



Janus

The Newsletter
of the
North Carolina
Fossil
Club

1996 Number 2

Message from the President.

The first half of 1996 was good for the NC Fossil Club. Several people in particular made the club run smoothly.

The club owes the trip leaders a special thanks. Leading trips can be no trivial matter. Next time you see any of the following people make a point to thank them for their efforts: John Everette, Ashley Davis, Richard Tellekamp, and Doug Meier.

Thanks to all the club members and other fossil collectors who helped with my project of the new whale exhibit at the Aurora Fossil Museum. (see article in this issue.) Without the generous help and donations provided by several members the job of producing this exhibit would have been vastly more difficult. I would have been hard pressed to complete it by the Aurora Fossil Festival. The exhibit was installed well before that deadline.

Thanks to the Board of Directors. Without their tireless work the club would surely stop operating. In particular I thank them for running meetings in my absence last winter after my first board meeting had to be scrubbed due to a snow storm.

Fall 1996. Of course the club will do its best to offer fossil collecting trips and lectures this fall. Reserve November 9, 1996 on your calendars. It is the date of this year's North Carolina Fossil Fair. It will be held at the North Carolina Maritime Museum in Beaufort, North Carolina. JoAnne Powell has graciously agreed to Chair this year's event. If you are interested in exhibiting or helping, contact her at the museum (919)728-7317. As with last year we are looking for members to display their fossils at the fair. It is a good chance to share your adventures with the public and other club members. It is also a

chance to see what other club members have been collecting and increase your knowledge of fossils through the collectors or professionals from the Smithsonian and NC State Museum.

You may have noticed that this issue of *Janus* is larger than normal. Editor Richard Chandler had enough material to print a double issue. Many times in the past he has had trouble scraping enough material to make one normal sized issue, often writing most of the articles. I thank all have submitted work in the past and strongly encourage others to do so. You do not have to be a great writer to be published. A continued flow of articles and art work will make Richard's job much easier.

Again thanks to every one who went that extra mile to help the club run smoothly this spring. Have a good summer and see you this fall.

John Timmerman

Trip Reports – Spring, 1996

PCS – Lee Creek

How many times has a fossil collector's devotion to his/her hobby been tested? We are accustomed to frying in summer heat or getting soaked to the bone in deluges but to be frozen to the bone was never a problem for this trip before. The long, cold winter returned with a vengeance, perfectly timed for our long awaited spring trip to this popular collecting site. I think the day time high was in the low 40's at best. The light breeze, normally a welcome feature of collecting, was brutal combined with the cold. The cold did produce one beneficial side effect which was to freeze the ground. There had been ample rain the previous week and we were expecting a real muddy mess. However the ground, for at least the first half of the day was hard. This did make it nearly impossible to casually pick up fossils that were not completely exposed. I

tried chopping a few whale bones out of the clay. It was not as hard as concrete but close!

For all the promise of the day, ample rain and early season collecting the quarry seemed stingy in giving up good fossils. There were only two large shark teeth (over 4") that I know of found. The largest was a beautiful equilateral triangle about 5" on its long side found by Dick Grier, Jr. The other large tooth was found by a collector on the 2 o'clock bus whom I did not see. I saw several smaller teeth in the 3" category but for all the promise of the right material it seemed very little came out. The area we collected in is was entirely Miocene and Pliocene with very small amounts of Pleistocene. In general, shark teeth seemed scarce all round.

Other nice fossils were found which is the beauty of this site. Several people had beautiful ray dermal scutes including a very beautiful one by Richard Chandler that at first appears broken but isn't. Whale bones were very plentiful. Candace Holliday found a nice porpoise inner ear bone. Donna Quattlebaum found what appeared to be a huge seal canine tooth that I have since heard was whale tooth. Eric Thompsen found a wildly pathological *Isurus hastalis* tooth. It appeared to have been pinched equally from both sides toward the center.

A final note. Many people were forced to cancel for health reasons related to the weather or because they simply did not want to freeze. I almost exhausted the waiting list replacing such members. Being on the waiting list does not necessarily mean the trip leader will not call you. People on the list make other plans or they cannot be reached when contact is attempted. So even if you think there is little hope of getting on a trip you never know when an Arctic cold wave, thunderstorms or tropical wave may produce a large number of cancellations.

John Timmerman

Martin Marietta - Rocky Point

On a beautiful day 23 NCFC members and guest showed up to hunt this popular Eocene-Cretaceous site. We owe a lot to Mr. Doug Pope for scheduling his blasting around our trip. The weather was great and by 12:00 we

were all hunting. Some of the better finds of the day that I observed:

- Vince Schneider: nice collection of fish bones and a *Maretia subrostrata* echinoid.
- Doug Meier: *C. auriculatis*, *Linthia harmatuki* and *wilmingtonensis*.
- Donna Quattlebaum: *Eurhodia rugosa ideali*.
- David Goodman: *Abdounia recticona*.
- Al & Billie Alphin: Both found *C. auriculatis* with Billie's being the nicest one I saw.
- Joy Pierce: her usual assortment of "stuff".
- Marian Henson: *Abdounia recticona*.
- Andreas Slate (guest - a 10 year old on his first fossil hunt): 2 damaged *C. auriculatis*.
- John Everette: 2 nice *Carcharias koerti*, *Striatolamia macrota*, *Galeocerdo eaglesomei*, a *Pristis lathami* spinal disk, and *C. auriculatis* with mouth wear on the tip.

After the hunt several of us met in the recreation area parking lot to see others' finds and for identification. I think everyone had a good time.

John Everette

Boren Clay Mine

A beautiful day and a large turnout led to successful collecting for club members and guests at the Boren Clay strip mine. Everyone left with pieces of siltstone containing Triassic plant fossils. Most were the ferns and cycads that were abundant during this period and some found fossilized cones. A few of the rare finds were an Indian scraper and a spear point (found by our esteemed editor, Richard Chandler) from the Savannah River period and a piece of Triassic bone tentatively identified as being from a phytosaur (probably *rutiodon*). Phytosaurs were early crocodile like reptiles that evolved parallel to crocodiles but became extinct. They had long narrow snouts like modern gavials and their nostrils were positioned on top of their heads near their eyes.

We were fortunate to have Mary Watson with the North Carolina Geological Survey joining us at the site. Mary gave a presentation on the geologic development of the area and identified specimens collected.

Ashley Davis

Martin Marietta - Castle Hayne

A total of 24 members and guest showed out for an excellent and rewarding trip. The temperature turned it into the hottest day of the year (up to then), reaching the high 90's. It had to be over 100° in the mine and by mid-afternoon few collectors had stuck it out - including yours truly. Some of the better finds of the day which I observed:

- Jason Magura (guest): perfect 1½" *Ischyrrhiza mira*.
- Becky Hyne: 4 nice *Unifascia carolinensis*.
- Trish Kohler: *Hardouinia mortonis*, 2 *Squalicorax pristodontus*.
- Bill & Marian Henson: 2 *Pristis lathami* and an *Ischyrrhiza mira* with the enamel portion missing - a perfect root.

Many nice echinoids were found by most collectors, including *Eurhodia rugosa ideali* and *Echinolampas appendiculata*. Many small (mostly reworked) Cretaceous shark teeth were also found. My best finds were an *Otodus obliquus* with the tip damages, *C. auriculatis* with one cusp missing, and a perfect *Abdounia recticonia*. **John Everette**

Martin Marietta - Belgrade

The Fossil Club had a great turnout at Belgrade with 48 members and guest. Some were from as far south as Tampa and as far north as Gaithersburg, MD.

Findings of a variety of small shark teeth prevailed throughout the day, with a large one now and then. Some alligator teeth were found together with two very nice horse molars. A variety of fossils surfaced for those digging in the gravel layer.

The weather held out nicely except for a few scary thunderclouds which cooled things off somewhat. It was nice to see some of the original NCFC members present. They were a great help identifying some of the finds. See you in the fall. **Richard Tellekamp**

Aurora Fossil Museum Whale Exhibit

Plans for the new whale exhibit were presented in the last issue of *Janus*. Richard Chandler and John Timmerman installed the finished exhibit designed and built by John during the spring, on May 3. The installation

went smoothly, taking less than one full day to complete. Plans for the opposite window are on hold. The final deposition of a whale skull which Museum Director Candace Holliday is working on will effect final plans.

The following people helped with and donated materials to make this display possible. Candace Holliday cleaned and prepared the display space prior to installation. She also repaired the replica of the *Squalodon* skull. Richard Chandler researched whale skeletons and assisted with installation. Cape Fear Museum Associates provided construction materials at well below market cost. Frank and Becky Hyne donated a huge whale humerus (it was too big for the new window but is being used in the museum) and a whale caudal vertebra used for the normal comparison to the arthritic specimen. John Timmerman donated whale inner ear bones and loaned an arthritic vertebra from his collection.

The request for whale vertebrae for the exhibit was fruitful. All the vertebrae donated would not fit. The large number of vertebrae enabled John to select like specimens to create beautiful stacks. The extra vertebrae will be used in future museum exhibits. Following is the tally of donors, listed in descending order by total weights (in pounds) donated.

DONOR	WT.
Frank and Becky Hyne	56.75
John Timmerman	40.75
George Powell, Jr.	30.00
Rufus Johnson	22.75
Richard Chandler	15.50
Dewayne and Zack Hubbard	15.00
Richard Aultman	14.00
Jim White	11.50
Trish Kohler	10.50
Candace Holliday	7.50
John Powell	5.50
Baxter Leonard	5.25
Eric Woody	4.50
Eric Thompsen/Melissa Manwaring	1.50

John Timmerman

“Prehistoric choppers to stay in N.C.”

An article with the above title appeared on the front page of the *Raleigh News and Observer* for July 3. No, it was not concerned with obsolete helicopters down at Ft. Bragg but with Becky Hyne's shark teeth. Under a beautiful color photograph of an anonymous hand holding a 5½ inch *C. megalodon* tooth was an extensive article detailing how the N.C. State Museum of Natural Sciences had purchased what is believed to be the finest associated set of large teeth ever found. The story of the find as told by Frank appeared in *Janus* 1992#4 (“Such stuff as dreams are made on”).

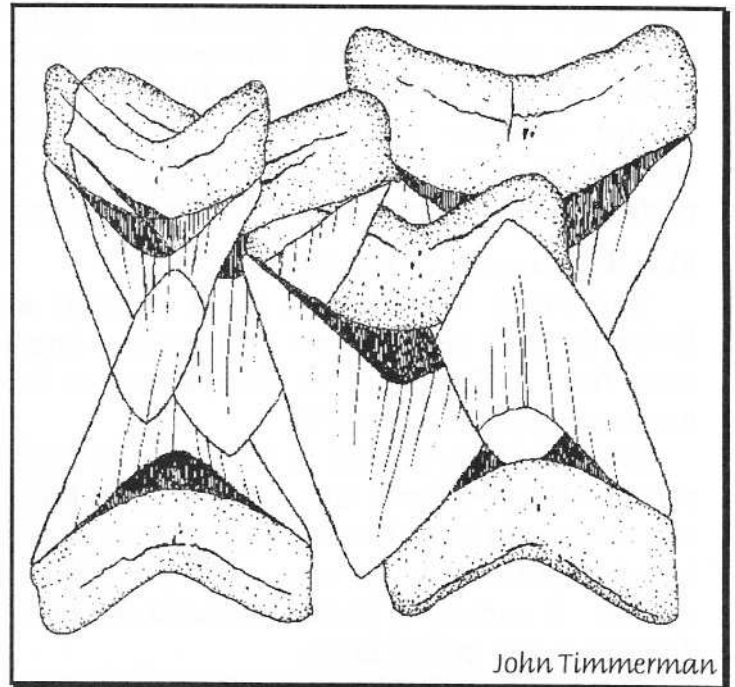
The newspaper report, by staff writer Theresa Jones, is very well done except for one common-place error: she twice refers to *Carcharodon megalodon* as the “greatest marine predator ever found in the fossil record.” Of course it is not, that honor going to the sperm whale *Physeter* sp. whose teeth are also found in the PCS-Lee Creek mine.

Most North Carolina members of NCFC will rejoice in the news that our very own museum will have the teeth; hopefully they will be prominently displayed in the new building. Our own Vince Schneider (who, in his role as curator of paleontology at the museum, was influential in convincing museum authorities to purchase the teeth) is quoted several times in the article. (I would love to reproduce the whole article here, but the *News and Observer* now charges a fee for such permission.) I will be happy to send you a photocopy of the article if you send me a stamped, self-addressed envelope with your request.

I have a personal anecdote regarding these teeth. In the Fall of 1993, after it appeared the Smithsonian had lost interest in finding a donor to purchase the teeth from Becky, Mike Hogan contacted John Maisey of the American Museum to see if it would be interested. Maisey asked for some pictures, and Becky asked me if I would photograph them. In return, she offered to take me and a companion into the mine on the last trip of the season, the Saturday after Thanksgiving. In

the interest of maintaining good relations with my wife, I gave Suzanne first refusal. She surprised the dickens out of me by accepting.

More surprisingly, she actually went into the mine on that wet, cold, windy morning. Having no patience with my careful, down-on-my-knees, perusal of Pungo River material for small (but rare) shark teeth, she wandered off on her own. About an hour and a half later she wandered back with an absolutely perfect 5¼" *C. megalodon* tooth of her own. You have to realize that this was her first (and so far, last) fossil collecting effort. Every now and then I ask her if she would like to go back. She genuinely seems to have no desire to do so. After all, it would almost certainly be downhill from there. **Richard Chandler**



The North Carolina Fossil Club meeting, chaired by Mike Hogan, was held March 10, 1996 at the North Carolina State Museum of Natural Sciences.

Old Business:

- Equitable participation for slots at PCS-Lee Creek was discussed and possible consideration of a two hour advantage for those not able to get in on the previous trip to carry over on each Fall and Spring trip was discussed. It was decided to continue this at the next NCFC meeting in order to receive additional input from members. Please see Minutes of 2/5/95 Board Meeting in *Janus* 1995#1 for more info.

New Business:

- Mike Milton reported as of 3/9/96, there were 226 membership listings.
- Treasurer's Report. Trish Kohler reported a balance of \$6,943.50 as of 3/10/96.
- Joy Pierce reported on sales and available supplies of fossil books and new t-shirt designs. It was agreed to order 500 more copies of *Neogene Fossils of North Carolina*.
- Vince Schneider reported on a pending new Master's Program on paleontology at NCSU. \$1,000 was earmarked for possible scholarship moneys.
- Joy Pierce suggested possible funding of banners for the Smithsonian and N. C. State Museum of Natural Sciences tables at our fossil fairs. Further study will provide more information.
- Vince Schneider suggested badges with the NCFC logo and individual name be distributed to the membership to promote more recognition of individuals at various events. The members present were receptive to this idea.
- Mike Hogan suggested the new museum might concentrate on marine life as an emphasis for the museum. With the abundance of marine fossils here in the southeast, it would be possible to have a world class exhibit and enable us to compete on the same level as other well known museums.
- John Everette sent a flyer to announce the Capital Area Gem Festival March 29, 30 and 31.
- Richard Chandler received a letter from the Kansas Geological Society requesting a letter of support for their nomination of LeGrand Smith for the Strimple Award for his work in paleontology. Members voted to endorse this recommendation.
- Richard Tellekamp and Bill Little would appreciate any help with some of the student groups they work with at Belgrade. If you would like to help with this in the future, please contact Richard or Bill. Richard also requested that the classes receive a copy of the club fossil books for reference material. This was approved by members present.
- The NCFC Belgrade Fossil Trip will be June 8, 1996.
- A request was made by Richard Tellekamp for \$120 to buy the materials for two new picnic tables to add to the two already at Belgrade. Richard and Bill Little would volunteer their time to build the tables, with a plaque added as donated by the NCFC. Richard and Bill donated the two tables that are there now.
- Richard Tellekamp presented a possible future Fossil Fair site for November 1998 at the Onslow County Museum, in Richlands. This will be further discussed at a future meeting.
- Trish Kohler announced a fossil dig for children at the Primate Center at Duke. This is just one of the many activities planned for adults and children throughout the day. Evening speakers include famed Primatologist Jane Goodall, with actress/animal activist June Lockhart of Lassie fame giving a special presentation.

- Hans Thewissen, Eastern Ohio University, will be guest speaker next month. The Walking Whale cast, sponsored by the NCFC, will be delivered at that time.
- Scheduled speaker for the NCFC Meeting, Dr. John Maisey, of the American Museum of Natural History in New York, sent his apologies as he was unable to attend due to transportation problems. Dr. Maisey will be speaking at another time.
- Richard Chandler gave a slide presentation of Eocene material with many beautiful shots of several shark teeth, echinoids, crab and others. The blasting slides of Rocky Point were especially well done and much appreciated by those present. We thank Richard for a great presentation.

Meeting Adjourned.

Judy Stiles

NCFC Meeting, March 24, NCSU campus.

Dr. Rodney Feldman of Kent State University spoke on "Evidence for the K-T Catastrophe from the Southern Hemisphere".

The meeting was chaired by NCFC President John Timmerman.

Old Business:

1. Identity buttons for NCFC members, with the club logo and member name, was discussed. Members present approved further inquiry. Vince Schneider will check with Sam Schmidt on the costs involved. To save mailing costs, some of the badges could be handed out at the Lee Creek trips.
2. Lee Creek trips were discussed in regard to call-in procedures and number of out-of state-slots.
3. Trish Kohler stated that plans for the April 27-30th Anniversary at the Duke Primate Center goes well.
4. Vince Schneider reminded members that Dr. Hans Thewissen will be speaking on "The Walking Whale, or the Origin of the Cetacea" on Saturday, at the April 13 meeting.
5. John Timmerman is still accepting whale vertebrae for the Aurora exhibit. Those who would like to donate, please contact John.

New Business:

1. John Timmerman is working on an illustration of the seal skeleton for possible mailing to members to help in identification. Members suggested a book format, similar to the Neogene and Paleogene books, that would also include porpoise. John will continue working on this project, while checking on the cost.
2. Joy Pierce has volunteered to coordinate an order of Riker display cases for those members interested. A group order would give members a price discount. Joy will present additional information on ordering and prices in a future Janus.
3. Vince Schneider presented the possibility of accepting advertisements in the *Janus*. John Timmerman will check on ad space prices. Reduction of the constant pages in the *Janus* to save on space, as well as possible bulk mailing, to offset additional printing costs in this regard was discussed.

Meeting adjourned.

Judy Stiles

Success

By almost any measure the North Carolina Fossil club is a success. Our membership continues to grow each year (as of this writing we have more than 250 membership listings with 350 members, 71 new for 1996). My conclusion is that most of you are receiving something satisfactory for your dues. It is a little disheartening though, to attend a club meeting where only a handful of members (other than the Board) shows up. We have had three such meetings this spring. The weather did not cooperate for our first meeting, preventing our speaker from leaving New York. The second and third meetings boasted professional paleontologists, both of whom gave excellent talks.

The first of these was Dr. Rodney Feldman who spoke on the evidence he had collected, primarily in Antarctica and Argentina, which convinced him that a giant meteorite's collision with the earth about 65 million years ago was not responsible for the extinction of the dinosaurs, ammonites, etc. It was very entertaining and thought-provoking.

At our most recent meeting Dr. Hans Thewissen gave an entrancing account of his work in Pakistan, where he has located two very early "proto" whales. As most of you know, approximately 60 million years ago the ancestors of modern whales changed from terrestrial to marine animals. Both of the creatures Dr. Thewissen described only remotely resembled whales. The earliest, *Pakicetus*, was about the size of a German Shepherd dog, while the second, *Amblycetus*, was about the size of a modern sea lion. Both still had four external limbs and had not developed the fluke-like tail of modern whales, but did have the unique hearing apparatus of whales and archaeocete-like teeth. He believes *Pakicetus* lived as a terrestrial animal and did not inhabit the ocean. *Amblycetus*, on the other hand, lived in and around water but he thinks it operated much like the modern alligator or crocodile, ambushing terrestrial animals when they came to drink. It may also have preyed on the early sirenians (sea cows).

The point of this rather lengthy essay is to try to convince you to come to these meetings. I know many of you live far from Raleigh and probably don't consider it worth the effort but I also know at least 60 of you live in the Triangle area and it wouldn't be much of a trip for you.

Richard Chandler

PCS Trip: Three PS's

Various members of the club have written about their fossil collecting finds. Personally, it has been fun to go along on the writer's journey in that way. I had a "find" at Aurora to tell you about. The story starts with a flashback to the club trip seven weeks ago.

Much can be written and said about the club trip to Aurora this spring. It was so cold that water dripping from Billie Alphin's canteen created icicles from the coat tail of her jacket. Until about 11:00, only surface material could be collected because everything was frozen. Still, pockets were bulging by the afternoon when our collecting buddies met Tom Caggiano on the top of a ridge. We stopped to chat about his article in *Janus*. You could watch the thrill of the find spread across his face as we talked about his trip to the Kansas chalk and his finding the 208 associated teeth from a *Ptychodus* shark. He had mounted the teeth and would display them in the parking lot after the dig. Great!

As we stood talking about his driving 14 hours to get to the mine for that cold, icy morning in North Carolina, I was thinking about how he described his trip to Kansas. "Only a maniac would drive thirty hours non stop each direction in the unpredictable weather of early spring", is how he had expressed it. Sounded a lot like today. Only today he wasn't so lucky. In addition to the hardships of the long drive and the freezing temperatures, he had just discovered that his collection bag had been lost. As dramatic as it sounds, his words actually trailed off as he started describing the porpoise ear bones, sturgeon dermal scutes...and the shark's teeth...all lost.

Well, Tom, imagine the thrill I had yesterday as I dug out what was left of what is assumed to be your bag. About two inches of

wonderful dirt common to Yorktown formation had buried your bag and it's cargo. The fabric of the remaining side of your bag caught my eye. Everything was wet and dirty. I can only hope that I dug out everything that was lost. Now it's my turn to write about an exceptional find. Your day will be rewarded after all.

What a story!

Joy Pierce



TOM CAGGIANO
145 Hayrick Lane, Commack, NY 11725
E-mail to: TOM CAGG @ AOL . COM

Dear Joy,

You are so nice! When I got your package I got the same grin on my face that I did when I found my *Ptychodus*. And I enjoyed reading your story. I had to think for a while before writing you back. You see, your find is not my lost bag, but someone else's. I thought about pretending just so I wouldn't ruin your story, but I felt I had to be honest with you. The bag does contain many of the same things that I lost, but it is a larger collection.

If you like, I can return it to you. You can keep it or donate it to the fossil museum or I can donate it locally if you like. I can not keep it as I have a rule of keeping only what I collect myself. Let me know and I will follow your wish.

I hope you had a good spring season. I've just returned from a 10 day collecting trip to Kansas, Oklahoma, Texas and Tennessee. We collected Devonian and Cretaceous sites. I did not find anything as spectacular as the *Ptychodus* but I did OK. It was a lot of fun. We collected a site called Coon Creek in Tenn. It yielded many shells from the Cretaceous that are in incredible condition. Some of them look like they died yesterday.

Well that's all for now. Hope you are well.

Thanks again,

Dear Tom,

The story just gets better. You were great to write. If you hold on to the collector's

bounty for a short while, perhaps the owner will identify himself/herself. Someone may have announced the loss on the bus back from the mine. I can ask Becky. It would be nice if we could update the Anonymous designation by finding the owner. Otherwise, please feel free to donate the fossils to a local museum. Those are well traveled fossils.

From the short account that we heard of your journey this spring, you had a good time again. I am not familiar with Coon Creek so found that interesting as was your drawing of the *ecphora*. I have just started collecting them. Petuch's book on the *Ecphora* has good illustrations. Perhaps you know his work. Rather than thinking about variations within the species, he named three new ones. Don't know what he would say about yours. I know that it isn't anonymous because it says TC 95.

Fossil Fair, 1996

This is to remind you again that the 1996 Fossil Fair will be Saturday, November 9 at the N.C. Maritime Museum in Beaufort. This is a beautiful setting and the last time we held our Fair here there were enthusiastic crowds. If you are interested/willing to exhibit your collection or help others, please contact JoAnne Powell and tell her.

North Carolina Maritime Museum
315 Front Street, Beaufort, NC 28516
Phone: (919) 728-7317 FAX: (919) 728-2108
More details in the next *Janus*.

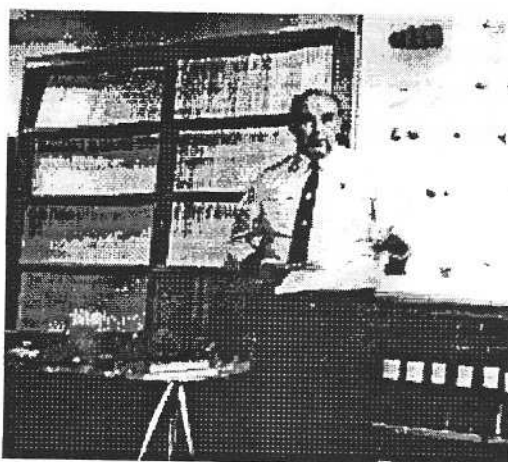
Big Tooth Statistics

This from George Powell, Jr., (only slightly tongue-in-cheek): Consider the effort in finding a large *C. megalodon* tooth. Each year PCS allows approximately 2000 collecting slots, each for about 5 hours; thus 10,000 collecting hours per year. In that time there are fewer than 20 perfect 5 inch (or larger) *C. megalodon* teeth found, so that each such tooth costs more than 500 hours of effort. At the current minimum wage this would amount to about \$2500 per tooth. The moral:

you should just go out and buy a perfect 5½" tooth (it would only cost \$600 - \$800, thus saving you \$1800) and let me go to PCS in your place.

Speaking of George,

he was honored last fall for donating a large and very attractive wall-mounted display case (see photo below) full of fossils to his old alma mater, George Mason Middle and Junior/Senior High School in Falls Church, Virginia. The case will be on permanent display in the Media Center of the school. Additionally, he gave 400+ fossils for hands-on study in science classes.



New Tee Shirt

John has in mind a new tee shirt design built around LARGE *C. megalodon* teeth. He needs outlines of several large teeth for this project. Here's a chance for you to have YOUR tooth used in the design (if it is at least 4½ inches). Place your tooth flat side down on a good copy machine and cover it with a white towel. Get the best copy you can. Send it to:

John Timmerman
208 Quail Ridge Road
Wilmington, NC 28409-2637

Don't delay! He needs these as quickly as possible and no later than August 1.

Display Cases

Joy Pierce has searched for a source of Riker mounts (the black pasteboard boxes with a glass top) and has gotten the information below. Note that neither Joy nor the North Carolina Fossil Club nor its officers and Board make any guarantees regarding the quality of merchandise or the trustworthiness of Mr. Phillips. Any transactions you make are strictly between him and you.

Special prices on display cases have been made available to NC Fossil Club members until October 1, 1996 on the following items:

Glass lid, black chipboard frames with polyester fillers

8" x 12" extra depth 2"

3 for \$12.00 plus \$4.95 postage (\$16.95)

3" x 4" standard depth 3/4"

10 for \$12.50 plus \$4.95 postage (\$17.45)

Quality hardwood case with mar-resistant finish with removable foam insert, brass hardware, glass top, your choice of light oak, dark oak, or walnut

12" x 18" x 3"

2 for \$50.00 plus \$5.50 postage (\$55.50)

All items shipped UPS and guaranteed. Send payment and your order to:

Harold L. Phillips, Personal Treasures

4980 Oakdale Road

Smyrna, Ga 30080

Call 770-431-1689 after 6PM for questions, a complete price list, or specials on bulk orders.

**GOOD THINGS COME IN SMALL PACKAGES
(Or One Person's Reject Material Is Another
Person's Treasure)**

For those of you who enjoy collecting the plentiful and varied vertebrate fossils from the PCS – Lee Creek Mine but cannot collect in the mine with self-satisfying frequency (especially if you are younger than 18), collecting in the “reject” material from the mine can add a variety of new specimens to your collection. Many of you have probably collected from this reject material for a long time. I would like to share with you how I collect from reject material and the treasures I have found and which also await those who search with patience and a keen eye. It is to our great fortune that opportunities to collect from this reject material are limited only by gasoline and time. I consider it no misfortune that the size of the fossils is often smaller than the fossils found in the mine because of the nature of the mining process from which the reject material is generated. There are positives and negatives about collecting in the reject material. On the negative side, there may be considerable wear from abrasion on the fossils. However, smaller fossils may not show the wear as much as the larger fossils. On the positive side, the mining process has probably significantly concentrated the fossil bearing gravel in the reject material. Overall, even poorer quality fossils from Lee Creek are better than most fossils from many other localities.

I was first introduced to collecting fossil shark teeth when my family traveled down to the First Annual Aurora Fossil Days on Memorial Day Weekend of 1994. We have hunted for fossils at other locations in other states and I was amazed at the abundance of fossils which we collected in what I later discovered is called reject material. Quickly, I learned about the relatively limited access to collecting in the mine itself. (I have since enjoyed the blessing of collecting in the mine at the generosity of two friends.) Since May of 1994, my family has made several trips down to the various sources of reject material from the PCS – Lee Creek Mine. My wife, Janie, and three sons (Joshua 12, Jeremy 9, and Jared 5) often look over my shoulder and eventually take over my searching through reject material which I have brought home and further processed (as explained below). In the spirit of resource recovery and conservation, the rejects from the reject material have been put to use as a substitute for “pea gravel” in our backyard garden.

One Way to Find Fossils in Reject Material. Most of the reject material is muddy to a greater or lesser extent and must be washed if you want to optimize your opportunity of finding many fossils. I

have washed pint-sized batches in a kitchen strainer, submerged in a bowl of sufficient capacity. I swirl the dirty material around in the strainer using two different water washes. Slightly dirty water from the second wash is reused as the first wash for another muddy batch. The second wash should be with clear water to remove any muddy water from the previous wash which would dry on the rinsed material. Lately, I have become more impatient and wash larger batches using window screen and a garden hose. This second washing process is slightly more gentle on the reject material and waters the grass as it cleans the material. The limits of the washing process leave particles of approximately 1/16 in or 1.5 millimeters in diameter and larger. Since most details are distinguishable without magnification, I would call the smallest fossils in this particular range miniature or “mini” fossils rather than microfossils as some have suggested. If mud is completely removed, mini-fossils can be fairly easily identified. In my opinion magnification is needed to distinguish most details of micro fossils.

I find it easier to see fossils in the washed reject material after the material has dried. Smaller fossils best separate from wet aggregate after drying. To further separate the particles, I use a 12" by 18" white plastic screen with 2 millimeter openings. I found this material, which is used for needlework, in a craft supply store. I place the plastic screen over white paper towels (any white surface will do) to enhance the contrast and enable easy location of the more angular fossil teeth from the unwanted gravel. I have found that it is easiest to see the fossils under a good light source and where there is sufficient room between particles to clearly outline each particle in white.

SO WHAT (In other words, why bother?) You can help pioneer the careful study of the mini-fossils of Lee Creek. As paraphrased from *Neogene Fossils of North Carolina*, many of the smaller fossils listed as rare may only be so because one has to be “on your hands and knees with your nose to the ground” to find them and not many folks do that. I propose that such discomfort is not necessary and any discomfort is overcome by self-paced examination of abundant material and the number of mini-fossils in this material. I do not ever remember looking at a cupful of the washed separated reject material without finding at least one easily identifiable fossil fragment or complete fossil. I find that amazing. Careful examination of the reject material for mini-fossils can likely lead to new discoveries or confirmation of previous claims and findings.

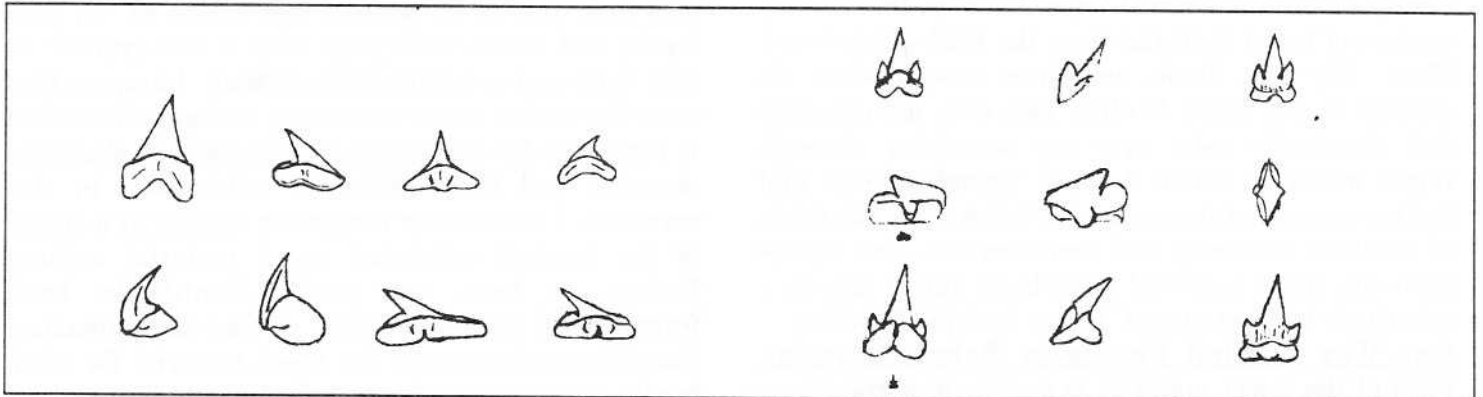
From my experience, the frequency of finding "mini" shark teeth in the reject material is somewhat similar to the findings in *Neogene Fossils of North Carolina*. Differences in prevalence between the mine and the reject material is probably due to the predominance of Pungo River material and limited amounts of Yorktown and James City material. Shark teeth found in the reject material not only include the more common ones listed in this reference: *Carcharhinus* sp., *Galeocerdo contortus*, and *Hemipristis serra*, but also include *Rhincodon* cf. *typus*, *Alopias* sp., and *Squatina* sp.. From my observations the small *Rhizoprionodon* sp. teeth are still scarce at best in the reject material. Large teeth found fairly frequently in the mine are not frequently found in the reject material. This is probably because my sources for the reject material have already been subjected to some surface collecting which removes the obvious fossils. If you are interested in teeth in the range of one inch or so, you can still find them, but they are often flawed to some degree. Interestingly, *Isurus retroflexus* seems to be as prevalent as the other *Isurus* species, at least from my experience. Other more fragile teeth such as the Hexanchidae rarely make it intact in the reject material, although a few of the more robust teeth do, including parasymphyseal teeth. Narrow-toothed lamnids with thin cusplets are generally too fragile and most often are dulled, broken, chipped, or all of the above.

Let me tell you why I am excited about collecting in the reject material. I have fifteen complete *Rhincodon* cf. *typus*, more *Alopias* sp., four *Squatina* sp. (only one complete), and a nonfunctional *Megachasma* cf. *pelagios*. However, most interesting to me are, so far as I know mini-shark teeth definitely from two families and possibly one genus not previously mentioned as found in North Carolina in either *Neogene Fossils of North Carolina* or *Fossil Sharks in the Chesapeake Bay Region*: Scyliorhinidae (catsharks) and Squalidae (dogfish sharks), and

Physogaleus sp. (*secundus*?) (sharp-nosed sharks). It is also possible that the "*Physogaleus* sp." is a posterior tooth from *Negaprion brevirostris* or another species of *Sphyrna* based on a comparison with the dentitions in Appendix B (Figure B-19). It is very difficult to assign species and perhaps even genera from many fossil teeth from the Carcharhinidae. In *Fossil Sharks in the Chesapeake Bay Region*, the Scyliorhinidae, Squalidae, and *Physogaleus* are listed as Pliocene and earlier in the Chesapeake Bay area. There also are smaller lateral and posterior teeth from lamnids and carcharhinids which may not be rare, but certainly are as interesting as their larger anterior and anterior-lateral jaw mates. There are also small symphyseal and medial teeth from *Hemipristis* and other carcharhinids which could easily be overlooked in the mine. Ray crusher teeth (*Myliobatis* sp.) and the smaller teeth from *Raja* sp. are also present. Small osteichthyes (bony fish) teeth are also found in the reject material especially *Pogonias* sp. Dentary crusher teeth and *Thunnus* sp. Teeth (or *Pomatomus* sp.).

Conclusion. This story offers yet another way to enjoy the collection and study of fossil material from the PCS - Lee Creek Mine. I make no claims to originality in my interest in the reject material, most readers likely have collected in this material longer than I have collected anything. After having collected fossils of all kinds in several states with my family, I shall conclude in reinforcing something you already know and understand: fossil collecting is an activity the whole family can participate in, learn from, and enjoy. If by any chance there are any questions, feel free to write or call. In closing, I would like to include a note of thanks to Joy Pierce for her encouragement.

John H. Smith
9816 Oakdale Woods Court, Vienna, VA 22181



Isurus, *Sphyrna* (?), *Squatina*, *Alopias*
Rhincodon, *Rhizoprionodon*

Scyliorhinus (Top and Bottom)
Squalus (Middle)

The following originally appeared in The New Jersey Paleontological Society newsletter *Paleontograph*, Volume 5 Issue 12\95. Tom is its Editor (as well as a member of NCFC and a contributor to *Janus*) and gave us permission to reprint.

PaleoLEGISLATION

Tom Caggiano

Ed. Note: *The opinions expressed in the following article are mine and do not necessarily represent those of NJPS or its board members.*

There is a great debate going on today, and our hobby is at the center of it. Legislation to control the collecting of fossils is due to be introduced in Congress. Many would argue that laws are not needed and many would do the opposite. There are extremists and moderates on each side.

The majority of professional paleontologists would argue for controlling laws. Many have horror stories of blunders made by untrained amateurs or of intentional destruction by greedy and uncaring commercial collectors. They would limit collecting on public lands to professionals only. They say that an important specimen should not be locked up in a private collection away from researchers.

Many other professionals argue for something less strict. They tell of cooperation between pros and amateurs. Either helping out with large digs or donations of important finds. Many amateurs have worked with professionals in both ways. Most find these activities very rewarding. Several we know have even had species named after them. Some pros are calling for certified training programs that would teach basic collecting and conservation techniques. The Denver Museum of Natural History has an extensive program that has met with much success.

Commercial collectors say that they are responsible when dealing with scientifically important specimens. They also point out that many fossils would just be left out to decay if they are not collected. Many museums just do not have the financial strength to collect, prepare and curate the fossils they've found. They argue that fossils are better off in a private collection than wasting away.

Not surprisingly, different opinions divide amateurs as well. We want access to fossils on Federal lands but in varying degrees. Personally, I would not want federal lands thrown completely open to unrestricted collection. I've lost my faith

in the goodness of man. It seems that greed or ignorance are more common today than in years past. I would, however, like to be able to wander onto federal land without fear of arrest. I don't claim to be an expert, but I think I would realize the limits of my abilities and not try to collect an "important" fossil. Speaking of "important", certainly there are some fossils that can be collected without fear that important information will be lost forever. Oligocene White River fauna, for instance, has been collected to the limits. Large collections are all over the place. So why can't an amateur collector pick up an oreodont skull on federal land?

There are fossils that are important. Take SUE for instance. Sue, the most famous fossil of all, well almost. Sue, as you know, started this whole mess or at least brought it to a head. Sue, a *Tyrannosaurus*, the biggest, best *Tyrannosaurus*, was collected by a commercial collector, The Black Hills Institute of Geological Research. Sometime later, a Federal prosecutor, wearing makeup for the TV cameras, raided BHIGR and seized the partially prepared fossil. It was charged that the fossil was taken off of an Indian reservation so it was not collected legally. (I'm sparing you the long version.) Many professionals were afraid Sue would go to the highest bidder. The owners of BHIGR were arrested and hauled into court. They argued that Sue would be the centerpiece of a new museum and not sold off. So, after many months of legal fighting Sue was awarded back to the Native American whose property she was taken from. Sue will most likely be sold to the highest bidder.

Speaking of the highest bidder...The Phillips Auction House of New York City held an auction of Natural History items on December 2nd. Most of the collection was fossils, along with some meteorites, minerals and some primitive peoples artifacts. Among the items listed in the catalog was "The Largest Shark Jaw in the World". 182 teeth in a fiberglass replica jaw priced at about a million bucks. Too pricey? Try the replica Mako Shark jaw at just twenty thousand dollars. Both pieces were supposedly associated teeth. I have my doubts, first because they were collected in a river over the course of a twenty year period and second because of the varying coloration of the teeth. The owner admitted to some non associated teeth under questioning. Fortunately, neither item sold. I say fortunately because, can you imagine how many sites might close if owners heard of these inflated and unrealistic prices. I

had no problem with some of the items in the auction. Sharks' teeth, Oligocene mammal material, Green River fish and other assorted common items. However, the one of a kind Beaked Whale skull should be in a museum, not in someone's house. And I can't help but think that many Chinese sites are being plundered as evidenced by the quantity of fossils from this mostly unexplored area. This is the beginning of a trend. The auction house has already scheduled another auction for June of 1996. There is great interest in fossils and things old and many people are buying all types of collectibles. The auctioneer told me that his clients were uneducated, paleontologically speaking, and had lots of money to spend on things that looked good on display in their homes.

Nobody can deny the contributions of amateurs to paleontology. Many important finds have been made by non professionals and turned over to the pros for study and preparation. If public lands were open to amateurs how many new finds might be made? How many scientifically important fossils will be plundered? If public lands are kept closed, how many new finds will erode into dust? We need to harness the energy and passion of amateurs. We need to educate amateurs and to have professionals work with them, not against them. When I found my associated *Ptychodus* shark tooth set, I brought it to a paleontologist. He's done some work with it, gained some new knowledge and I've donated some of the teeth. I think that's how it should be. If you were at our last meeting you heard Paul Nascimbene talk about his work on Amber and his donations and work with the American Museum Of Natural History. Working together is what must happen, because that's what's best for the fossils. If we respect and trust each other great things can happen.

But what about the commercial collectors? They have a right to make a living too. Surely, one can draw a parallel to the timber or mining industries. Long-standing laws have allowed for commercial interests to operate on public land. How different is digging up a mineral than digging up a fossil? But the fossil is on public land, don't we the people have a right to the scientific knowledge if not the fossil itself? Is it right for a unique fossil to be shipped overseas to a country with a lot of money to spend on our fossil treasures. Many of the most spectacular fossils on display in museums have been collected by commercial collectors and purchased by museums.

Many museums don't have the financial backing to excavate large fossils, should they be left to erode? The proposed Fossil Protection Act would call for "important" fossils to be given to a museum. Who decides what's important? How do we police it? Does anyone have the answers to all of these questions?

There is also the problem of abuse: Rape of the land, theft and wanton destruction due to greed and ignorance. John Alexander of The American Museum of Natural History in New York tells a few horror stories. The fireplace made of oreodont skulls or the house trailer decorated with fossil turtles are just a couple of examples. The guy out west who wanders around and smashes open fossil turtles just to see if he can find a skull, or the ass who chiseled the shiny teeth out of a beautifully preserved *Coryphodon* skull and left the rest, are two much more disturbing examples of what goes on. Certainly, these kinds of things make a case for the closure of public lands to collecting. Abuses such as these must be stopped. Maybe they can be if we work together, we can educate the ignorant and police the criminals.

The Fossil Protection Act of 1995 is still in its formative stages. The latest version allows unrestricted reconnaissance collection using hand tools. It allows for a permit system to allow for large quarrying operations. It states that scientifically unique specimens must be given to an approved institution. A fossil council will determine what constitutes a unique fossil. The council will be made up of representatives from the professional, commercial and amateur sectors. Do we really need to legislate an answer to this problem?

Only time will tell what the outcome of the legislation will be. My guess is that there will be some abuses but with time things will work out. Jim Martin, of the South Dakota School of Mines said it best, "The important thing is that we must all remember that it's the fossils that count." We must all do our best to safeguard fossils and the information they can provide into the future.

★☆☆☆☆☆☆

The following is another well-written and interesting article which first appeared in *NJPS Paleontograph*. It is reprinted with the permission of its author.

ANOTHER NJPS HOLIDAY

Jim Bourdon

For two years in a row now, Thanksgiving and Memorial Day have meant just one thing -- how to explain to my spouse that a North Carolina quarry

means more than an extended weekend with the family. (I gotta go now honey, they are threatening to close the mine.) One would almost think that our club's field trip chairman didn't have a family to be concerned about! At least we could take comfort that the Memorial Day trip coincides with the Aurora Fossil Fair, but we could anticipate the hottest visit of the spring and coldest of the fall. All bitchin' aside, WE GOT IN!

Not Just Another Birthday

I can remember back to the first class of high school statistics at Mount St. Michael when the brother opened it by asking each student his birthday. True to his prediction, in a group of thirty students, two shared the same date. At my corporate office we have twenty or so employees, and I share April 7th with another. So, I shouldn't have been surprised when Eric Thompsen expressed his hopes for a paleoBirthday present and Arline Reimann seconded that motion. The fossil gods granted Arline superb mako and tiger shark teeth, and invertebrates to drive molluscophiles, such as the Reimanns, wild. But the force was with Eric.

For those who haven't made it to Aurora, Eric and Melissa are a PaleoTag-Team (NJPS members from Virginia), and well versed in the art of working that mine, their objective – get Eric his gift. Cutting to the proverbial chase, the rain was enhancing color, reddish otoliths were standing out, and collecting them on hands and knees, Eric found a Cookie Cutter.

One Nasty Piranha

I don't know the psychological origin of the image, but when the word Piranha is used, I get this mental picture of a mammal crossing an Amazonian stream and getting devoured, agonizingly, bite by bite, by a gang of hostile sunfish. (Those staked to anthills in western movies seemed to elicit an equally unpleasant memory.) Well, the Cookie Cutter shark should fair equally in our dreams. Luminescing in deep oceanic waters, this small shark (they run up to 20 inches, refer to figure 9) attracts the curiosity of predators then turns the tables. It is thought to attach itself in lamprey-fashion, sinking its blade-like teeth into the host's body, then rotate its own body to remove a plug of flesh. To a whale shark, this might only be an epipelagic black fly, but this is one fish I could do without.

From a fossil standpoint it's another matter. Very few of these teeth have been recovered from the mine and Eric's find can be a 'season-maker'. The accompanying drawings (fig. 10-12) are based

on a verbal description provided by Eric. Each cutting edge has over 40 fine serrations and the beveled edges of these interlocking teeth are clearly visible. Melissa was out to prove that she could provide that PaleoGift and, under normal circumstances, did just that. Not only did she find a large croc tooth, but a bird toe bone that measured over 2½ inches. They do make a good team.

Reasons To Be Prescient

I'm sure it's just my imagination running wild, but NJPS presidents seem to do particularly well in the field – who can forget Wolfgang's *Aturia*? Howie seems to be following in those footsteps. Last year he was uncovering late Cretaceous mammals for the South Dakota School of Mines, and this year, he started treating himself. That perfect, five-inch, *Carcharodon megalodon* was followed by a *Notorhynchus* symphseal (fig. 1-4) and this trip, a four-inch walrus tooth (fig. 19), probably in the spirit of the recent rebirth in Beatlemania. Those unsure of offering their personal life to the club for a year or so should consider this apparent side benefit of elected office.

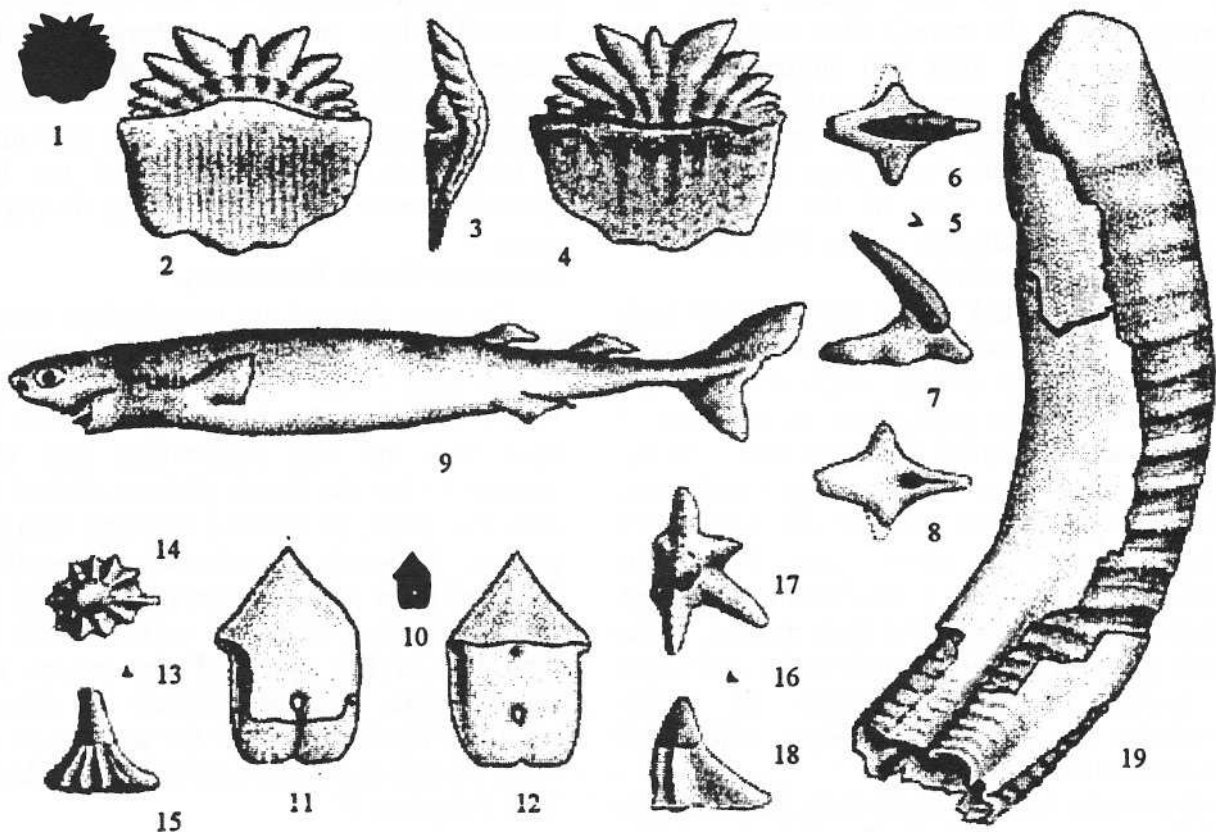
The Trip Itself

This wasn't the most pleasant of Aurora collecting opportunities. Traveling out on the bus, I sat next to a gal who had come in with an Ann Arbor club. She assured me that after traveling 1400 miles, none of them would be on the early bus. She, and others were not on the 3:00 bus. With winds blowing off the Atlantic, temperatures in the 40's or low 50's and rain, the morning was less than hospitable. The rain abated by 11:00 and, within an hour, the sun appeared – just in time; I for one was starting to get cold, particularly during periods of slow collecting.

While Howie worked a nearby Yorktown hill, I directed my efforts to the Pungo River exposure that's held my attention all season. Other than some bird bones, the surface produced few interesting items. Fortunately, the 30 or so pounds of sand I lugged out proved more bountiful. Many of the shark, skate and ray teeth I'd been finding at the Blount Crossroads DPW site were now refound *in situ* (so-to-speak). Many more examples of the ray tooth illustrated in November's PALEONTOGRAPH were also found.

Dermal Denticles

Placoid scales is the term applied to the scales found only on sharks and rays. These scales have evolved to take on differing designs and functions, the teeth being the most commonly collected. Other specialized forms include spines, stomodeal



1-4. cf *Notorynchius* sp. lower symphyseal [Howie Cohn] 1. actual size silhouette; 2-4. (2.5 X enlargement) labial (right), distal, and lingual views. 5-8. ?Denticle [95-JAB-TGA-780-S01]. 5. actual size silhouette; 6-8. (10.0 X) occlusal (top), side, and basal views. 9. *Isistius*, extant Cookie Cutter shark [adopted from Compagno]. 10-12. *Isistius* sp. lower tooth [Eric Thompsen, illustration based on verbal description]. 10. actual size; 11-12. (3.7 X) labial (left) and lingual views. 13-15. Dermal denticle, ?Bramble shark [95-JAB-TGA-778-S01]. 13. actual size; 14, 15. (10.0 X) occlusal (top) and side views. 16-18. Dermal denticle, [95-JAB-TGA-778-S02]. 16. actual size; 17, 18. (10.0 X) occlusal (top) and side views. 19. Walrus tooth [Howie Cohn], actual size. -- All illustrations by author.

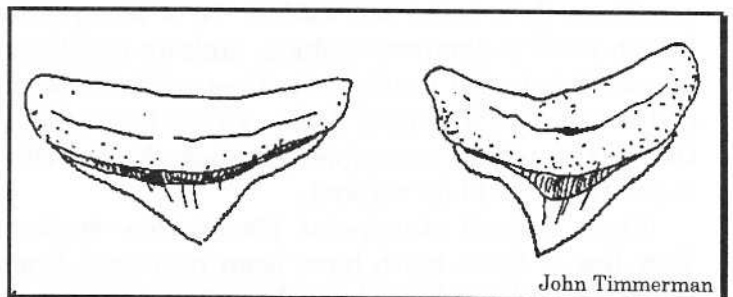
denticles (inside the mouth and on the gill arches), and dermal denticles.

The shark's skin is covered with placoid scales, but their small size (< 1 mm) precludes most collectors from encountering them. Although they are dermal denticles, this term seems to be more commonly applied to the enlarged, sometimes thorn-like scales found on skates, rays and certain sharks.

Working the Pungo River sand, I occasionally come across interesting examples, including those illustrated above (figures 5-8 and 13-18) from this last trip. The second one looks very similar to descriptions I've seen for a bramble shark, and I'm yet uncertain as to the true nature of the first. In the future, I hope to employ finer screens which should improve the odds of finding these denticles.

It's A Wrap

The second bus had many smiling faces. John Everett was showing off his double header (*C. megalodon* and *P. benedeni*), others whale and large mako teeth and some, beautiful gastropods. The bus needed a push start, but we were on our way. Becky pointed out the mine's resident Bald Eagle, then it was the parking lot and the road home. We must now await the spring.



John Timmerman

North Carolina Fossil Club, Inc. (Founded 1977)

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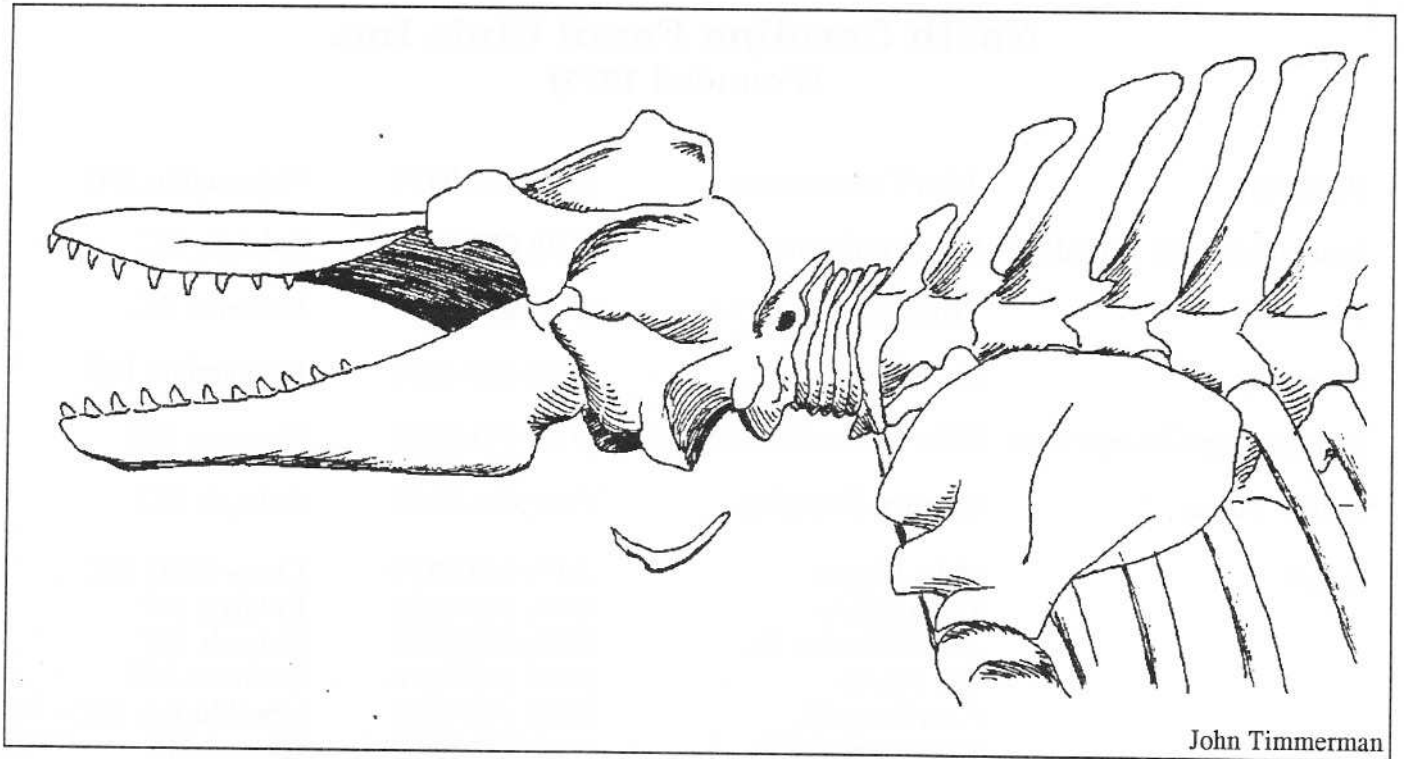
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Children of NCFC members who are dependent minors and living at home may accompany parents on any trip EXCEPT Texasgulf or where otherwise noted. Only 15 positions on the Texasgulf trip are available to members who reside outside of North Carolina.

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.

MAIL TO: NC FOSSIL CLUB, P.O. BOX 2777, DURHAM, NC 27715



Killer Whale *Orcinus orca* - Modern (Fossil Similar)

North Carolina Fossil Club
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