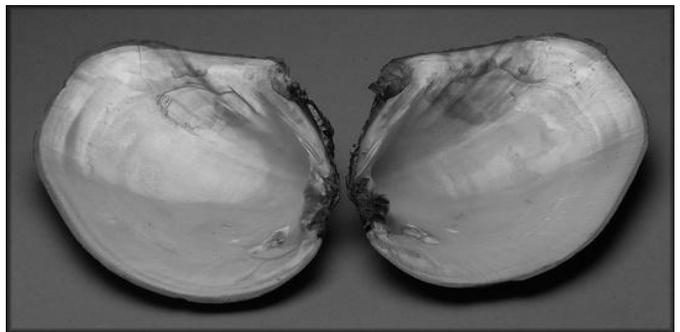
than 25% currently fairly stable, but even some of these have declined in some areas. Some genera, such as *Epioblasma*, have been particularly hard-hit. Fully 24 out of 25 species are endangered or extinct in North America, and the 25th species is scarce and threatened, the Snuffbox, *Epioblasma triquetra* (Rafinesque, 1820) and endangered in some states such as Illinois.

Of the nearly 300 species, about 80, or 27% occur, or have occurred, in Illinois. Only about 30% of these are of frequent occurrence in recent years, the rest being uncommon, threatened or endangered (possibly extirpated) species. About 30% are frankly endangered or threatened in Illinois, and most of these may be extirpated or nearly so. This presents a bleak picture, although there are a few brighter spots in it, as will be mentioned.

Mussel Population Factors

Population densities are determined by bottom and river flow regime habitats; presence or absence of siltation and toxic wastes; absence or presence of parasitic host fishes; alien competing species; and harvesting practices. All of these affect occurrence of particular freshwater mussel species.

Those species that prefer swifter, more aerated, clearer shoalwater habitats have suffered due to siltation and the construction of dams along many waterways, which cut down the water flow rates and also increase water depths. Examples of these are *Epioblasma* and species such as the Purple Wartyback, *Cyclonaias tuberculata* and the Black Sand Shell, *Ligumia recta* (Lamarck) which I found in the swifter portions of the Rock River in the 1990's, but are almost extirpated from the numerously-dammed Mississippi and Illinois Rivers. Conversely, those which either prefer or can tolerate slower flow, greater depth and more siltation, have been able to maintain or increase populations (at least up to the invasion of Zebra Mussels). An example of the latter is the Giant Floater, *Pyganodon grandis* (Say).



Lasmigona complanata, Illinois River, Grafton, Illinois

Heavy erosion, toxic coal mine wastes and toxic metals were sources of local mussel demise even as early as the 1880's and 1890's in the Ohio River. Studies in the 1900's (Starrett, 1971) found high metal and pesticide levels in some freshwater mussel species of the Illinois River. How much this reckons in mussel decrease is not fully known in the Illinois and other rivers.

Mussels are unique in that they have a parasitic larval host stage called a glochidium which attaches itself to the gills of particular host fishes, then develops and



Cyclonaias tuberculata, Rock River, Byron, Illinois

eventually detaches and drops off, hopefully in suitable habitat, as tiny seed mussels. Only about 30% of host fish species are well-known for particular freshwater mussel species – even these may not be exhaustive for some species. Certain species seem to attach to only one or two known host fishes, whereas others can use numerous hosts. A few such as the Squawfoot and the Pond Paper Mussel do not seem to have an obligate parasitic stage for the glochidia. One species is known to attach to a salamander, the mud puppy. This mussel is *Simpsonaias ambigua* (Say). Obviously, those mussels which have the twin good fortunes of wider habitat tolerance and larger numbers of common host fishes are at a greater advantage for maintaining large populations.



***Ligumia recta*, Rock River, Bryon, Illinois**

Between the early 1970's and 1990's, attempts were made to improve water quality in the rivers; this began to have a salubrious effect on some mussel species in the Illinois rivers. Starrett (1971) and Warren (1995) remark that about 50% of the freshwater mussel species in the Illinois River disappeared between 1912 and 1966, probably due to the damming, pollution and siltation, which extirpated or decreased populations of mussel species preferring swifter, shallower and clearer waters. However, some improvement in populations of extant mussels occurred there in the 1980's. Unfortunately, during the early and middle 1990's, there was an enormous spread of the European Zebra Mussel, into the Mississippi and Illinois River basins from source areas in the Great Lakes. This mussel encrusts everything from native mussels to beer and pop cans. It harms the native mussels by interfering with valve opening and closing; competing for the filterable food supply to the extent of almost completely clarifying waters; and by the simple addition of weight, exhausting the mussel. The more mature mussels, being larger, have been the main unfortunate recipients of this unwelcome burden. Apparent severe declines have occurred in our native mussels, and it remains to be seen whether these species can partly recover. The Asian Clam, *Corbicula fluminea* is not so widespread in Illinois, but has been implicated on the West Coast and in the southeastern

United States as one possible factor of mussel decline there. I have seen this species together with *Elliptio* in Florida sinkholes at Maitland in the early 1990's. It would be interesting to see if *Elliptio* still occurs there.



***Lampsilis siliquoidea*, Rock River, Bryon, Illinois - male & female specimens illustrated with the female being more inflated and truncate**

There are some small bright spots. When I visited some Mississippi areas this past fall, I noted a number of juvenile and half-grown individuals of at least five mussel species and very few Zebra Mussels. Apparently, this species has greater cyclicality in population than was thought to occur, according to Dr. Richard Anderson, our resident expert on the freshwater mussels, and is now at low levels. Also, the Zebra Mussel does not tend to live in backwater areas of the rivers, and some of the mussel species seem to have found refugia there and have been able to breed, utilizing fish species in that area. Third, mussel species occur in smaller tributaries to the main rivers, which the Zebra Mussel has not been able to exploit. At least 14 species have been recorded in McDonough and Fulton Counties by surveys of tributaries in the mid-1990s to present (INHS and personal records) including White Heelsplitter, *Lasmigona complanata*; Lilliput, *Toxolasma parva*; Squawfoot, *Strophitus undulata*; Mapleleaf, *Quadrula quadrula*; Pimpleback, *Quadrula pustulosa*; Plain Pocketbook, *Lampsilis cardium*; Fat Mucket, *Lampsilis siliquoidea*; Fragile Paper Shell, *Leptodea fragilis*; Paper Pondshell, *Utterbackia imbecilis*; Wabash Pigtoe, *Fusconaia flava*; Buckhorn or Pistolgrip, *Tritogonia verrucosa*, generally a scarcer species; Giant Floater, *Pyganodon grandis*; Three Ridge, *Amblema plicata*; and Pondhorn, *Unio merus tetralasmus*. Perhaps other species occur. It does not take much imagination to realize that host fish species could eventually redisperse larval stages into the main rivers again, particularly if some way could be found to control the Zebra Mussel there.

I hope that this has been an interesting discussion for all of you. Unfortunately, I do not have many specimens of pearl mussels, presently, for trade, due to the above obvious factors. Also, I do not generally collect living mussels and depend mostly on fresh specimens cast up on the muddy shores of streams and rivers.

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Editor's Note: Jacksonville Shell Club member David Hess is a professor of geology at Western Illinois University. The full text of David's article, accompanied by color images and tables, can be found on the Internet at <http://www.jaxshells.org/dhess.htm>.

A Rainy Day In Georgia

By Pam Rice

It started out like any other shell club outing, meeting at 7:00 AM at the library to start the journey to go to St. Mary's, Georgia to meet the Cumberland Island Ferry. We had originally started out as five members making the trip to Cumberland Island but this dwindled to a

measly two. D.D. Jewell and I decided to brave the weather and go. The severe thunderstorm warning forecast for the afternoon was the deciding factor for the lack of shellers.

We arrived at St. Mary's at around 7:45 AM and went to a quaint restaurant to eat a little breakfast before we were able to get our tickets. The ferry left the dock at around 8:45 AM and was pretty full considering the weather forecast. We were planning on coming back on the 2:45 PM ferry because of the weather forecast but I found out that it did not run on Sundays. So, we were out there until 4:45 PM whether we wanted to be or not. We were accompanied on the ferry by 21 Boy Scouts and their four troop leaders. (The leaders made the kids ride on the top deck of the ferry. Ha ha!) There were several other families, couples and one single gentleman carrying a telescope on a tripod. We started our journey and a few minutes later some kids came running into the cabin telling us that there were dolphins out in the river, and of course I had to run out to see them. I saw one dolphin at the bow and it really looked like it was racing the ferry. Such speed I have never seen! We got off the ferry at the first dock at Dungeness. Renee, one of the park rangers, gave us a little introduction to Cumberland Island, the wildlife found on the island, directions on how to get to the beach and how to get to the other dock (Sea Camp).

The giant live oak trees were breathtakingly beautiful and they formed a covered walkway along the 1½-mile trail to the beach. We were just walking along when I spotted an armadillo. I have seen just a couple alive before but D.D. never had. How cool to see it just moseying along the path.

We finally made it to the beach before anyone else from the ferry, and the hunt was on. D.D. and I both looked around at the low and high tide marks to see what we could find. We were basically alone on the beach until ... yes, the Boy Scouts had invaded the beach. I believe D.D. said it best when she said, "I thought the army was invading us!"

We had almost made it to the Sea Camp boardwalk leading to the dock when I found a nice Knobbed Whelk. I was rinsing it out to make sure that there was nothing living inside, when the skies opened up right at noon. D. D. was up near the boardwalk and started walking to the closest shelter, which was a bathroom about a 10-minute walk away. I made it a few minutes later. We were both soaked to the bone and we proceeded to dry our stuff under the heated hand drier. We then ate our lunch and wondered if the rain was going to let up. At around 1:15 PM we decided to venture out to a new location. We ventured about eight feet from the bathroom to the drinking fountain lean-to so at least now we had a view.

Another hiker seeking shelter happened by. He looked like a fisherman that had weathered many storms and he was carrying a telescope around with him attached to a tripod - with the legs extended. He was a scientist studying the migration of the Red Knot, a species of Sand Piper. He had just recently left the Texas Gulf Coast, went to Merritt Island, and is working his way up the Georgia Coast and will be ending this part of his study in North Carolina. We didn't catch his name or the organization he is with but he loves birds as much as we love our shells. He told us that the Red Knot has dwindled in population about 60% over the past 10 years. He also told us about the tagging of the birds and it was very interesting. The sequence of the colored bands around the birds' legs tells him where and when the bird was tagged and how old it is. He saw two of the tagged birds at Cumberland Island. It's truly amazing.

We told him about our club and found out we had a lot in common. An hour flew by and we thought we would make our way to the beach to see if there was anything to show for the great minus low tide. Our gentleman friend was just standing at the end of one of the paths and he started walking back towards us and we wondered why. He said that he held a "lightning rod" in his hand and that he didn't want to chance it. We were walking on the boardwalk and D. D. spotted two of the famous Cumberland Island wild horses off to the right. They were beautiful, thin but muscular at the same time, and they were as curious about us as we were of them (staring contest). We finally made it to the beach covered with D. D.'s beach towel and were sadly disappointed that there were no shells visible to us at the low tide line. The rain and sand must have covered them.

We then decided to make our way up to the ranger station which was about 25 minutes walking time distant. We stopped again at the bathroom about 10 minutes into the walk to dry off a little. We used the hand drier again! We then trudged on to the ranger station where once again I had to use the hand drier. There were tons of people on the porch of the ranger station at the Sea Camp Dock. The rain had subsided a little and we went inside to get a good seat for the 4:00 PM ranger slide presentation. I looked out the door and saw what looked like lots of shells on the beach. We got excited, left our stuff in the presentation room, and made our way to the beach. The shells on the beach were oyster shells but we found a couple of Knobbed Whelks that had oyster shells attached to them. That was kind of disappointing, so we went back inside the ranger station and waited for the slide presentation to begin.

Ranger Renee showed us some beautiful slides, most of which she was the photographer. She first came to Cumberland Island 21 years ago and has actually lived on the island for the past 17 years. She told us that Cumberland Island is the largest of the Barrier Islands and is 17 miles long, which is the same size as Manhattan. She proceeded to tell us about the beautiful Live Oak Trees and how they live for 300 years. It takes 100 years to grow, they live for 100 years and it takes 100 years for them to die. Some of the animals of the island were also part of the slide presentation. She had slides of the 300 plus wild horses that live on the island, the wild pigs, wild turkey (no not the liquor), and deer. After the presentation we all walked down to the dock to catch the ferry back to St. Mary's. The campers had to load all of their "stuff" onto the boat first which took about twenty minutes and it was raining and getting colder by the minute. The downstairs cabin was full by the time D. D. and I were able to get on the ferry so we had to ride topside. Talk about freezing to death!

I tried to think of the warm beach on the way back to St. Mary's and also about the heater in D.D.'s car. During the whole trip back, kids were going up and down the ladder between decks and we couldn't believe that the parents let their kids do that. It was not smooth sailing on the river and we made it back to St. Mary's safe but cold.

We went to the bathroom and changed into dry clothes then we were on our merry way back to Jacksonville. I believe we arrived at the library around 6:30 PM. Overall it was a rewarding day; we got some great shells, saw nature at it's finest and met some interesting people.

This is a list of most of the shells we found: *Neverita duplicata* (Say, 1822), *Dosinia discus* (Reeve, 1850) [Disc Dosinia], *Terebra dislocata* (Say, 1822) [Eastern Auger], *Dinocardium robustum robustum* (Lightfoot, 1786) [Atlantic Giant Cockle], *Busycon carica* (Gmelin, 1791) [Knobbed Whelk], *Tellina alternata* (Say, 1822) [Alternate Tellin], *Busycotypus canaliculatus* (Linnaeus, 1758) [Channeled Whelk], *Noetia ponderosa* (Say, 1822) [Ponderous Ark], *Donax variabilis* (Say, 1822) [Variable Coquina], *Petricolria pholadiformis* (Lamarck, 1818) [False Angelwing], *Anomia simplex* (d'Orbigny, 1846) [Common Jingle], *Sinum perspicuum* (Say, 1831) [White Baby Ear], and hopefully I identified this correctly, *Pollia tincta* (Conrad, 1846) [Tinted Cantharus]. There are still a few other species that I could not identify as of yet.

The Sanibel Shell Show 2003 And The Indefatigable Anne Joffe

By Gertrude Moller

Having been a continuous exhibitor at Sanibel's Shell Shows since 1973, I can well appreciate the strides made in the production thereof. Back in those days, before the new additional building was added, the original community center was filled mostly with scientific exhibits and only about three or four tables were needed for the shell-craft division.

The 2003 Shell Show was easily the most beautiful one yet. There were many changes made by this year's chairperson, the indefatigable Anne Joffe. She garnered together many Sanibel-Captiva and other members for the various duties to be fulfilled. Anne has a wonderful way with people and they all seemed anxious to please her.

One of the new innovations was the sale of shell books including Anne's book "Shellcrafting." There were 68 entries in the Scientific Category amounting to 349.5 linear feet, and the Artistic Division garnered 216 entries with 267 linear feet.

When the visitors entered the exhibit hall they were greeted by a friendly host and were given a small souvenir – a packet of pretty shells beautifully wrapped.

The Scientific Judges were Bill Lyons and Emilio Garcia and Artistic, Bobbi Cordy and Mathilde Duffy.

The six visitors from the Jacksonville Shell Club were Betsy and Bill Lyerly, Bill Frank, Selma and Andy Hutchison and exhibitor Gertrude Moller who won a Blue Ribbon for her large shell mirror.

The special guest was conchologist S. Peter Dance, natural historian and writer. Formerly with the British Museum, he is a frequent visitor to the United States and well-known lecturer, and friend of all the local shell clubs.

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