



# The Ecphora

QUARTERLY NEWSLETTER OF THE CALVERT MARINE MUSEUM FOSSIL CLUB

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White no 6

Editor: Sandy Roberts

## CORE DRILLING AT THE CALVERT MARINE MUSEUM

A United States Geological Survey crew, led by Dr. Thomas Gibson, will be drilling an earthen core on the Museum grounds starting between October 5 and October 8. The operation will continue for two to three weeks. The intention is to obtain a continuous sample of deposits from the surface to Cretaceous sediments, about 1,000 feet down. The Museum will receive portions of the core for possible future exhibition. Fossil Club members are invited and encouraged to come and view the drilling process. You may wish to call the Museum before you visit to confirm drilling progress.

## CLUB ACTIVITIES

### North Beach Bay Festival

On August 23, the CMM Fossil Club participated for the third year in the annual North Beach Bay Festival. Dave Bohaska, Sandy Roberts, George Fonger, Mike Ellwood, Donna Richardson and Wally and Betty Ashby took turns manning the Fossil Club display table. Because their town is located atop the Miocene beds of Calvert Cliffs, local residents were especially interested in the interpretive displays. In fact, several large personal fossil collections were donated to the Calvert Marine Museum. After the festival, several members of the Club made an abortive visit to Brownie's Beach, but were "woe betided" (See "Sniglets") and decided to return to Solomons for the CMM membership picnic.

### Field Trip to Scientists' Cliffs and Matoaka Cottages

On September 6, Bob Novotny, Sam and Nancy Shafer, Donna Richardson, Kathy, Mike and "General" Ellwood, Mark, Judy, Joel, Mabel and Wayne Rives, Betty and Wally Ashby, Sandy Roberts and the Gorskis, all the way from Lumberport, West Virginia, braved a torrential downpour to visit the Calvert formation at Scientists' Cliffs. Fortunately, the rain stopped, the sun came out and the group spent a busy morning collecting shark and crocodile teeth, sand dollars, porpoise vertebrae and some interesting fish material (probably tuna). After a brief stop at Sandy Roberts' Scientists' Cliffs home for "show and tell" and a bite to eat, everyone continued on to Connie and Larry Smith's Matoaka Cottages in St. Leonard. The Choptank formation there yielded some turtle carapace, shark teeth and numerous fossil mollusks.

# ARNOLDS GO WEST - SEE ROCKIES, NAT'L PARKS, CANYONS - COLLECT GREEN RIVER FISH, TRILOBITES

Linda had always wanted to see the Grand Canyon. On one of those dreary, grey winter days, she said, "I guess we'll never get out there, but I'd really like to go." Those were 'fightin' words. Having never been west either, I was determined she would not be disappointed. We were going west, or my name wasn't Tom Arnold. So, after much planning, long hours looking at AAA maps and guidebooks, and detailed directions to fossil sites from my friend Sheldon Spencer, we set off at 3:00 a.m. on the 28th of May. The group consisted of Tom, Linda and Erich Arnold, and Lloyd and Lorraine Swartz (Linda's parents). By the 30th, we were in Denver, Colorado, poised at the foot of the Rockies. Up and over we went, via Rt. 70, and on to Grand Junction, Co. From there, we headed south, down Rt. 50, to Rt. 550 through Silverton to Durango. On the way, we stopped in Delta, Colorado, and met Valerie Jones, the woman who, with her husband, found the Dry Mesa fossil site (where Jim Jensen uncovered the 'Supersaurus'). She was most hospitable to a carload of strangers, and took us on a tour of her fossil collection. Dinosaur bones! A beautiful *Allosaurus* skull! What a collection. From there, we went to Cortez, and



Lloyd, Linda, Erich & Lorraine at Mesa Verde

on to Mesa Verde. We spent half a day climbing around the Indian ruins, and by evening, we were at the Grand Canyon! The next day (June 1), we spent the morning and part of the afternoon hiking, taking photos and exploring. Dad and I hiked part of the way down the mule trail, and then hiked back up! Then, off we went, through the Painted Desert, and on to the North Rim of the Grand Canyon. We watched the sun go down over the canyon, and then we headed towards Zion Nat'l Park. We saw Zion in the morning, and Bryce Canyon in the afternoon. What colors! What rock formations! I felt like I was taking a course in Geology and Erosion. From Bryce, we proceeded northwest to Delta, Utah. The next day, Linda, Erich and I drove out into the desert to Antelope Springs, where we sought the illusive trilobites. Erich found the first nice one, and, altogether, we collected about twenty in two hours (mostly *Eirathia*, with some *Agnostids*). From there, we were off to Dinosaur Nat'l Monument. We stayed at the Dinosaur Inn, in Vernal, Utah, and visited the Utah Field Museum of Natural History (right next door!). They have a fine collection of vertebrate and invertebrate fossils from the area, as well as a collection of unidentified shark teeth from Calvert Cliffs! Well, I just couldn't let them



*Tyrannosaurus rex* showing his pearly whites

teeth, so I made a diagram with the proper generic names, and left it in the hands of one of their capable paleontologists, who was quite happy to get the i.d.'s. From the museum, we went directly to the "Wall of Bones", which was about a fifteen minute drive from Vernal. It was worth the trip (from PAI) to see where the Carnegie Museum got their tremendous Jurassic collection. It was around noon when we left the Park, and we proceeded north to Wyoming, and our last scheduled stop - the Green River Fish Fossil Quarries! By 5:00, we were in Kemmerer. There are three places to get fossils in Kemmerer. James and Karen Tynsky are strictly dealers - we went to see them that evening, and bought a few specimens. They're real

nice folks, and were happy to show us both their personal collection and their specimens which were for sale. Later that evening, we visited the studio/gallery of Carl Ulrich. He had specimens available for sale, as well as a quarry where he would take you to collect for a fee. Mr. Ulrich is quite an artist. His prepared specimens are all over the U.S.A., and all over the world. (The ten-foot Green River Palm Frond at the Smithsonian was collected and prepared by Carl Ulrich.) He and his wife are quite hospitable, and we stayed about two hours. I purchased an unprepared specimen, and arranged to return to collect at his quarry. The next day (Saturday, June 7)



Erich wields the prybar at Warfield Springs

Erich, Linda and I went to the Warfield Springs Split Fish Quarry. We spent most of the day there, until we were just too tired to go on! In a split fish quarry, you pry out a slab of limestone, and split it with hammer and chisel in the hopes of exposing a fossil fish. It's hard work, but the fish were plentiful (mostly *Knightia*, and some *Diplomystus* - both extinct herring, found complete - partial specimens of *Mioplosus*, [a perch] *Rhareodus* & *Priscacara* with isolated scales and bones from *Amia* [Bowfin] and *Lepisosteus* [Gar]). I still have not got a count of the complete fish we collected. I just haven't had the time to go through all the material we brought back!



The fossiliferous pavement at Ulrich's Quarry

The next morning, Linda, Erich and I went out to Ulrich's quarry. It was quite different from the Split Fish Quarry. At Ulrich's, the fish were in thin, laminated layers of limestone. They were not exposed by splitting, but as bumps (the vertebrae) beneath a thin layer of limestone. You then slowly and patiently expose the fish below by painstakingly scratching away the matrix above the fish. By the time you are finished, you have an incredibly detailed specimen. (With the split fish, you usually don't get a perfect positive and negative image. Usually, part of the skeleton is on one side, and part is on the other side!) We spent several hours with Carl Ulrich and collected a couple of nice specimens - a complete *Priscacara* & a relatively small (7 inch) *Diplomystus*. There was also a large *Diplomystus* exposed at the site, and, since it had a broken tail, he gave it to us! I'm still working on that specimen, having put in about 48 hrs. of scratching so far!

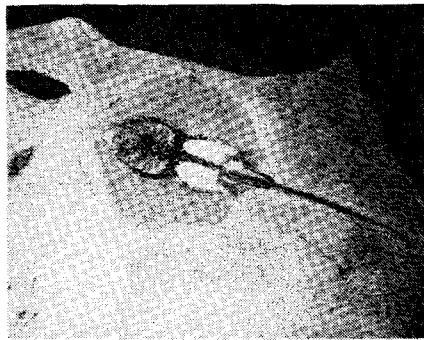


Tom & Erich hard at work at Warfield Springs

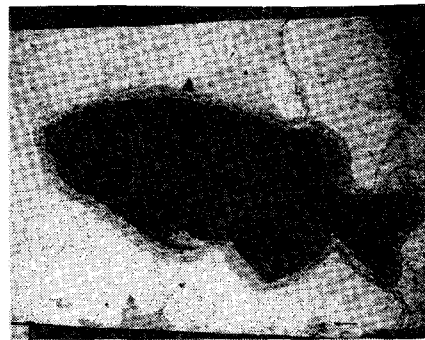
Linda & Erich found a large crocodilian coprolite. We also collected some fossil leaves and a fossil Bibionid fly (*Plecia sp.*). After leaving Ulrich's quarry, we packed up our finds, and were off again - across Wyoming, Nebraska, Iowa, Illinois, Ohio, and, finally,



Tom with Carl Ulrich



Heliopsis - a Fresh-water Stingray at Tynsky's



A large Phareodus (30 inches) at Tynsky's

back to good old Pennsylvania. We traveled 6,050 miles in 13 days, and had only three mechanical breakdowns! Luckily, they all occurred at places where help was readily available! We saw all sorts of wildlife on our trip, and we even saw some animals! A moose, mule deer, more antelope than I knew existed, a ring-tailed cat, various species of lizard, a whip-snake, a garter snake, some toads, and numerous types of birds including a golden eagle! Erich was disappointed that we didn't see any scorpions, rattlesnakes or tarantulas, but no one else was disappointed by that! I hope to have some real nice fish ready for show and tell at next year's wine and cheese. Hopefully, in a couple years, we'll take the northern route - Yellowstone, the Tetons, Mount Rushmore! For now, at least, it's good to be home.

NOTE: Specimens are available through the mail from all 3 quarries/dealers we visited. They would be glad to hear from you, and their addresses/phone numbers are:

Tynsky's Fossil Shop  
James & Karen Tynsky  
201 Beryl Street  
Kemmerer, Wyoming 83101  
(307) 877-6885

Ulrich's Fossil Fish Gallery and Preparatory  
Fossil Station  
Kemmerer, Wyoming 83101  
(307) 877-6466

Warfield Fossil Studio and Preparatory Shop  
Box 316  
Thayne, Wyoming 83127  
(307) 883-2445

*The Warfield Shop is quite a distance from Kemmerer, but the quarry is about 7 miles south of town on HWY 189. Contact them for a detailed flyer and map.*

## FOSSIL FINDS

In recent months, Club members have unearthed some rare and interesting finds.

In May, while attending a Club meeting at Matoaka Cottages, Robert Wiest found a short section of the rostrum of a beaked whale. It is the first beaked whale (Ziphiid) identified from the Maryland Miocene.

Connie Smith, while walking the beach near Matoaka Cottages, found the fossilized femur of a large seal (Prophoca). It is the second specimen of Prophoca found in North America. Originally discovered in Europe, the first American specimen was found at Calvert Cliffs near Kenwood Beach.

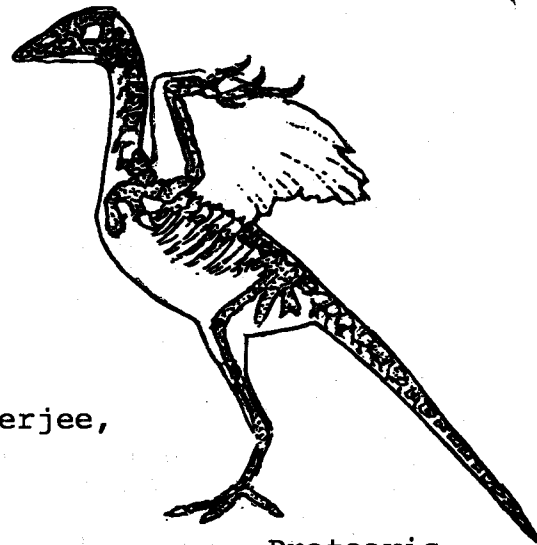
Timothy Brown, Sr., found a coprolite containing the impression of a bird's feather. This was the second of such feather impressions discovered at Calvert Cliffs. The first, now on display at CMM, was contained in a crocodile coprolite.

Pine cones were discovered by Everett Wilcox and Sandy Roberts in Unit 14 of the Calvert formation at Scientists' Cliffs. The cones are being studied by Dixie Stark (See Schedule of Coming Events).

## OF INTEREST

Protoavis Discovered

Fossil bones found in 225 million year old mudstone near Post, Texas, have turned out to be those of two crow-sized birds that lived 75 million years before Archaeopteryx, which, since its discovery in Bavaria in 1861, has been considered to be the earliest fossil bird. Texas Tech University paleontologist, Sankar Chatterjee, leader of the discovery team, has named the bird Protoavis (first bird). Protoavis appeared to be a bridge between dinosaur and bird. It had the heavy hind legs, bony tail and the pelvis of a dinosaur and the wishbone, keel, hollow bones and long forearms of a bird. The skull was particularly bird-like with large eye openings and a well developed hearing structure, which most dinosaurs, being mute, would not have possessed.

ProtoavisMingotherium holtae Found in South Carolina

Dr. Robert Schoch of Boston University reports that amateur fossil collectors picking through an excavation site near St. Stephens, S.C., have unearthed evidence of the oldest mammals yet found on the East Coast of the United States. Five teeth and a fragment of skull were discovered in 60 million year old Paleocene sediments. One of the larger teeth appears to have come from a previously unknown dog-sized animal. Dr. Schoch has named it Mingotherium holtae after the Black Mingo fossil formation in which it was found.

"The Earliest Traces of Life"

The oldest fossils known to man are now on display at the Smithsonian Institution's National Museum of Natural History. The exhibit, called "The Earliest Traces of Life", is thought to be the best Precambrian collection in the world. Although a 3.5 billion year old stromatolite is the spotlighted center of attraction, the exhibit includes other fossils representing the evolutionary transition from one-celled to multi-celled life forms. Of particular interest are the fossilized remains of bizarre, soft bodied, shell-less creatures that dominated the oceans of the Ediacaran era, some 570 million to 670 million years ago.

The fossils, which have never before been shown to the public in the United States, are well worth a visit. The exhibit may be found in the museum's newest exhibition hall, on the first floor, next to the dinosaurs.

## "SNIGLETS"

by Donna Richardson

Perhaps you have seen "Sniglets" either on HBO's "Not Necessarily the News" or in best selling book form. They are words coined to describe things or circumstances that have no name, but certainly deserve one. All CMM Fossil Club members have encountered "Sniglets" while in the field.

Carchaggrieved, v. p. p. A condition arising when the person five feet behind you on a fossil beach spots the 2 inch tooth that you have just stepped over. To Carchaggrieve, v. t.

Viewrosion, n. The way a beach changes so drastically in a few weeks or months, giving you the feeling that you have never seen it before.

Harmatracking, n. The ability to spot (especially at Lee Creek) the trail of an expert collector and to follow it to his prime fossil site.

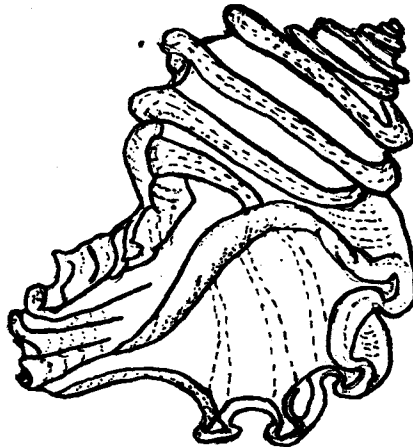
Megalodonor, n. Obviously, one who gives handfuls of 5 inch teeth to the Smithsonian Institution.

Woe Betided, v. p. p. An unfortunate condition arising from a failure to check tide charts before going to fossil beach.

Elusodents, n. p. The teeth you spot just as the next wave washes them back out to sea.

Vertebigot, n. A fossil hunter who disdains all but the prime vertebrate specimen (like a certain CMM member who, being shown a huge Conus at Lee Creek, niffed, "It's only a mollusk!").

Whatsophobia, n. A painful condition afflicting paleontologists (and museum docents) from being asked, much more than once too often, "Whatsis?".



## FALL SCHEDULE OF COMING EVENTS

- October 11-12, Saturday and Sunday: 10:00 a.m. - 5:00 p.m. Patuxent River Appreciation Days (PRAD). The Fossil Club exhibit will be set up on the CMM grounds. We will have fossil preparation and identification, fossil give-aways and buckets of Miocene gravel so that budding paleontologists may "search and find" their own shark teeth. We need volunteers to help man our tables. If you have no time to volunteer, try to visit PRAD anyway, if just for a short time.
- October 18, Saturday: 7:30 p.m. Calvert Marine Museum. The Investigation of Fossil Pinaceous Cones from the Chesapeake Bay Region. Dixie Stark, University of Montana's Department of Botany, will discuss how fossil cones should be preserved and prepared for study after they are collected. She will also talk about the results of her research. Ms. Stark will be visiting fossil locations at Calvert Cliffs on October 18 and 19. If you have any fossil cones, she would certainly appreciate seeing them.
- October 19, Sunday: Field Trip to Collect Pennsylvanian Fossil Plants. The Delaware Valley Paleontological Society has a limited number of openings for their field trip to the St. Clair, Pennsylvania, locality. This is one of the best sites on the East Coast to collect Pennsylvanian fossil plants. For reservations or information on this trip call Dave Bohaska at CMM (326-2042).
- October 25, Saturday: 7:00 p.m. Jefferson Patterson Park and Museum's Visitors' Center. Of Sea Monsters and Sharks. This is a SEARCH lecture. Dr. Eugenie Clark, University of Maryland's Department of Zoology, will speak about her research on shark behavior. For more information on this lecture call Patterson Park (586-0050).
- October 25-26, Saturday and Sunday: A Joint Field Trip with the Delaware Valley Paleontological Society. The DVPS will be joining the CMM Fossil Club for field trips to Chancellor's Point and various other fossil locales in Southern Maryland. Call the Calvert Marine Museum (326-2042) for information on time and place of meeting.
- November 4-8, Thursday-Saturday: The Society of Vertebrate Paleontology will hold its annual meeting at the Academy of Natural Sciences in Philadelphia.

## FALL SCHEDULE OF COMING EVENTS - cont.

- November 16, Sunday: DVPS Field Trip to Swatara Gap and Tower City, PA. The Delaware Valley Paleontological Society invites CMM Fossil Club members to join them on a field trip to Swatara Gap (Ordovician trilobite, Cryptolithus, rare starfish and other fossils) and Tower City, PA. (Pennsylvanian fossil plants and rare tree trunks). Call the Calvert Marine Museum (326-2042) for more information on this trip.
- November 28, Friday: 7:30 p.m. Battle Creek Nature Center. Natural History Illustration. Mary Parrish, Smithsonian Institution, Department of Paleobiology, will give a general overview of the illustration of natural science objects and will describe (with slides) many of the media, techniques, equipment and subject matter used by natural science illustrators. She will bring some of the equipment she uses and lots of art supplies so you will have a chance to try out some of the techniques for yourself after the talk. Mary is well known to Club members for her work on the Smithsonian Poster Series, especially "Fossil Shark Teeth" and "Fossils of the Atlantic Coastal Plain." Call Battle Creek Nature Center (535-5327) for more information about this program.
- December 6, Saturday: 10:00 a.m. - 5:00 p.m. Santee Cooper Auditorium. Myrtle Beach Fossil Club Fair. The Myrtle Beach Fossil Club will hold its Fossil Fair in Myrtle Beach, S.C. For more information on this event call Aura Baker (803-347-7592).
- December 7, Sunday: 10:30 a.m. - 5:00 p.m. North Carolina Maritime Museum. North Carolina Fossil Club Fair. The N.C. Fossil Club will hold its Fossil Fair in Beaufort, N.C.

## CANCELLATION OF THE LEE CREEK FIELD TRIP

We regret to announce the cancellation of the December 6 field trip to Lee Creek in North Carolina. Flooding and engineering problems have forced Texas Gulf to close the mine to all visiting fossil clubs. This is a temporary situation and we are planning to visit Lee Creek, hopefully in March of next year.

## CURRENT RESEARCH

Dr. Ralph Eshelman spent three weeks in August and September in the Netherlands Antilles (Curacao, Bonaire and Aruba) exploring caves for Quaternary fossils. Among the finds is an extinct species of tortoise as well as rich collections of fossil rodents, reptiles and some birds.

Dr. Alfred Fischer of the University of Southern California visited the CMM and Calvert Cliffs on September 9, 10 and 11. Dr. Fischer and others are investigating the possibility of using phosphate instead of carbonates for oxygen  $^{18}\text{O}/^{16}\text{O}$  ratios to determine marine paleotemperatures. Phosphates are more resistant to most forms of diagenesis and would allow analysis of bone and other phosphatic materials.

Samples of oysters and other bivalves were collected for Naomi Goldsmith of Israel and sent to Dr. Donald J. DePaolo at UCLA for determining strontium content. Hopefully these data will be useful for dating.

Fossil Mercenaria and other clams were collected for Dr. Philip Sandberg of the University of Illinois. Dr. Sandberg will be searching for remnants of organic compounds in the samples.

More detailed reports on these projects will appear in future issues as results come in.

Calvert Marine Museum  
P.O. Box 97  
Solomons, MD 20688