JANUS

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

2005 Number 3

2005 Fall Calendar

September

18 **NCFC Meeting -** NCMNS, 11 West Jones Street, Raleigh. 1:30 PM, Level A conference room. Anne Weil, Department of Biological Anthropology and Anatomy, Duke University: "Mammals crossing the K/T boundary". Sign-up for November Fossil Fair.

22 **Jack Horner Talk** - "Kool New Stuff about Old Dead Dinosaurs": NCMNS, 11 West Jones Street, Raleigh. 7:00 PM, Auditorium.

25 **Green's Mill Run -** Contact John Steffenson 252-756-0386 (jjlld@aol.com). Meet 8:30 in the Elm Street Park.

29 **Castle Hayne -** Contact John Everette 919-847-4485 (ncjde@aol.com). Meet 11:00; Hardhat required.

October

2 **Green's Mill Run (alternate date if 9/25 is a wash-out)**

27 **Rocky Point -** Contact John Everette 919-847-4485 (ncjde@aol.com). Meet 11:00; Hardhat required.

November

5 **NCFC Fossil Fair and Board Meeting -** Horizons Unlimited, 1636 Parkview Circle, Salisbury, NC. Contact Cindy Muston 252-830-8897 or fossilgal@hotmail.com. **NOTE:** the Piedmont passenger train has a good schedule for getting from Raleigh/Durham to Salisbury and back for the Fossil Festival. Check out: http://www.bytrain.org/passenger/routes/piedmont.html.

Note: In addition to the trip to Ohio mentioned in Cindy's column we are planning a trip to Boren Clay. At this time we also do not know when our trip to PCS will be. You will be notified by postcard once the details on these three trips are finalized.

General Rules

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 11:00 AM and hard hats are usually required and not furnished by the company. The terrain is rugged and can be somewhat dangerous and demanding for persons not used to climbing or physical exertion.

Green's Mill Run involves wading and digging gravel from a creek bottom. There is a strong 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.

Note: Information on trips which are scheduled too late for publication will be dispersed via postcard. **It is absolutely imperative you communicate with the contact person if you intend to go on a trip.**

President's Column

Greetings fellow fossil enthusiasts! I hope this issue of Janus finds everyone doing well and gearing up for a busy, yet productive fall season. If you notice in the trips section that VP David Sanderson, with the assistance of Diane Willis, Jim Criswell, and a few others, have organized a November trip to Ohio! This is exciting news! For Ohio does have a vast and diverse amount of fossil exposures. I am looking forward to this trip. Another announcement is that there will be a fall trip into the PCS mine and we should be receiving information from Curtis Sr. soon. Look for a separate postcard mailer with information regarding the PCS hunt in your mailbox in the upcoming weeks.

Now on to NCFC's biggest event of the year; it is with great pride that I officially announce that the North Carolina Fossil Club Fossil Fair will be held on Saturday November 5 from 9am to 5pm at the Horizons Unlimited Supplementary Education Center in Salisbury, NC. There is room enough to accommodate any member who would like to join us for the day and display their fossil treasures to the people of western North Carolina. Helpers are also needed for this event as well. So if any member would like to join us to help, it would be greatly appreciated. As of this writing, Mark Renz of Florida will be joining us and offering two lectures during the day as well as having his published works available for sale. The sign up for displaying and helping will be available at the September meeting. If you are unable to attend the meeting and would like to display or help at the November fair, please contact me beginning on Monday September 19 either by email (fossilgal@hotmail.com) or telephone (252-830-8897).

In closing, I hope to see everyone this season. Be it at our various digs, meetings or the annual fossil fair. Until then…..

Be Safe and Happy Fossil Hunting *Cindy*

Specimens Needed

Alcid Fossils From the Lee Creek Mine, Aurora N.C.

As many of you are aware, the bones of birds are an uncommon find among the spoil piles at the Lee Creek Mine. My name is Adam Smith and I am a graduate student studying with Dr. Julia Clarke at N.C.S.U. I am working with the collection of alcid fossils at the North Carolina Museum of Natural Sciences and the Smithsonian in an attempt to sort out the evolutionary history of this enigmatic group of birds. Fossils at Lee Creek include the remains of the lineages that led to modern species such as the razorbill, dovekie, and the tufted puffin. This research is complicated by the lack of complete associated specimens. The majority of avian remains consist of mostly partial, often considerably weathered single elements.

I am requesting the help of members of the North Carolina Fossil Club to locate any complete specimens, specimens with multiple associated bones, and well preserved complete single skeletal elements. Anyone who thinks that they might have a fossil or fossils that could aid me in this study can contact me at the address/number that follows. adam_smith@ncsu.edu , (919) 412-0225.

Very Rare Shark Teeth

I'm sure everyone will be pleased to hear that the Cartilaginous Fish section of the CD ROM is nearly complete. I need photographs of several very rare shark teeth that I know occur in the fossil record of North Carolina. If you have good examples of any of the following shark teeth (and do not object to my including a photograph of it in the CD ROM) please get in touch with me ASAP: chandler@math.ncsu.edu or 919-851-2153.

Squalus acanthias teeth (spiny dogfish)

Hexanchus gigas upper teeth (cow shark)

Notorhynchus primigenius symphyseal teeth (cow shark)

Borodinopristis schwimmeri rostral teeth (Cretaceous sawfish)

Anything really unusual (I already have photographs of most of the simply unusual. But if in doubt, please ask me.)

Richard Chandler

The Stages of Fossil Hunting

My involvement with many of my hobbies appears to go through 5 stages; fossil hunting seems to naturally be divided thusly:

1. You want to find a fossil, any fossil. This stage lasts until you visit a place where they are common, say Aurora. I will always remember my first visit there. When the bus stopped I could see right under the window a scallop shell the size of a dinner plate. Wow! One visit to a place like that and you instantly find yourself in the second stage.
2. You want to find as many fossils as possible. You run around, picking up everything in sight and by the end of the day you stagger out so loaded down you can barely move. But you're happy and so pleased with yourself - until you get back to the bus and someone has a shark tooth as big as your hand. Before you leave you've moved on to the next stage.
3. You absolutely, positively m u s t have one of those big teeth. Unfortunately, this stage can persist for a long time. Each time you go to Aurora you arrive full of hope and anticipation. You end the day dejected and forlorn - you just got back to the bus and at least 15 people have 4"+ teeth and the best you've got is a lousy 2" mako. Eventually you find the tooth or you give up. Next you want a real challenge.
4. You want to find something truly rare. After all, 4"+ *Carcharocles megalodon* teeth can't be all that uncommon - 15 people (other than yourself) find one every time you go to Aurora. You get very knowledgeable in very narrow, precisely defined areas. You go around mumbling about esoterica. And you search for things like the 2nd upper lateral tooth from a *Hexanchus griseus*. Ironically, you may now find the 4"+ C. *megalodon* but it doesn't impress you that much anymore. This is the most frustrating of the 5 stages because you set standards for yourself that only Becky Hyne could accomplish. Finally, this too passes.
5. You want to find a fossil, any fossil.

I became editor of *Janus* for 1990#2. This was reprinted from *Janus* 1991#4. I modeled this after the "Five Ages of the Fisherman" read somewhere. *Richard Chandler*

Ontogeny Recapitulates Phylogeny???

This short, catchy phrase encapsulates a theory of biological development first expressed by Ernst Haeckel in 1866. It is the idea that the individual, as it passes through the various stages of development from conception to maturity (ontogeny), repeats the major stages of its evolutionary history (phylogeny). Haeckel wrote, "Ontogeny is the short and rapid recapitulation of phylogeny."

William J. Bennetta in a devastating review of *Addison Wesley Biology* in *The Textbook Letter* in 1994 observes:

> Alas, Haeckel hadn't got things right. The phenomena that he had sought to explain were more complicated and more diverse than he imagined them to be. His "law" of recapitulation, as he called it, looked less and less like a law as biologists learned more and more about genetics, and in the early years of this century it was discarded. Biologists continued to regard it as a useful insight into some specific phenomena, but they rejected it as a universal principle.

One if the real difficulties in trying to identify *Carcharocles* teeth to the species level is that some form of "ontogeny recapitulates phylogeny" seems to be at work with some specimens. Recently working on the CD ROM project I came across a picture I had taken some time ago of an "*Otodus*" tooth which Cindy Muston had found in Castle Hayne Limestone sediments. Of course, those sediments were laid down about 10 million years after *Otodus* became extinct but here was Cindy's tooth, pristine and clearly unreworked *and clearly unserrated*. I remembered that I had a similar tooth, also from Castle Hayne Limestone sediments, also clearly unreworked. Here is a photo of three views of my tooth:

Isn't that a perfect *C. auriculatus* tooth? Look closer and see if you can find any serrations? There are none! I showed this photo to Gordon Hubbell and to my friend Pierre Zennaro (the Gordon Hubbell of France, although French collectors would undoubtedly say that Gordon is the Pierre of the United States). Both thought it could be a juvenile unserrated *auriculatus* tooth. Incidentally, it's just 1" long.

Above is a photograph of Cindy's tooth. Unfortunately I do not have a profile view of it but if you look carefully at the lingual view (left), you can see the pronounced bulge on the root which

is a characteristic of both *Otodus* and *auriculatus* teeth. It's a little larger than mine, just shy of 1½" long.

Juvenile teeth of some modern great white sharks are unserrated and unserrated teeth unequivocally from the pigmy white shark *Palaeocarcharodon orientalis* have been found. So why not juvenile unserrated *auriculatus* teeth?

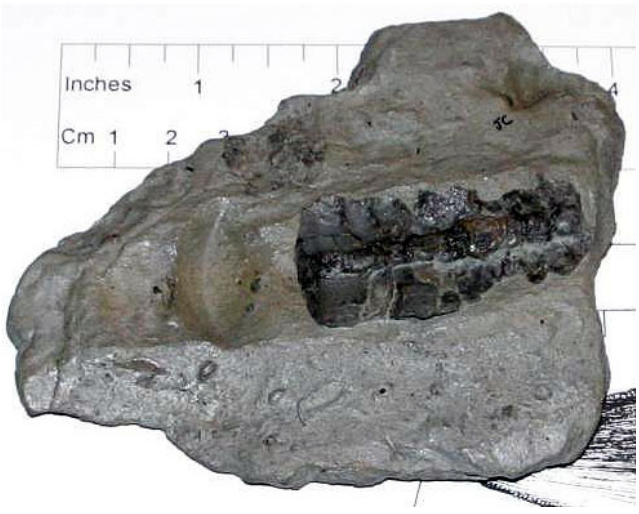
Richard Chandler

My Favorite Fossil

Back in 1983 (wow!) I was a senior in undergraduate school taking paleontology. We went on a field trip to southwestern Ohio/Southeastern Indiana. Our project was to collect fossils at various collecting localities, identify them, and then write a paper on the paleoenvironment of the area. We went all over the place collecting fossils. One of the days was spent collecting in Richmond, Indiana. There is formation after formation of limestone out there, and Richmond was no exception. I was doing my own collecting when I came upon an area where there was limestone overlying a shale bed. The shale bed was very weathered and had mostly worn away, leaving a narrow space between the ground and the bottom of the limestone bed. There was only enough room to slide my hands through the space, and reaching back I could feel the shapes of brachiopods in the limestone. I had collected a lot of brachs, so I wasn't interested in them. There was however, something else that I could feel on the roof of the limestone. It felt like a backbone! I got really excited and tried to break it off from the limestone. In the confined space, my hands had little room in working to free it, and failed several times. Almost about to give up, I tried one last time. I was finally able to get my geohammer into the open space and started to tap on the limestone layer away from the fossil. I could feel a thin slab containing the fossil releasing bit by bit with each tap. It finally broke free and fell into my free hand (it never touched the ground!). I pulled it out, but had no idea what it was. The fossil was segmented and had this 'backbone' running the length of the fossil. When I showed it to my professor, and his eyes got wide and he quite literally shouted for all to hear "Jim found the fossilized siphuncle of a nautiloid!" I was king for a day! My professor wanted the fossil for the college museum. I probably would have given it to him had he not been so excited. Somehow, I 'forgot' to include it with my paper.

I have had other great finds since that time, but this is the best!

Jim Criswell



My Favorite Fossil(s)

This is a really tough one for me to answer: What is my one favorite fossil? I have so many fossils that hold a special memory as to who I was with, the place, etc. I do not have one single favorite fossil but can pick out fossils that constitute a group of highly prized specimens.

Looking around my collection I concluded one factor for identifying a favorite fossil is what I most consistently hunt for. High in that group are *Entemnotrochus nixeus*, or slit shells. It could be that, because I stand a halfway decent chance of finding a nice specimen, they have become a favorite quest. I'd like to find a nice Archaeocete premolar tooth, for instance, but that is such a remote possibility it is hardly worth thinking about.

Half a dozen years ago I went with the NC Fossil Club on their collecting trip to the Castle Hayne stone quarry. For the first half of the afternoon John Everette guided the group to an area of the mine known for invertebrate fossils. I soon noticed a large block of limestone with mollusk impressions in it. For a reason still unknown to me I flipped it over. On the opposite side was the largest and most complete slit shell I had ever found! I was stunned. It was fractured in one place and missing its spire but breath-taking nonetheless. It was an easy task to remove it from the rock. The rock was way too big to consider carrying out with the fossil in it undisturbed.

I began to examine other boulders, soon finding a tiny tip of slit shell showing from a different large rock. I settled in with chisel and hammer in hand to begin a slow process of removing stone bit by bit from around a very fragile fossil. John soon made the much anticipated "tally ho" to move the group to the shark tooth territory of the quarry. He allowed that if anyone wanted to stay in the first area they could. Having exposed about half of the slit shell I was not about to walk away from it at that point. I freed the slit shell from its boulder in about 30 more minutes. I searched the same area more finding another similarly presented slit shell poking out of a very hard piece of limestone. Careful chiseling yielded little exposure of the shell. This was really tough rock! Being tired by now, I took a few swings with the rock hammer at an opposite side of the boulder and much to my surprise it quickly yielded and began to fracture. Another slit shell equal in size to the first one of the day came to light and was in even nicer condition!

The rock I had spent over an hour freeing a slit shell from was still inviting further study. On its exterior were external impressions of no less than 6 other slit shells. It was just too big and massive a rock for me to work on with the equipment I had that day. The method that worked on the last rock did not work on this one. I would return with a heavier hammer another day. It was about 6 months after that I finally brought a sledge hammer out to that spot in the quarry. I had revisited that stone several times before that day envisioning what might lie at its core. The day I arrived with heavy hammer was hot and humid with a "sun shower." A few swings at the rock with the hammer and sweat "exploded" out of me, or was that the rain getting me wet? For anyone who has broken rocks they will know what I describe now. I started pinging this tough rock. After about 20 "pings" I got a dull thud - the first sign a rock is fracturing. I went to small hammer and chisel opening the fracture lines. The rock split down the middle, into several large chunks. Buried in its core was the slit shell I envisioned. The fossil unfortunately broke in two places as the rock came apart. This time I was the first to ever see it and carefully recovered every bit that came loose. Quarry-broken fossils almost are always missing some important piece that cannot be found. I carried home the base of the fossil in a large piece a matrix, working on it in my shop and gluing together the fossil where it broke.

In preparing it for display, I purposely left a portion of matrix

as it accents the fossil and helps tells a complete story of its discovery.

I used this specimen and several other slit shells in an exhibit at the North Carolina Shell Show in the fall of 2000. One of the scientific judges told me that he wanted to award this specimen "Best Self-collected Shell of the Show." His partner disagreed saying it was not a shell anymore, as it is an internal mold. Modern mollusks are how I came to be so interested in this fossil. Slit shells occur in modern faunas but live in deep water. They are very scarce to collectors and highly prized for their beauty.

I continue my quest for these amazing fossils but have yet to top this specimen. Even if I find a better one it will likely remain one that will always have a place of honor in my cabinet.

John Timmerman

Entemnotrochus nixeus, Slit Shell, Eocene Castle Hayne Formation, Castle Hayne North Carolina. (Base of slit shell fossil is 5.5" across its widest dimension.)

My Wife's Favorite Fossil

Nancy is not much of a writer. I asked her if it would be OK for me to write about her favorite fossil; it was fine with her.

Nancy did a lot of fossil collecting with me years ago in New Jersey and when we first moved to North Carolina. Her interest flagged when the field became crowded with many people. She reasons that fossil collecting is not an intense passion for her. She does not want to keep others with greater interest from opportunities to collect. She also misses the "old days" when she would sit on a Pungo hill at PCS (Texasgulf in those days) and pick up little teeth all day with barely a notice by another person. Nancy is often content to read a book as a break from looking at the ground when out in the field. In fact it is one of her strategies when we go to the beach or a stone quarry. That way I do not drive her crazy with my constant searching. We go our separate ways for the day. I drive her crazy by showing up for the boat or bus seconds before quitting/departure time.

Nancy had to think a moment about what is her favorite fossil. She said it could be put as "this is my favorite shark tooth, this is my favorite shell, this is my favorite whale tooth, etc." However, she came to the conclusion her favorite fossil is a shark coprolite she collected in Big Brook in Monmouth County, New Jersey.

She likes it because it "looks a lot like what Rosey (our dog) leaves in the yard.." In other words "it is good s**t." She finds it amazing that droppings can be fossilized in the first place. To her it was one the more amazing fossils she found in New Jersey, particularly upon the revelation that this weird stone was in fact a shark coprolite. Nancy has a big collection of rocks with holes and other weird features, which are not fossils. Coprolites look like yet another weird stone only she could love and they are fossils! A close second favorite from Big Brook to the coprolite is a blue, glass marble.

I took Nancy fossil collecting when were dating. She later informed me that the trips qualified as dates. I always figured a date was out to dinner and movie, that sort of thing, not a day slopping around in a creek looking for fossils. Nancy worried about what she was going to wear and how she looked so "it was a date." It is not to say she did not have fun. She is not the sort of person who would have gone more than once or twice if she was not having fun. It was a peaceful setting, a large rural stream with enough current to be pleasant but not so swift as to make wading treacherous. We collected fossils by sifting gravel or simply looking at the gravel shoals common throughout the streams length.

On one memorable trip Nancy broke her leg. She slid on mud bank and catching her foot on a tree root. She said she heard it "pop." Nancy walked out, not realizing it was broken. I returned her to her apartment being assured it was just a sprain. Later that day it was her mother that finally convinced her to go see doctor about it. She broke the fibula, the smaller of the lower leg bones, "the bone you do not need to walk" as Nancy put it. "Good thing I never rotated my foot as that is why you have that bone."

I do not specifically remember Nancy finding her prized coprolite. Nancy had her own collection of fossils. Fossils come in cool shapes and forms. Knowing what they are scientifically is great for others but not so important to her. Recently she thinned her collection, handing to me a box of fossils she no longer wanted but did not know if they should stay in our collection. She has a handful of favorite fossils in her work area. I found a half a seal molar tooth from PCS that I never knew she found. She did not know she had it either but did recognize how special it is to some when I showed it to her. She did not remember finding it.

There are two pictures of coprolites. One is her Big Brook specimen. The second is one she found at PCS. It holds close second as her most favorite fossil.

John Timmerman

Shark Coprolite
Cretaceous, Navasink Formation (green sand)
Big Brook, Monmouth County, New Jersey

Coprolite
Likely: Miocene, Pungo River Formation
PCS, Beaufort County, North Carolina

My Favorite (Invertebrate) Fossil

Growing up in south Florida I could not avoid finding fossils; they were everywhere. But they were invariably shells. I do remember once (while home from college) finding an echinoid out in the middle of the Everglades while fishing for bass. The first fossil I found which actually gave me a thrill was a large shark tooth from the bank of the Neuse River near Arapahoe. It was a 4½" *meg* in good condition and probably was responsible for my enduring passion for shark teeth as *the* thing to hunt.

Along the way I have found many very nice invertebrates, usually giving them to my hunting companion at the time: a large, perfect *Hardouinia kellumi* on my first trip to Castle Hayne, the gorgeous gastropod *Fasciolaria elegans* in the old New Bern quarry, and a striking *Cidaris pratti* in Rocky Point are three that stand out. But my favorite invertebrate fossil I found last fall on the NCFC trip to Castle Hayne.

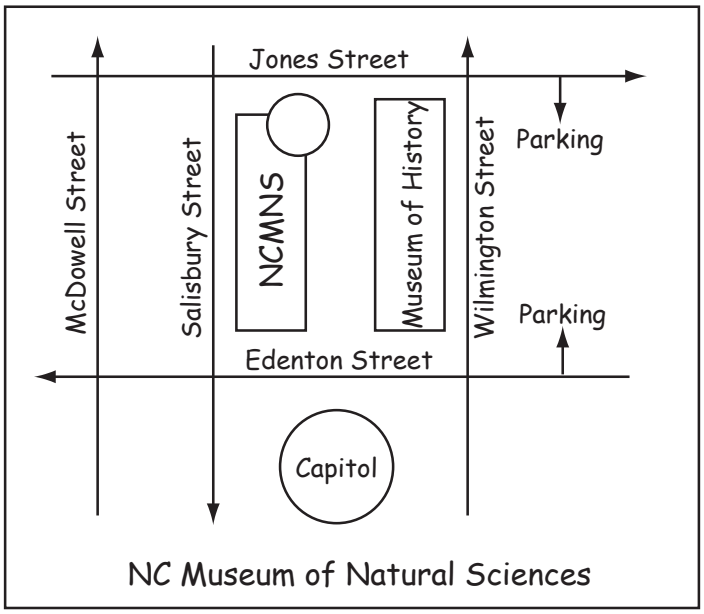
I had been working on the CD ROM section on bryozoa for several months prior to that trip. I photographed the bryozoa collection at the NC Museum of Natural Sciences and there were two specimens I actually coveted. The one I liked best was a truly spectacular, "museum quality", example of *Centronea micropora*. The hemispherical specimen was about 2 inches across with no damage whatsoever.

Centronea is an example of a massive, free-standing colony. The pores seen in the close-up photographs are the openings of tubes occupied by the individuals in the colony. I think that when the colony begins it resembles a mushroom. As new individuals grow on the skeletons of their parents little abutting polygonal "living rooms" form, giving the colony the mature form you see at the top right.

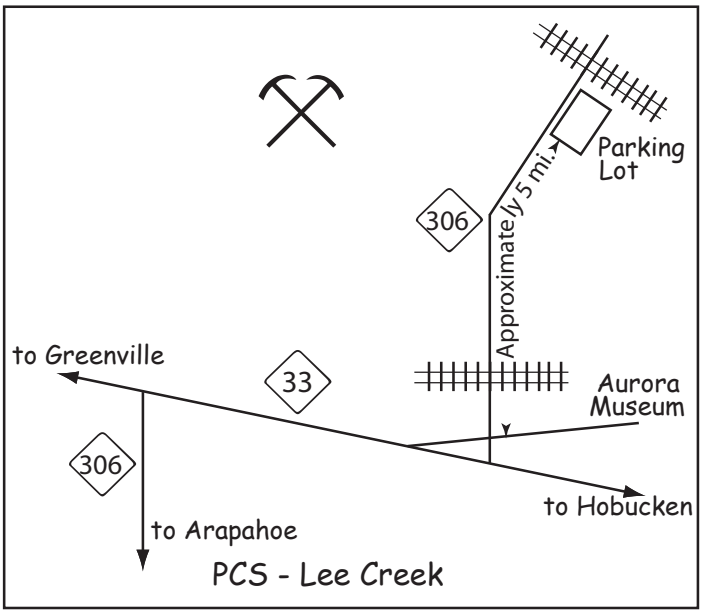
The specimen I found last fall is not quite as good as the one the Museum has but it is still a very nice find, one I was very proud of. Of course, finding a fellow club member who appreciated it as much as I did was much harder than finding it.

Richard Chandler

Centronea micropora: complete specimen (top) and close-ups.



NC Museum of Natural Sciences



PCS - Lee Creek

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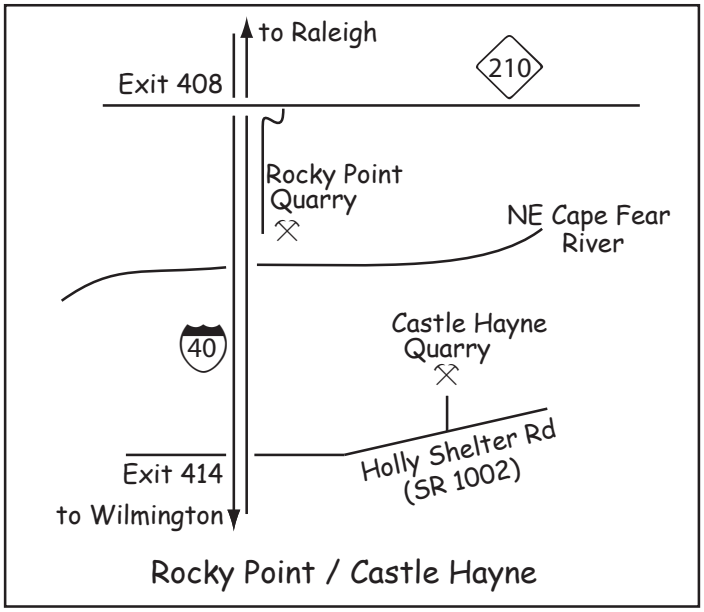
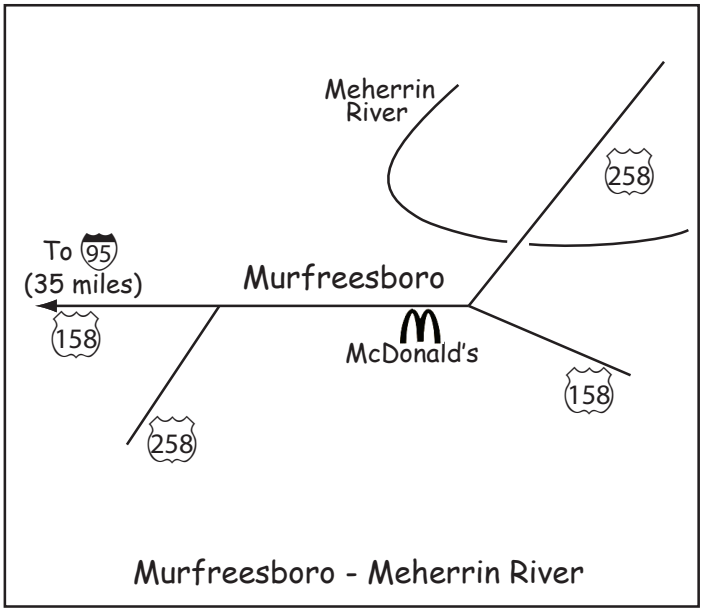
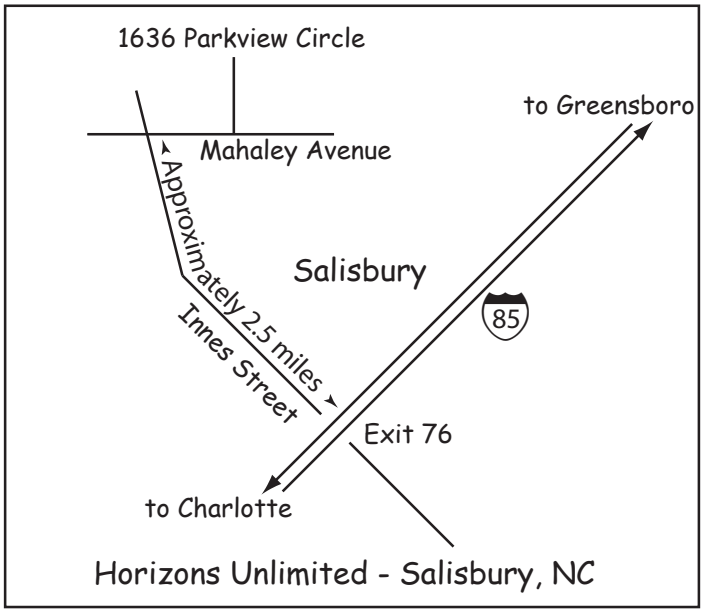


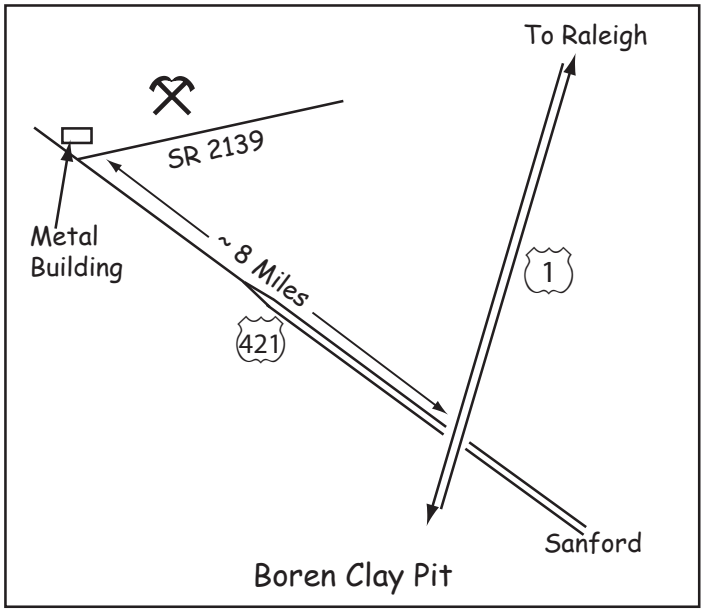
Rocky Point / Castle Hayne



Murfreesboro - Meherrin River



Horizons Unlimited - Salisbury, NC



Boren Clay Pit

North Carolina Fossil Club, Inc.
(Founded 1977)

President	Cynthia Muston	(252) 830-8897	Hubert, NC
Vice President	David Sanderson	(919) 469-2812	Cary, NC
Immediate Past President	Richard Olsen	(252) 247-4762	Atlantic Beach, NC
Treasurer	Trish Kohler	(919) 383-6328	Durham, NC
Secretary	Joanne Panek-Dubrock	(919) 362-6392	Cary, NC
Membership Chairpersons	Roxada/Robert Story	(919) 544-2017	Durham, NC
Editor, Janus	Richard Chandler	(919) 851-2153	Raleigh, NC
Board	Richard Aultman (2006)	(828) 396-7444	Granite Falls, NC
	James Bain (2005)	(919) 451-4108	Bahama, NC
	Rick Bennett (2006)	(919) 839-1802	Raleigh, NC
	Sharron Edwards (2006)	(910) 324-1539	Richlands, NC
	Joy Pierce Herrington (2005)	(919) 929-2661	Chapel Hill, NC
	Mike Milton (2006)	(919) 471-6361	Durham, NC
	George Oliver, Jr. (2005)	(252) 726-1770	Morehead City, NC
	Bobby Tant (2005)	(919) 366-0218	Wendell, NC

2005 Membership Application - North Carolina 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)**	**$15.00**
for the indicated amount.)	❑ **Household (new)**	**$25.00**
	❑ **Household (renewal)**	**$20.00**

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.

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.

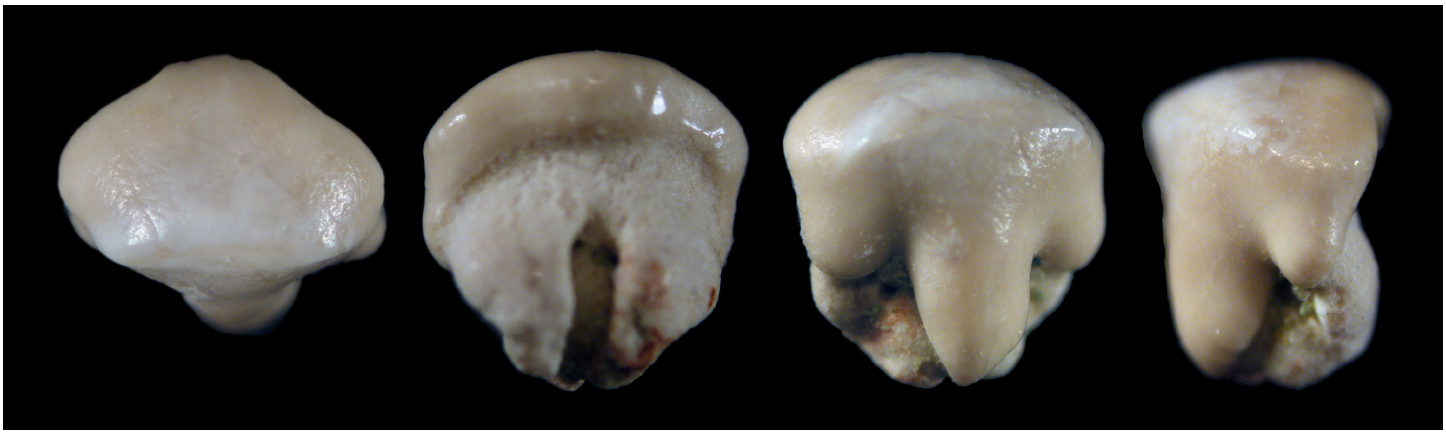
The Undersigned further attests to his/her intent to be legally bound by affixing his /her signature to this release.

Name _____ Signature _____ Date _____

Name _____ Signature _____ Date _____

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

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



This very unusual specimen may represent the first fossil guitarfish tooth found in North Carolina. It closely resembles a tooth from the Eocene species *Rhinobatos bruxellensis* found in Europe. Eric Sadorf found it by screening material from the Rocky Point quarry. To repeat Eric's feat you will need sharp eyes and a lot of patience: this tooth is about 2 mm across, slightly larger than a pinhead!