



JANUS

The Newsletter
of the
North Carolina
Fossil Club
www.ncfossilclub.org

2002 Number 3

2002 Fall Calendar

September

PCS Trip - see article elsewhere on this page.

- 15 **NCFC Meeting** - NCSMNS, 11 West Jones Street, Raleigh. 1:30 pm, Level A conference room. Dr. Joe Carter will present: "North Carolina's Triassic Raurisuchian: Discovery and Description"
- 22 **Northampton Gravel Pit and Museum**, Meet at Burger King 9 am (see map). - Collect petrified wood and interesting minerals. We will also visit a good local fossil and artifact museum. Contact Rufus Johnson 252-538-9766 (fossilman@vol.com)

October

- 3 **Castle Hayne** - Contact John Everette 919-847-4485 (ncjde@aol.com).
- 5 **Beachcombing-Liverpool Pt. Maryland** - Contact George Fonger 240-631-0116 (toxfong@starpower.net) for times, directions and instructions.
- 13 **Green's Mill Run** - Contact Cindy Muston (910) 353-8897 (fossilgal@hotmail.com) for info and possible changes from past trips. Bobby Tant will lead the trip. We will meet at Elm Street Park but also work other areas downstream.
- 20 **Onslow Beach** - Contact Mark Goodman 910-937-7718 (mgoodman@nc.rr.com)

November

- 7 **Rocky Point** - Contact John Everette 919-847-4485 (ncjde@aol.com)
- 9 **NCFC Fossil Fair and Board Meeting** - Onslow County Museum, Highway 24, Richlands, NC. 9am - 5pm. Contact Richard Tellekamp 910-347-6361 (srtellek@onslowonline.net)

December

- 7 **Boren Clay Pit Triassic trip** - Contact Ashley Davis 919-782-7890 (ashleydavis@prodigy.net) for information. A filled-out permission slip is required (later in this issue, map also).

Note: Information on trips which are scheduled too late for publication will be dispersed via postcard.

General Rules

Trips, except Rocky Point and Castle Hayne, generally begin at 9AM at the site. Always contact the leader in advance of attending any trip. In advance of any new or out of state

trips always maintain close contact with the leader for special instructions and last minute changes. Be certain that accurate phone and/or email addresses are given to the leader and updated as needed. Some trips may be limited in size at the option of the leader.

Castle Hayne and Rocky Point begin at 11:15 AM and hard hats are usually required and not furnished by the company. The terrain at these sites is rugged and can be somewhat dangerous and challenging for persons not used to climbing or physical exertion.

Green's Mill Run involves wading in and digging gravel from a creek bottom. There is a possibility of pollution. Waders, a floating screen and a long handled shovel are highly recommended. This is not an appropriate trip for young children.

Always arrive early. Be sure to fully understand rules and instructions. Safety is our main concern – **Never do anything which might endanger you or any other collector. Children, where permitted, must always be under your direct control and supervision.**

Safety rule violations are a sure way to lose all fossil collecting privileges at any site.

Aurora Fall Season

Another good news / bad news story. The mine will have a season, but few will get to go. For reasons related to shifting mine operations, only a small area will be available for hunting again this season and group size will be restricted. Curtis Ormond is hopeful that by spring larger groups can be accommodated. **The club has been assigned a Sept. 28 trip date with only 30 slots. This trip, which is technically before the "real" season begins in Oct., will again be filled by those who helped or exhibited at the Aurora Fossil Fair last May. Curtis has also indicated that he will try to give NCFC another date later in the season, which we will fill by general member call-in if and when the trip date is confirmed. Members will be notified about the call-in, etc., by a postcard mailing.**

Before anyone starts calling or sends furious emails please remember the following. If PCS admission is your major focus, you can greatly increase your chances to get into the mine by attending the club meetings at which exhibitor/helper sign-ups take place and subsequently spending a day working at club events. Most of those who do have a great time!

In simple terms, it is not your dues NCFC needs, it's your participation. The involvement of as many enthusiastic members as possible builds a stronger club. We have over 400 members, but only about 80 truly support the clubs activities. As of now, the Board intends to continue rewarding those who are active in supporting the club's activities with priority status on the Aurora/PCS trips.

NCFC Fossil Festival November 9, 2002 - Richlands, NC

Our annual Fossil Festival will be held at the Onslow County Museum located on Hwy 24 in Richlands, NC, about 10 miles west of Jacksonville. This is our second visit to this excellent facility. Set up will start at 8am and the festival will run to about 4pm followed by the NCFC annual Board meeting. All directors and officers should make an effort to attend.

Sign up for the 20 exhibit tables (no more than 4 exhibitors per table-all must be present and display) and 10 helper slots will begin at the Sept. 15 NCFC meeting. You may contact Richard Tellekamp (srtelek@onslowonline.net or 910-347-6361) for additional information. You may also contact Richard to sign up for slots still open starting on Sept. 16.

All official exhibitors and helpers will have priority (not a guarantee!) for slots on the Aurora PCS Trip in Spring 2003 if there is a season. Priority is cancelled if the season is cancelled.

This should be a great exhibit and a good time, See you there!

President's Column

As my second term as President nears its end, I find myself reflecting back on the positive changes (website, finances, corporate status, membership growth), successful events, enjoyable trips, and interesting meetings and speakers which have been important components of the last two years. I doubt that anyone would disagree that these have been good years for the club despite a number of obstacles such as restricted access to trip sites. The tireless efforts of all of our board members, officers, trip leaders and volunteers are the key to our success. There were several out of state members who contributed greatly, which I consider a positive reflection of the quality of NCFC. I wish to personally thank those who have done their jobs so professionally. If you have not stepped forward to help out and become an active part of the club, please consider doing so. NCFC will benefit and you may learn that you have skills and abilities you never imagined.

The job of President has become more complex and time-consuming as the club has grown. I have spent over 20 hours a month on club business during my term. I am going to recommend to next year's Board that some of the President's duties be assigned to specific Board members with the President acting as a coordinator. Duties such as speaker recruitment, financial oversight and field trip coordination are particularly eligible for such treatment.

In addition, we should seek "official" helpers for book and shirt sales and *Janus* production. If you would like to help out in these areas contact Joy Pierce and Richard Chandler.

If you have missed the recent meetings, you have missed some real opportunities learn about Pleistocene mammalian faunas and to view rare objects.

George Phillips gave an excellent overview of the Pleistocene faunas of the eastern U.S. that should be very helpful in placing our finds in context.

James Lamb brought an incredibly rare object for our enjoyment. James has the first dinosaur egg ever found in the U.S. which is also the only one found east of the Mississippi! The egg contains a complete embryonic dinosaur which is being carefully excavated! When the bones are completely etched out the result, while 6" long, will be the most complete Dino skeleton

ever found in the U.S.!! This should be under armed guard - but we got to see it in person.

You never know what you're missing so please join us!

Enjoy the fall trips!

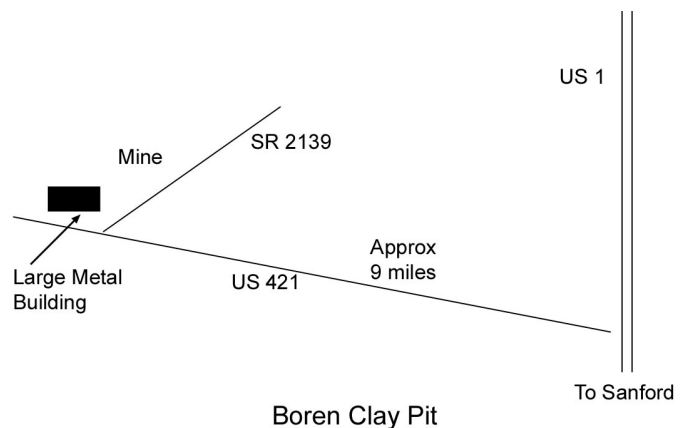
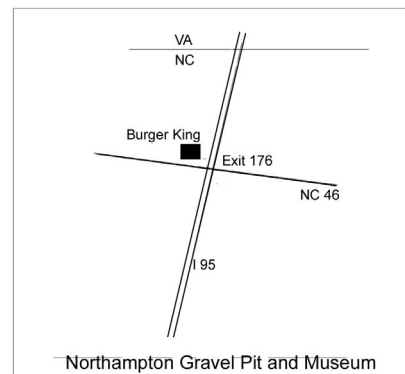
Rich Olsen

Out of State Trips

NCFC is making another foray into out-of-state field trips with two initial trips. We are trying to gauge member interest to determine if there is sufficient interest to make these trips viable. Please contact those listed to express your possible interest in participation.

Florida: Sharron Edwards (910-324-1539, ronsshake@coastalnet.com) is organizing a 3 or 4 day driving trip to Florida to be lead by Mark Rentz, author and well-known expert on Florida collecting. This trip is currently slated for January, 2003. If you are interested, please contact Sharron for more info asap. A new book by Mark on "megs" and ancestral White sharks (see review later in this issue) will be available to review and order at the Sept. meeting.

Texas: Carolynne Hertenstein (919-469-3299, willhertenstein@earthlink.net) is organizing a trip to North Texas to be hosted and lead by the Dallas Paleontological Society. This spring 2003 trip will target fossils from the Cretaceous and older zones. Trips to the North Sulphur River and two quarries will be included in the 3 or 4 night-two full collecting day trip. Large ammonites, rare shark teeth, mosasaur and plesiosaur remains, rare echinoids etc are the likely finds. We will probably fly to Dallas via Southwest Air from Raleigh and rent a van for the trip. Our leaders will help to find suitable accommodations in the area. A book published by the Dallas Society which illustrates the North Sulphur River finds will be available for order and review at the Sept. meeting.



Request for Permission to Enter Boren Clay Product's Shale Mine at Gulf, NC

Date: _____

To: Pamela Fields
Boren Clay Products
P.O. Box 368
Pleasant Garden, NC 27313

RE: Permission to enter Boren Clay Products Property at Gulf, NC

The individuals listed below request the permission of Boren Clay Products to enter property belonging to Boren Clay Products located at Gulf, North Carolina. The property is used as a shale mine. The purpose of the visit is to study geological formations and fossils.

Permission to enter the property is requested for the time between 8:00 a.m. and 5:00 p.m. on _____ (Month, Day, Year)*.

The individuals listed below, by affixing their signature opposite their name, acknowledge that they enter the property at their own risk, and Boren Clay assumes no responsibility for their safety.

Name (Print)	Signature	Date
Name (Print)	Signature	Date
Name (Print)	Signature	Date
Name (Print)	Signature	Date

*If granted, permission will be given for a specific day. Only non-working days (Saturday, Sunday or Holidays) will be considered, if company work is not scheduled on that day.

Book Review

*Megalodon * Hunting the Hunter*, Mark Renz, PaleoPress, 213 Lincoln Avenue, Lehigh Acres, FL 33972.

This is an exceptional book. While it is perhaps a little too focused to appeal to the most eclectic of collectors, few will be able to resist the very engaging blending of fact and fantasy which makes up Mark Renz's style of presentation. Couple this with well over 400 black and white photographs and 100 color photographs all on 161 heavy-weight slick paper pages at a price of less than \$25 and you have a real winner. At the September 15 NCFC meeting I plan to move that we make a bulk purchase of this book so that club members will be able to purchase it for around \$17 a copy. (If you cannot wait, Amazon.com has it right now for \$24.95 + shipping.)

Here is a list of the chapter headings. Most provide an excellent description of the contents. In a few cases I have added further description, enclosed in { }:

Chapter 1. Close Encounters Of The Ancient Kind (Meg's pups stalk dugongs). {Exactly what the title says, this is a very entertaining fantasy of a mother *megalodon* birthing her pups in a mating area for dugongs.}

Chapter 2. Evolution Happens (An overview of time and evolution).

Chapter 3. Pre Meg Terrors (Other ancient large sharks not directly related to Meg). {Mostly Cretaceous beasts, but this chapter includes several photos of Mark Havenstein's wonderful *Zygorhiza kochii* jaw.}

Chapter 4. The Rise (Meg's evolutionary journey).

Chapter 5. The Fall (Meg's demise).

Chapter 6. Then Again, What If? (What if Meg still exists?).

Chapter 7. Hunting the Hunter (World-wide Meg sites). {A very long chapter on where to find teeth.}

Chapter 8. A Dentist's Nightmare (Meg dentition). {A couple of nearly complete *megalodon* dentitions, an *Otodus* dentition, close-ups of serrations, etc.}

Chapter 9. Beauty and the Beasts (Photo galleries for identification of Meg, her ancestors, cousins and underwater neighbors). {More than 100 color photos!}

Chapter 10. When Things Go Wrong (Abnormalities in the fossil record). {Pathological teeth}

Chapter 11. Meg Attack! (Fossil whale bones with Meg bite marks).

Chapter 12. Measuring Up: Was Meg the Baddest of The Bad? (Compared to other predators, marine and terrestrial). {Ranking the world's greatest fossil predators on a scale of 1 – 10.}

Afterword: Why Protect Sharks Today? (Problems facing sharks . . . solutions).

Terms

Meg Related Books, Museums, Web Sites and Fossil Clubs {Includes *Neogene Fossils of North Carolina* under books and NCFC under clubs.}

Bibliography {Includes *Cretaceous and Paleogene Fossils of North Carolina* but omits John Timmerman's name.}

Richard Chandler

CD ROM Musings

My original idea for the CD ROM came about as the result of thinking about a possible retirement project for myself. I knew that for the sake of matrimonial harmony I would have to do something to keep out from under Suzanne's feet. She has always had more than enough to keep her occupied and the last thing in the world she would want to do would be to keep me occupied as well. I knew that my retirement project would not be mathematics. Mathematical research, like football, is definitely for young people. While I probably know as much mathematics now as ever, I cannot put it together in the interesting and creative ways as I could 20 years ago.

Since the pursuit and identification of fossil shark teeth has been my main passion (outside of family and mathematics) for the last 20 years, it was a natural candidate for the retirement project. Fossil shark teeth seemed a little too limited so the next idea was a "coffee-table" style book on the fossils of North Carolina. I almost immediately rejected it as impractical. First, I didn't have the knowledge (except for shark teeth) or specimens (except for shark teeth) or the interest (except for shark teeth). Also, it could be a very expensive undertaking. Then I had two "brilliant" ideas: First, involve the NC Fossil Club. Although I didn't have the knowledge, fossils, or interest (except for shark teeth), other members did. Secondly, instead of a coffee-table book, produce it as a coffee-table CD ROM. This could be done very cheaply (about \$1 a copy for 5000 copies).

I still think of the fossil shark section in terms of the coffee-table design: lots of nice pictures, of course, but text to match. So I'm doing lots of historical research, particularly 19th century writings on fossil sharks. This entails reading a lot of French as well as some German. While not fluent in either, I can get a pretty good sense of the French articles without spending most of my time flipping pages in a dictionary. Some of the articles have wonderful, hand-colored illustrations which I can copy with my scanner and use in the project (if the copyright has expired)

Copyright law is intricate but was simplified recently in the United States: basically anything published before 1923 is in the public domain. Internationally, we are pretty safe in using material of authors/artists who died in the 19th century. If I think there is a reasonable chance the work is still protected, I try to get permission. Here is an interesting example:

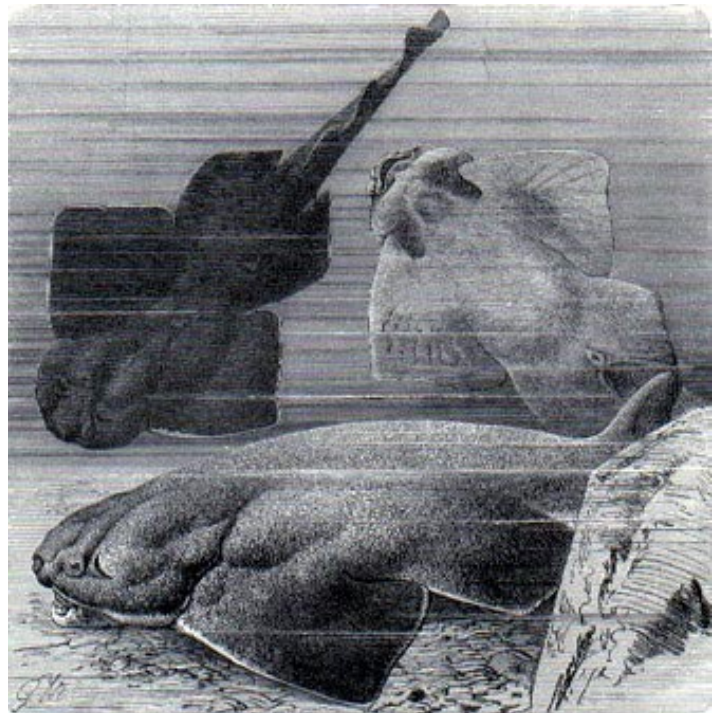
In 1847 Justus von Liebig ("the father of biochemistry") discovered a way to make beef boullion from raw meat. His work became known to Georg Christian Giebert, a German railway engineer living in Uruguay where large numbers of cattle carcasses were left to rot after being skinned for leather. He and Liebig collaborated on a small pilot plant in Uruguay. When it proved successful, they obtained British financial backing and in 1865 the Liebig Extract of Meat Company was born. A little later the company started including sets of 6 trading cards with each jar of boullion. The cards were designed to be informative on a wide range of subjects, basically an encyclopaedia on cards. They were published in several European languages. Seefische (Sea Fish) in 1903 was #744 so you can see how busy they were. In the 1950's Liebig merged with the Brooke Bond Tea Company and new cards continued to be issued for a while. Somewhat more recently (and I didn't discover exactly when) the merged company was acquired by Unilever, a huge British conglomerate.

I thought reproductions of three of the Seefische cards might make an attractive and interesting adjunct to some of the shark pages in the CD ROM. I had first encountered the Seefische cards on eBay (I regularly do a search for sawfish material and one of the cards has a sawfish). On two separate occasions a dealer in Germany had sets of the cards on eBay but in both cases I diddled too much to get my bid in. Fortunately, he had a third set which he sold me directly. I then wrote to the public relations department of Unilever asking permission to use the cards. I half-expected to get no response but in a couple of weeks got a very nice letter saying that as far as they were concerned I could use the cards but the copyright owner was probably the artist and in Great Britain copyrights would be valid for 75 years after his/her death. I contacted the German card dealer (he seemed very knowledgeable about Liebig cards) and asked him about the artist. He said Liebig never published the names of its artists.

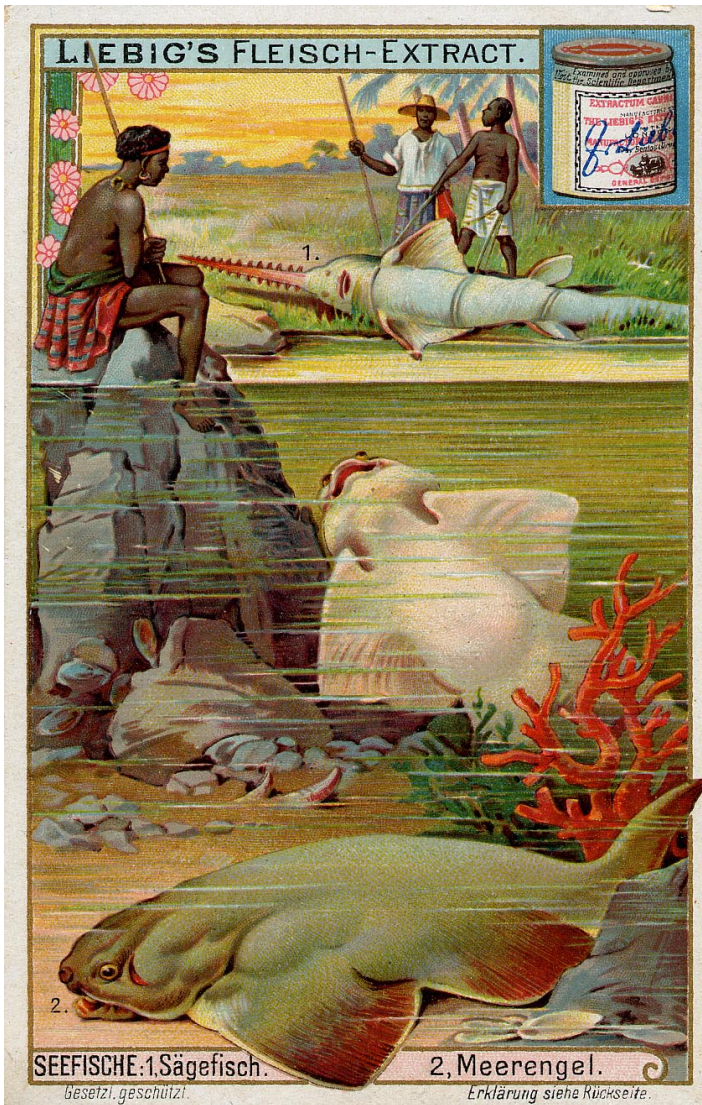
So I'm in a small quandary as to whether to use the cards. 75 years ago would be around 1927. The artist could certainly have done the illustrations in 1903 and lived until 1927. On the other hand, the copyright expert at NC State thinks that use of copyrighted material in the CD ROM could fall under what's called the "fair use principle". That is, you may use copyrighted material without permission provided it is for non-profit educational purposes. So we are in a gray area. In our bylaws it states that one of our main purposes is to educate. On the other hand, we hope to make a profit on the CD ROM. On the third hand, because we don't collect sales tax in NC, we must disseminate all profits to state agencies, universities, museums, etc. On the fourth hand, I recently discovered that the Seefische artist apparently copied one of the species from an illustration in *Royal Natural History* (1896) by Richard Lydekker. So

In any case, on the next page is the Seefische card (slightly larger than life-size) which contains the sawfish (Sägefisch).

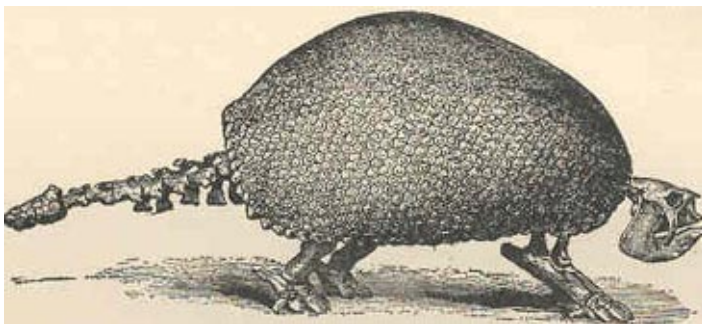
What do you think a Meerengel is? *Richard Chandler*



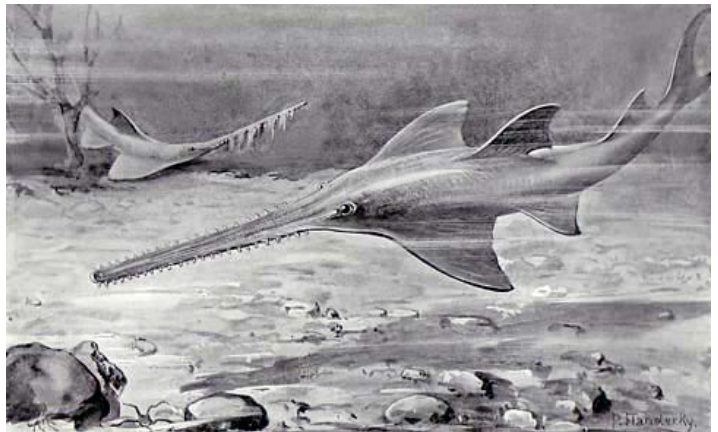
From *Royal Natural History* by Richard Lydekker



Meerengel = Sea Angel = *Squilla*



Glyptodon Skeleton
From *Royal Natural History* by Richard Lydekker



Sawfish
From *Tierleben* by Alfred C. Brehms (1893)

Eocene Pleurotomariads (Slit Shells)

Entemnotrochus nixus

Two slit shells occur in the Castle Hayne Limestone of southeastern North Carolina. The largest and most plentiful is *Entemnotrochus nixus*. The majority of fossils occur as internal molds. They're fragile, so finding complete examples, free of surrounding rock, is rare. The majority of the specimens I have collected intact were carefully chiseled from the rock matrix. They are an open spiral of soft limestone with little between their whorls to hold them together.

Pictured are examples of the fossils. The fragments represent the condition the fossil is most often found in. It apparently was a fairly common species based on the number of internal mold fragments I have found. They are very recognizable and a large mollusk. Their abundance may be partly reflected by these factors. Occasionally a cast of the umbilicus of the shell is found. At first glance they appear to be fossil shell in their own right. In reality they are an external mold of the umbilical hole in the underside of the original shell. External molds showing the outside of the shell are also found.

Complete fossils may exceed six inches diameter. The illustration is of a complete specimen. The attached matrix is where the aperture was. In the matrix are also molds of bivalve mollusks and a small shark tooth. Specimens are often contained with the remains of other sea life and are situated in random orientation. It indicates they were dead and adrift before burial in the sea floor.

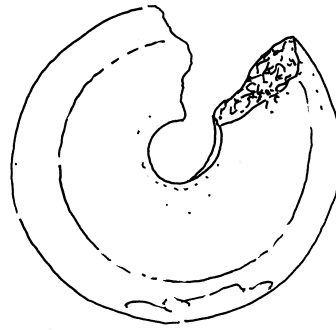
Slit shells still live in today's oceans. All are deep water dwellers, living on rocky ground and or vertical wall faces. They prey on sponges. Due to the deep, rocky habitat, and food, specimens are rare to collectors, thus highly prized. Think of the comparative ease at which a fossil slit shell can be recovered the next time you find one. Of course this is discounting the luck of the hunt or the quarry operator's use of heavy, earth moving equipment that make the fossils available to us.

The subgenus *Entemnotrochus* is represented by two species. One is found in the Atlantic and one in the Pacific Ocean. Both are the largest Pleurotomariads found in their respective oceans. The largest is the Pacific species, *Entemnotrochus rumphii*, which can grow in excess of eight inches across.

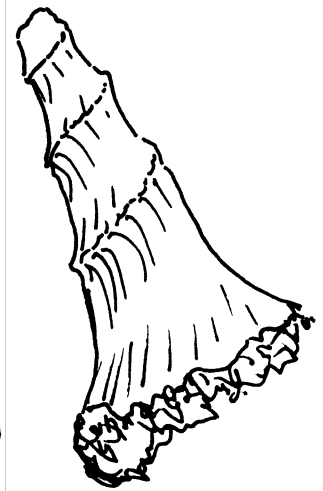
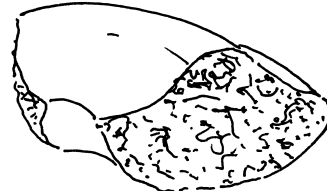
The popular name for the genus is derived from the gill opening in the shell. The mollusk positions itself to expel waste water out of the slit. As the animal grows the back end of the slit fills, leaving a distinct structure around the outside of the shell. The slit on the modern *Entemnotrochus* extends $\frac{1}{2}$ way around the first whorl of the shell. The extinct species from North Carolina had a slit that extended about $\frac{1}{3}$ way around the first whorl.

The illustration on the back cover of this newsletter is a reconstruction, based on external molds and a few, very rare examples where the original shell had been partially replaced showing how the outside of the shell appeared.

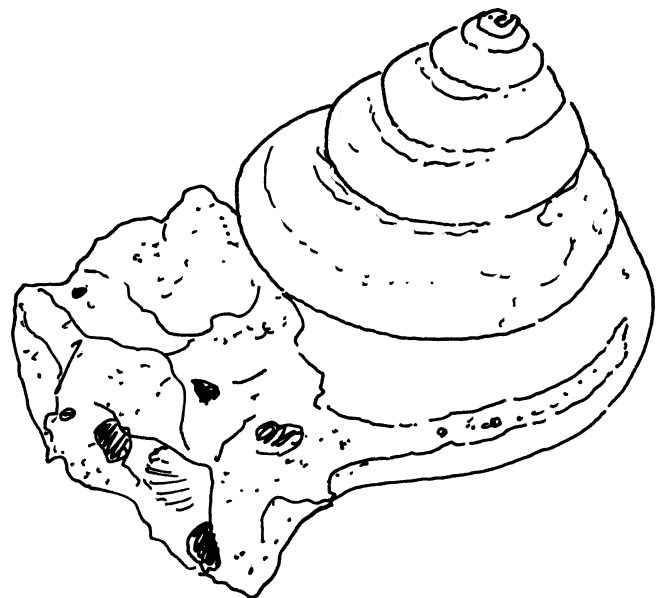
John Timmerman



Entemnotrochus nixus:
Fragments



Entemnotrochus nixus:
Umbilical mold



Entemnotrochus nixus: Complete mold
All drawings by John Timmerman



Modern Slit Shell – *Perotrochus hirasei* (3" wide)
Photograph: Wendy Vergel de Dios - Philippines

NORTH CAROLINA FOSSIL CLUB, INC.
(Founded 1977)

PRESIDENT	Richard Olsen	(252) 247-4762	Atlantic Beach, NC
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	Joe Magura (2002)	(919) 460-8725	Morrisville, NC
	Joy Pierce (2002)	(919) 489-8149	Durham, NC
	Adair Poole (2002)	(919) 851-2572	Raleigh, NC
	Sam Schmidt (2003)	(919) 494-1128	Franklinton, NC
	Bobby Tant (2003)	(919) 366-0218	Wendell, NC
	Richard Tellekamp (2002)	(910) 347-6361	Jacksonville, NC



2002 MEMBERSHIP APPLICATION - N. C. FOSSIL CLUB

NAME(S) _____

ADDRESS _____

CITY, STATE, ZIP _____

PHONE(S) (INCLUDE AREA CODE) _____

E-MAIL ADDRESS _____

SELECT ONE TYPE OF MEMBERSHIP	INDIVIDUAL (NEW)	\$20.00
(ENCLOSE CHECK OR MONEY ORDER	INDIVIDUAL (RENEWAL)	\$10.00
FOR THE INDICATED AMOUNT.)	HOUSEHOLD (NEW)	\$25.00
	HOUSEHOLD (RENEWAL)	\$15.00

Children of NCFC members who are dependent minors and living at home may accompany parents on any trip EXCEPT PCS-Lee Creek or where otherwise noted. Only 15 positions on the PCS-Lee Creek trip are available to members who reside outside of North Carolina.

Memberships are effective from January through December of the year (or portion of the year) of the date of application. For example, persons joining in August will need to renew their membership 5 months later in January.

NCFC Liability Statement

The Undersigned hereby acknowledges his/her understanding that fossil collecting is an inherently dangerous activity which can result in serious bodily injury or death, and/or property damage and hereby confirms his/her voluntary assumption of the risk of such injury, death or damage.

The Undersigned, in return for the privilege of attending field trips Related to the collection of and/or study of fossils, or any other event or activity conducted or hosted by the North Carolina Fossil Club (NCFC), hereinafter collectively and individually referred to as "NCFC Events", hereby releases the NCFC, NCFC Board members and officers, NCFC Event leaders or organizers and hosts, landowners and mine or quarry operators from any and all liability claims resulting from injury to or death of the undersigned or his/her minor children or damage to his/her property resulting from any cause whatsoever related to participation in NCFC Events.

The Undersigned agrees to comply with any and all rules and restrictions which may be communicated to the undersigned by the NCFC Event leader and/or landowner and mine or quarry operator and acknowledges that failure to comply will result in immediate expulsion from the premises.

The Undersigned acknowledges that this release covers all NCFC Events and will remain in effect at all times unless or until it is revoked by written notice to the current President of the NCFC and receipt of such revocation is acknowledged.

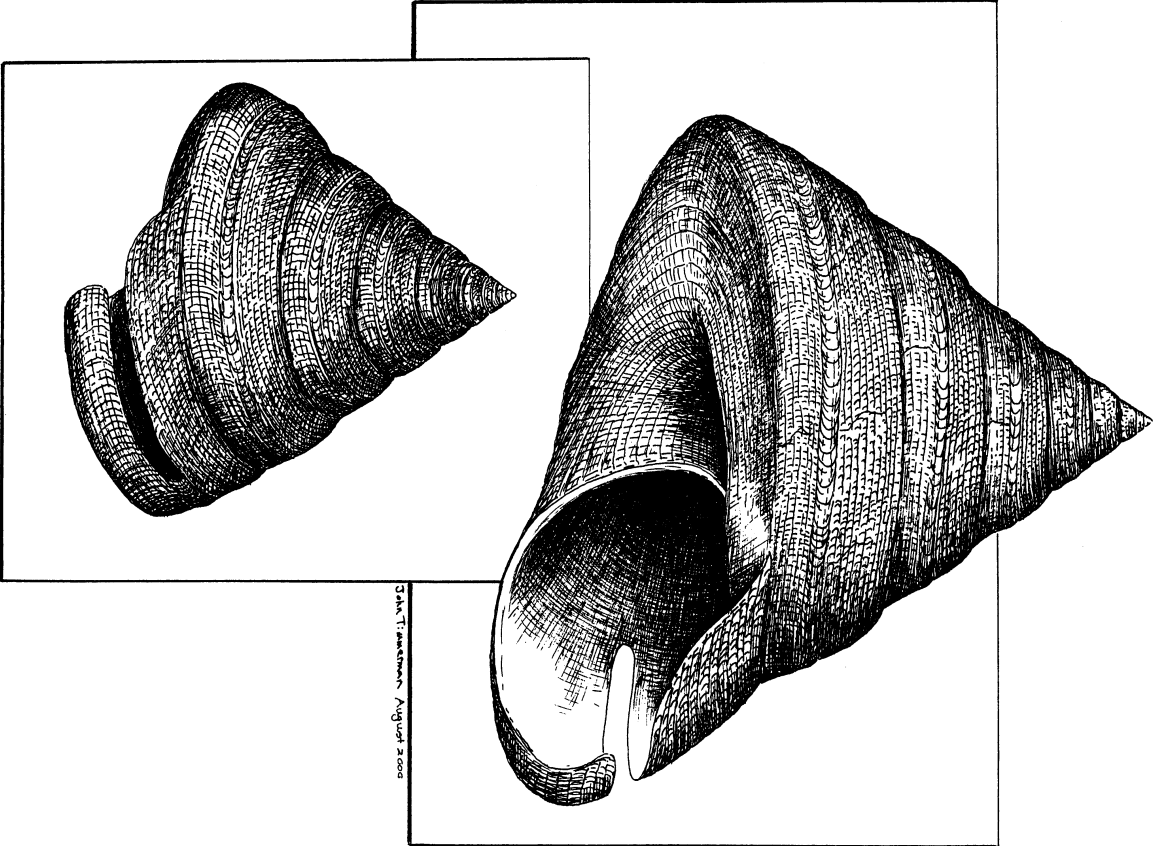
The Undersigned further attests to his/her intent to be legally bound by affixing his /her signature to this release.

Name _____ Signature _____ Date _____

Name _____ Signature _____ Date _____

MAIL To: NORTH CAROLINA FOSSIL CLUB, P.O. Box 13075, RESEARCH TRIANGLE PARK, NORTH CAROLINA 27709

North Carolina Fossil Club
P. O. Box 13075
Research Triangle Park, NC 27709



JOHN TIMMERMAN August 2000

Entemnotrochus nixus
John Timmerman