



janus

THE
NEWSLETTER
OF THE
NORTH CAROLINA
FOSSIL
CLUB

NUMBER 19

JULY 1985

FALL SCHEDULE

August 11	Sanford trip	October 26	Texasgulf, Aurora
September 14	Texasgulf, Aurora		Annual Meeting
September 21	Fussell's, Rose Hill	November 2	Castle Hayne
October 5	Blacksburg trip	November 16	Texasgulf, Aurora
October 11	Smithsonian trip	December 7	Texasgulf, Aurora

Tom and Pam Burns will be the trip leaders on Sunday, August 11, for a collecting trip in the Sanford area, where plants and phytosaur teeth and the like can be found. The trip is limited, however, to 5 people. To make reservations or for more information call Tom or Pam at 776-8080.

Bill Anderson will be the trip leader on Saturday, October 5, for a trip to the Blacksburg, Va., area for collecting trilobites and plant fossils. This trip is also limited to 5 people (these trips must be small due to restricted collecting areas). Call Bill at home at 471-6046 or at work at 248-4114 for details and reservations.

For the other trips we will meet at the site at 9:00 am on the day of the trip; please be on time! Sturdy shoes are recommended, and at Fussell's and Castle Hayne hard-hats will be required. In addition, Texasgulf will not allow anyone under the age of 18 into their mine. Also, at TG, we will leave our cars in the parking lot and ride into the mine on a bus. We must go in on the bus and come out on the bus, which only makes one run each way, so remember to take a lunch or snack and something to drink. Also remember that there are limited restroom facilities at the gate and none in the quarry.

Guests are not permitted on the Texasgulf trips; NCFC members may bring a guest to other trips.

CAN'T STAY ALL DAY? CHECK OUT THESE TRIPS:

For NCFC members who complain about not being able to leave TG until afternoon, who can't hunt all day due to health or schedule or whatever reason, we have scheduled 2 TG trips to exit early. On Oct. 26 we will leave the pit at 1:00 for our annual meeting, and on Dec. 7 we will get out at 2:00. Also remember that at Fussell's and Castle Hayne you can leave whenever you want.

INVITATION TO SMITHSONIAN EXHIBIT OPENING

On Friday, October 11, the National Museum of Natural History at the Smithsonian Institution will officially open an exhibit featuring fossil shark teeth, Carcharodon megalodon (mounted in a huge shark's jaw), donated by our own Pete Harmatuk. NCFC members and their families are invited to the opening. We have scheduled our club's Smithsonian trip for the same day so we can enjoy a double treat.

As part of our Smithsonian trip we will take a behind-the-scenes tour of the paleobiology section, and will hear presentations by some of the professional paleontologists on the staff.

In the past it has proven most feasible to allow you to make your own arrangements for travel and lodging; we will all then meet at the museum much as we do on field trips. By scheduling our trip on a Friday we will be at the museum when the staff is available, and also you will have the rest of the weekend to explore Washington. We will be happy to mail you a "Guide to the Nation's Capital and the Smithsonian Institution" if you would like something to help you plan your trip; call Carolynne Hertenstein at 469-3299 or Judy Schneider at 851-6726.

ANNUAL MEETING AND ELECTIONS

On Oct. 26 we will leave the pit at TG at 1:00 and go down the road to TG's recreational facility for our annual meeting. We will provide lunch and drinks (menu to be announced, probably a pig pickin' or fish fry) and we'll conduct a little club business. The main order of business will be to elect a president and 4 board members. The following members have agreed to have their names placed in nomination for the positions on the board:

Tom Burns	John Steffensen
Randy Scott	Norman Melton
Pam Burns	Elizabeth Gervais
Tom Clark	Mike McGinnis
Garland Daniel	

Judy Schneider will run for a second term as president. Other nominations for any position will be accepted from the floor during the meeting.

There will also be books on display and for sale that should be of interest to club members.

Smithsonian Year 1984 has been published; the following NCFC members are recognized:

Burns, Mr., & Mrs. Thomas:	3 fossil seal bones.
Harmatuk, Peter J.:	3,931 fossil vertebrates.
Hyne, Mr. & Mrs. Frank:	1,289 fossil vertebrates.
Nunnally, Douglas:	1 fossil seal astragalus.
Schneider, Mr. & Mrs. Vincent:	8,874 fossil vertebrates.
Scott, Randy:	4 fossil seal portions; 2 teeth.

Many other members have made significant contributions and will probably be in next year's edition.

North Carolina mine yields encyclopedia of faunal history

By Thomas Harney
National Museum of Natural History

Every day, the huge dragline machine at the Lee Creek, N.C., phosphate mine scrapes up 100-ton bucketloads of sand, clay, shells and limestone from the earth and casts the material aside into piles of spoil. To the phosphate mining company, the spoil is merely an obstacle that must be removed to reach the deeper phosphate ore. But to Smithsonian fossil hunters, it is a gold mine.

Paleontology

Preserved in the spoil piles are the fossilized bones of marine vertebrate animals that lived millions of years ago when the ocean covered much of the mid-Atlantic Coastal Plain. During the past 18 years, Smithsonian scientists and collectors have established the Lee Creek site as one of the richest known fossil deposits in the world.

To date the mine, which is situated on the south bank of the Pamlico River near Aurora, N.C., has yielded one of the largest assemblages of fossil sea birds in the world, a superb collection of true seals, as well as an abundance of new and different species of whales and remarkable groups of sharks and bony fish extensive enough to be considered the essential reference for reconstructing the history and development of the modern Western Atlantic fish fauna.

The first of three large volumes of research papers on the Lee Creek site was recently published by the Smithsonian Institution Press, *Geology and Paleontology of the Lee Creek Mine, North Carolina, I* (Smithsonian Contributions to Paleobiology, Number 53) is edited by Dr. Clayton E. Ray, a vertebrate paleobiologist at the National Museum of Natural History. The book contains 14 papers on Lee Creek geology and paleontology and a biography written by U.S. Geological Survey paleobiologist Dr. Frank C. Whitmore Jr. on the late Dr. Remington Kellogg, a marine mammal authority and former director of the Smithsonian's U.S. National Museum, to whom the three volumes will be dedicated.

It was Kellogg who initiated Smithsonian studies at Lee Creek in 1967 after receiving a small collection of fossils from Jack E. McClellan, an engineer working for the Texasgulf Co., operators of the Lee Creek Mine. These were the most marine mammal fossils that Kellogg, in more than 40 years of research on the marine mammals of the Atlantic Coastal Plain, had ever seen from North Carolina's Pliocene Yorktown Formation.

Though natural exposure has provided a superabundance of invertebrate fossils and occasional whale skeletons in North Carolina and Virginia since early Colonial times, Lee Creek was the first place where scientists could learn so much about deposits in North Carolina's critically important Pliocene and Miocene formations.

After Lee Creek opened, Kellogg asked colleagues to study and collect the mine material, and the Smithsonian's Ray was among the scientists who visited the site. After two days of collecting a variety of new and unusual seal fossils, Ray was convinced that the mine offered unprecedented potential for scientific discovery.

The site provides scientists access to layers of fossil deposits more than 120 feet thick—an extraordinary phenomenon on the Coastal Plain. The top level, 5 to 15 feet deep, consists of one or more Pleistocene formations, deposited as far back as 1.5 million years ago. This level overlies the 50-foot-thick Pliocene Yorktown Formation, laid down some 3.5 million years ago. Most of Lee Creek's vertebrate and invertebrate fossils have been recovered by prospecting the spoil piles taken from lower beds of the Yorktown Formation. That layer is exposed in other quarries in eastern North Carolina and southeastern Virginia, but these exposures are far less extensive and are not continuously productive.

Beneath the Yorktown Formation is the Miocene Pungo River Formation, some 12 million years old and older and about 50 feet thick. It is in the upper layers of this formation that a 40-foot-thick stratum of phos-



Preparator Gladwin Sullivan dusts the collapsed carapace dome of a land tortoise fossil that could be as old as 4.5 million years. The rare specimen was found, encased in siltstone, at the Lee Creek Mine. Vertebrate paleobiologist Clayton Ray (center) discusses the specimen with his colleague, turtle expert George Zug. (Photo by Vic Krantz)

phate ore is exposed. The Lee Creek Mine marks the only exposure of the Pungo River Formation.

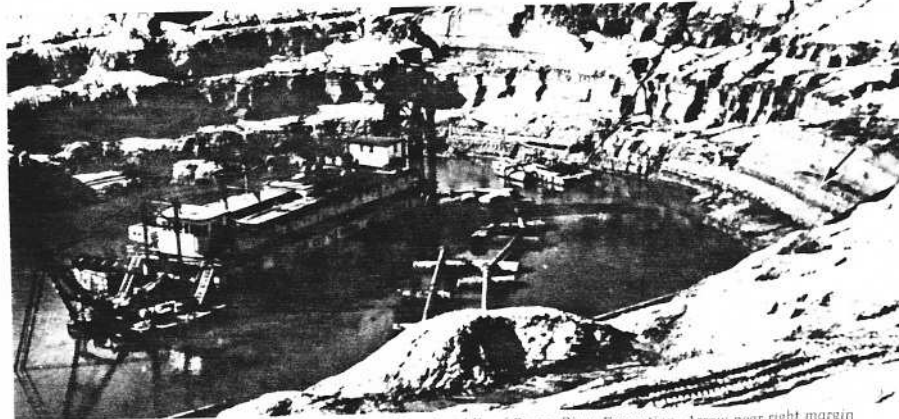
Over the last 18 years, Ray has made more than 50 fossil prospecting visits to Lee Creek, often with groups of colleagues from the Smithsonian and the U.S. Geological Survey. Among them were Thomas Gibson, who published the basic paper on the geology of the mine in 1967, Blake Blackwelder, Joseph Hazel, Porter Kier, Lauck Ward, Alexander Wetmore, Frank Whitmore and Druid Wilson. Many of these scientists are authors of research papers in the initial Lee Creek volume. Other colleagues joined these Washington, D.C., scientists from as far away as England, Romania and Japan.

Although no small amount of the material collected at Lee Creek was gathered by scientists, the site's single most important and productive collector for the Smithsonian over the past 18 years has been the avid amateur, Peter J. Harmatuk. Virtually every weekend and day off, Harmatuk drives the 30 miles from his home in Bridgeton, N.C., to the Lee Creek Mine. There he spends countless hours roaming the piles of recently excavated dirt, looking for fossils. In 1975, Harmatuk retired early from his successful career as a factory manager so that he

could pursue paleontological fieldwork for the Smithsonian more intensively. "He has collected more Atlantic Coastal Plain vertebrate fossils for science than any other person, discovering specimens unprecedented in kind, quantity or quality," Ray says. "If anyone ever needed a reminder that paleontology traditionally has been and remains largely a field science, the enjoyment and advancement of which is open to every man to the extent of his ability, effort and interest, Peter Harmatuk provides irrefutable proof."

When Ray and his colleagues travel to Lee Creek, they rendezvous at the mine with Harmatuk and other amateur collectors from the area, including Texasgulf employees, members of the North Carolina fossil club and interested instructors and students.

"The continuing addition of specimens to the national collection from non-Smithsonian sources resulting from contacts established on these trips has been responsible, far more than our own collecting, for turning the initial trickle of fossils from Lee Creek into a torrent and making our collection of Yorktown Formation material into one of the world's largest and best collections of vertebrate faunal samples," Ray says. ■



Test pit at Texasgulf Inc., Lee Creek Mine. Water level is at middle of Pungo River Formation. Arrow near right margin indicates contact between Pungo River and Yorktown formations.

N.C. STATE MUSEUM OF NATURAL HISTORY NEWS

The Museum would like to express its appreciation for the help extended by Tom Burns and Jim Knowles in the moving of the Paleo collection into the old Health Building. Also, we would like to thank the club for the donation of \$200.00. This money has so far been used to purchase 2 steel cabinets, 1 twenty-drawer card file, 3 chairs (we only had one), acetone, and foam for the lining of specimen boxes. With the new location of the paleo collection and the funds from the fossil club, substantial progress is finally being made in the condition of the collection so that it can be upgraded into a research collection.

REPORT ON FUSSELL'S QUARRY TRIP

The NCFC trip to Fussell's quarry on March 23 was a successful trip for the hobbyist. Mr. Fussell, who owns the limestone quarry, encouraged a group of 15 members to search to their hearts' delight.

Tom Burns was designated as the trip leader for the group. Kathy Hill of Sunset Beach, N.C., and Tom and Margaret Hutzler of Carolina Beach, N.C., were on their first trip as new members of the club.

There were some good finds for the day. J. Michael Allen of Ramseur, N.C., found a large mosasaur tooth. Kathy Hill found a large crocodillia scute. Al Robb of Fort Bragg, N.C., found a front horse tooth. Almost everyone found some beautiful echinoids and shark's teeth.

Fussell's Quarry is located in Rose Hill, N.C. The formation is Pee Dee (Cretaceous) and Trent (Eocene), with some Pleistocene material on top. The Pee Dee Formation is approximately 60 million years old. Mr. Fussell has a collection in his office showing what has been found in his quarry. All in all, it was a good trip for everyone.

Name: _____

Address: _____

City, State, Zip: _____ Phone: _____

Type of membership(s): Individual (new)	\$10.00	_____
Individual (renewal)	5.00	_____
Spouse	2.50	_____
Junior	1.50	_____

Signature: _____ Date _____

Mail to: North Carolina Fossil Club, Inc.
P.O. Box 92
Cary, North Carolina 27511

PLEASE! Memberships cannot be accepted at the site on the day of a trip.
A \$2.00 penalty will be added to dues for anyone breaking this rule.