The Newsletter of Calvert Marine Museum Fossil Club

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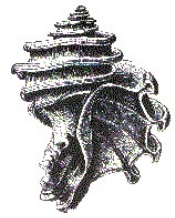
The ECPHORA



CURRENT HAPPENINGS IN PALEONTOLOGY AT THE CALVERT MARINE MUSEUM

FROM THE CURATOR

I would like to express my sincerest thanks to **Dr. Michael McCloskey** for his superb seminar (in spite of my interruptions) on photographic techniques as they apply to paleontology.

Mary Ellen Didion-Carsley from Media Art and Design will be our guest at the next club meeting (**Saturday, April 12th, starting at 12:30pm**) to be held in its usual location (i.e. in the **third-floor lounge in the main museum exhibit building**, not in the staff lunch room as per our last meeting…so we should all have a bit more elbow room). Mary Ellen is a local professional artist presently working on scientific illustrations of some of the Miocene dolphin skulls in our collection. Her presentation will include a discussion of how these drawings were rendered as well as how she produces other non-paleontological art.

The **CMM Shark Tooth Poster** is in the final stages of production so, with any luck, we'll have copies hot off the press at our April 12th meeting. Once available, they will be sold in the Museum's gift shop, online at CalvertMarineMuseum.com (click on Museum Store), and in other museums and aquaria like the National Aquarium in Baltimore.

The National Aquarium in Baltimore is opening a new exhibit on fossil sharks in mid-March. They purchased reconstructed jaws of *Carcharodon megalodon* from Vito Bertucci, that includes four rows of original (but not associated) teeth. Without a doubt, they will be impressive, and I look forward to seeing these jaws in addition to their treatment of fossil sharks from Calvert Cliffs.

I've submitted the pathological whale vertebra paper for publication (at long last), and am working on a number of other research articles that focus on some of the amazing fossils that I've reported on in The Ecphora over the past few years. The next issue of the Calvert Marine Museum's *Bugeye Times* will include an article on sharktooth-imbedded fossils from Calvert Cliffs. Look for the superb illustrations by **Tim Scheirer** (CMM's "resident artist") and Mary Ellen Didion-Carsley.

Fascinating Fossil Finds…

We have probably found parts of most of the large marine mammal species that inhabited the waters of the Miocene Salisbury Embayment. The same can not be said for many other groups of organisms. Obviously, fossil remains of soft-body organisms

(like Miocene jellyfish and worms) are nonexistent. But even the skeletal remains of fish, especially small-body taxa are especially poorly represented. This claim is confirmed by the discovery of the first fossil spiny sea robin in this area, (see figure 1) and now, by far the oldest one known in the fossil record (fully10 million years older than Pliocene spiny sea robin fossils).

Figure 1: A photograph of the twisted spiny sea robin. The head is pointing to the right. Notice how the tail turns down, an artifact of preservation. The spiny-scute armor is superbly well preserved!

Over the Christmas Holidays, **Bill Counterman** spied fish bone in the marl exposed at low tide along Calvert Cliffs. As fate would have it, as the carefully quarried block of matrix began to dry, it separated, naturally exposing an articulated fish within (Figure 1). At first we could not decide if the fossil was of a fish or the appendage of a large spiny crustacean. Bill's persistence paid off, however. In going through our alcohol-preserved, fish whole-body collection, he was able to match the distinctive caudal (tail) scutes in the fossil with those present in living spiny sea robins. Apparently, these fish do not have scales, having replaced them with robust spiny scutes (Figure 2).

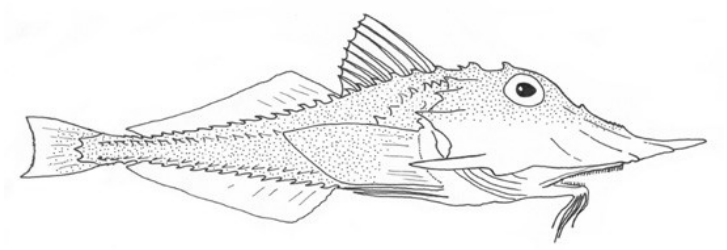


Figure 2: A line drawing of a living gurnard (spiny sea robin). I've stippled that part of the fish that was preserved. Redrawn from: Richards, W.J. (1999). Triglidae. In 'FAO Species Identification Guide for Fishery Purposes. The Living Marine Resources of the Western Tropical Pacific'. (Vol. 4(2), 2069-2789). (Eds. K. E. Carpenter and V.H. Niem.) pp. 2359-2369. (FAO: Rome.)

Modern spiny sea robins, also known as gurnards, are bottom-dwelling fish that typically inhabit oceanic waters 600 feet deep. Most of the 120 or so living species average 12-16 inches in length. Bill's find is approximately six inches long, but the tip of both the snout (i.e. its rostrum) and tail were not preserved. In addition to these missing parts, most of the cheek region, on at least the right side, is also missing. Nevertheless, the skull roof is well preserved. Additional prep work will expose more of its skeletal anatomy. I expect that this will be accomplished by imbedding the exposed bone in a water-soluble wax (polyethylene-glycol), and removing the clay-like matrix from the skull roof with slender insect pins.

We anticipate describing this find in conjunction with **Dr. Bill Richards**, a leading authority on living spiny sea robins.

Stephen Godfrey

Beginners Corner:

Those *Crazy* Collecting Tools

During our very first trip to Brownie's Beach we were, to say the least, inexperienced and ill-equipped to find much of anything. After about three hours of collecting, we headed home with our fine collection of teeth, proudly displayed in the most appropriately-sized container we could find: an empty film container. Since then, we have built/ modified/ developed a wide array of devices, which if our fossil collection was as widespread, we would open a museum rivaling the Smithsonian.

Now, as we look at our large collection of gadgets, we understand that all cannot be used on every trip. (Speaking from experience here folks; we've tried!!). The perfect tool at one site could be entirely counterproductive at another. Today, we realize the best collecting tool is a well-trained eye developed by years of experience combing the beaches along the cliffs. But, you say, I already have an eye, two in fact; what else can I use to help me in my hunting? Well, friends, you came to the right place. This article will detail some of the tools we have worked with; a sort of consumer report to collecting equipment.

The Sifter

By far, the most commonly used tool by collectors is the shovel and sifter combo. Sifters are quite easy to make; construct two square wooden frames, sandwich a metal screen between them, and screw everything together. Attaching a handle for ease of carrying is also strongly suggested.

A seasoned collector has many different sifters with different screen sizes. The purpose of having multiple sifters with different screen sizes is to assist in collecting different types of fossils. For instance, a 1/16" - 1/8" screen is usually only used when hunting for those elusive micro teeth, such as whale shark teeth, angel shark teeth, and small porpoise teeth. These sifters sift out very little beach debris, so looking for fossils in these sized sifters requires a lot of time.

Probably the most versatile screen size is the 1/4" screen. This screen sifts out small pebbles and other debris, while the tiny teeth and small porpoise teeth wash out. Looking for fossils in this sized screen requires less time. You'll find yourself pulling out Tiger, Grey, and Snaggletooth teeth left and right.

If you're primarily looking for larger teeth, a 1/2" screen can be used. This screen sifts out most pebbles and smaller fossils. When using this sized screen, you'll soon notice you won't be finding many shark teeth. However, the ones you find will be over 1/2" in size.

If you decide to bring a sifter with you, we have found it to be very beneficial to first walk up and down the beach that you're collecting on at least once before sifting. This way, you'll find any teeth that are simply lying on the beach. This will help to prevent the common phenomenon of sifting around a fallen tree, while observing another collector strut past, reach down and pick up a huge meg a few feet in front of you. (We HATE that!)

Sift in areas where there are large amounts of pebbles or shell fragments. The fossils like to run and hide in these places. Pebbles and shell fragments usually accumulate around obstacles in the water such as trees and cliff chunks. They are also found where the waves begin to break, about a foot or so away from the shore. If there seems to be no pebbles, don't despair, that just means the sand is covering them up. Simply dig down a few inches into the beach, and you'll usually hit a layer of pebbles. After getting a shovel full of material, toss it in the sifter, and rinse it in the water. To avoid back pain (those rocks are heavy!), most collectors prop their filled sifters on fallen trees. Some bring buckets to place the sifters on, and simply kneel down to search through the sifted material.

The Lone Shovel

If you've tried sifting, and hate all that bending over, another method, one which we are using more and more, is to forgo the sifter all together, and only use a shovel. Simply take a shovel full of material to be sifted, and artfully toss it on the beach (being ever so careful not to hit your companion with it) in an area where the water just barely hits it. You will notice the water quickly sorts your pile. All that you need to do is pick up the fossils that are revealed in your pile; just be sure to grab them before the water washes them away. You can even use the shovel to scoop the fossils up, which eliminates bending over all together.

The Garden Rake

While at the cliffs, we always see a few people kneeling and raking the pebble areas with hand held garden rakes. This is an easy way to search the pebble areas without sifting them. Since you are so close to the ground, you can also find the small shark and porpoise teeth. If you hate bending over, a slightly different version is to use a full-length garden rake. This way, you can rake the pebble piles

without bending over. However, since you are further from the ground, you will not see all of the teeth. Small shark and porpoise teeth will most likely evade you.

The Glass-Bottomed Bucket

Unfortunately, you can only rake the beach if there is a beach present! When high tide begins, many collectors call it a day, or take a break until the next low tide. However, an interesting piece of collecting equipment will allow you to collect during a high tide (if you don't mind getting wet!). It also allows you to collect in a foot or two of water during low tide, where most collectors don't hunt. It is a bucket with a see through bottom. Simply press the bucket a few inches below the water line, and like magic, the ground becomes crystal clear. You can then slowly walk through the water with the bucket depressed, and hunt for teeth just lying there. Since you are only hunching down a little, usually you will only see the larger teeth, and hence, you will not find many teeth. However, we have found some beauties with this method! We recommend you only use the bucket when it's sunny, so you can actually see the bottom! One downfall to the glass-bottomed bucket is you have to hunch over and apply constant pressure to keep the bucket depressed. This quickly results in a sore back. Usually we take turns using it.

If you are interested in a glass-bottomed bucket, here is how to make one! Go to a hardware store and buy the following: one square foot of Plexiglas, marine epoxy, and a five gallon bucket. Cut a circular hole in the bottom of the bucket, leaving a ¼" ledge on the bottom. Cut the Plexiglas into a circle. Make it nearly the same size as the inside bottom of the bucket. The circle should rest on the ¼" ledge inside the bottom of the bucket. Make sure there are no gaps between the Plexiglas and the ledge. Next, put a bunch of epoxy on the inside ledge and squish the Plexiglas circle onto the lip. Add some weight so the Plexiglas is tightly pressed against the epoxy-filled ledge while it dries, and you're done! Just be careful when using the bucket; do not scrape stuff along the Plexiglas, as it scratches easily.

Snorkeling

If you have tried a glass bottomed bucket, and like the results, but would like to use it in deeper waters and are not too squeamish about sea creatures, then snorkeling may be for you! With this glass-bottomed face method, you'll need a snorkel, mask, flippers, and a hand rake with a waterproof flashlight attached (You can get a waterproof flashlight at any outdoor store). Yes, snorkel gear can be considered fossil collecting tools!

We recommend going out on a calm day so less sediment is floating in the water. Also, go at low tide on sunny days, so more light penetrates the bottom. You want to head out into a few feet of water. Once out there, feel or look around on the bottom for gravel areas, spots with lots of pebbles, rocks, and stuff. If it's all sand, you won't find anything. Once you've found a gravel spot, turn on your lights, and get your head close to the bottom - a few inches is fine. You can then swim along the bottom and surface-scan for fossils, then start raking the gravel piles and little rocks to try and overturn hiding fossils.

Finally, there are better times out of the year to snorkel than others. April and May seem to be the best months for us; the water is very clear, and there are no nettles (jellyfish) yet, but be sure to wear a wetsuit because the water is very cold. June and early July are OK. The water starts to get algae in it, so the visibility drops. However, the water is warmer, making for a pleasant day. July to the end of summer is bad. The water is usually murky with algae blooms, and the nettles are out in force.

There you have it, a description of how to make and/or use some of our favorites. Try them out for yourselves, or work to develop your own tricks (tools) of the trade. One other noteworthy point, the tools seem to become more effective with experience. So, if you spend all kinds of time making a glass bottomed bucket, take it to the cliffs and find nothing (a sobering experience all collectors can relate to at one time or another), our best advice is: Take it out again and keep on trying. Happy hunting and have a great time!

Submitted by Jayson Kowinsky & Amy Lore

Earth Day 2003 - April 26, 2003

From the *Watershed Observer*, the newsletter of the American Chestnut Land Trust:

Governors Run, Kenwood Beach, Scientists' Cliffs, Parkers Creek, and Double Oak/Dares Beach

Plans are underway for the 12th annual five-community cleanup and picnic. Dumpsters will be placed at the end of Governors Run Road, in the ACLT parking lot on Scientists Cliff Road, and at a remote location on the northern properties off Dares Beach Road. Directions to special project areas will be announced as we all gather at the ACLT Barn in the parking lot. After the 9 a.m. to 12 noon cleanup effort, a picnic lunch will be provided for all volunteers on Kenwood Beach.

This is always a fun event, and we encourage you to bring along the kids, grandchildren, and your neighbors! You don't need to live in one of the communities, or even in the area to join in. Water and trash bags will be provided. We need trucks, people-power, and lots of enthusiasm! If you would like to participate in the planning of this year's special projects or have a truck that you are willing to volunteer for the day, please give Dan Sampson or Adele Connelly a call at 410-586-1570.

Workday: 9 a.m. to Noon - Picnic: High Noon at Kenwood Beach. This is a clean-up event, not a fossil collecting opportunity. Please treat it as such.

Fossiling in Nova Scotia

This past summer we drove to Nova Scotia on our way to Newfoundland and Labrador. While in Nova Scotia we visited three well-known fossil sites and collected on the beach at all three. The first site was Joggins, a world famous Carboniferous locality containing some of the most interesting and oldest amphibians and reptiles, as well as many large-scale trees, and other swampy plants. Joggins is a small town (located on the east side of the Bay of Fundy), which used to be the site of one of several coalmines in the area. The cliffs at the beach in Joggins represent repeated sedimentary layers deposited by rivers and streams that ran through forests of huge, primitive 300 million year-old plants! One can see layers of siltstone, sandstone, mudstone, shale, limestone, and soft coal, all tilted to the south at a 20-degree angle.

The layers have been differentially eroded by wind, rain, and the 40 - 50 foot tides of the Bay of Fundy! The beach is littered with rocks of all sizes and types.

Before going to the cliffs, we stopped at a small museum and Rock Shop on Main Street. Here we viewed fine specimens of the types of fossils to be collected along the cliffs. Large sections of the scale trees, track ways of amphibians and reptiles associated with the trees, sections of *Calimites,* a primitive relative of horsetails, and other types of fossils found in the area, were displayed. With whetted appetites we headed toward the cliffs!

The cliffs at Joggins

As the tide was out when we (and numerous other people) reached the beach, we had about 75 - 100 yards of beach stretching seaward, and a couple of miles in either direction!! Dozens of people comb the beach as each new tide reveals new fossil materials on the beach daily. The first thing we saw was part of the trunk of a large tree exposed in the cliffs. It is illegal to dig in these cliffs, but it is really quite unnecessary, as there is so much material to search through on the beach. We found parts of the stems of *Lepidodendron*, *Sigillaria* (both scale trees), *Calamites*, and several other types of plants, and small aquatic organisms. We did not find any evidence of the small amphiians or reptiles that

sometimes hide in the trunks of the trees and become fossilized in them. Local rock shops have trackways of some of these animals. One famous specimen on display at the Nova Scotia Museum of Geology in Parrsboro is the almost complete skeleton of the amphibian, *Dendrerpeton*. The skeleton was found in 1987 by a group of paleontologists from McGill University, among them, the CMM's own Stephen Godfrey.

Several other strange vertebrates were likewise trapped in, or at, the bases of trees. One such huge arthropod, a millipede-like animal, left tracks that look like railroad tracks! The Parrsboro Museum has an interesting reconstruction of what scientists think this animal looked like. Also on display in Parrsboro at the museum are tracks of the "World's smallest dinosaur", as well as a reconstruction of a small theropod dinosaur found in the area. They are presently preparing a new dinosaur, not yet named!

***Dendrerpeton* fossil and an artist's life model cast**

Also worth a visit in the area is the Parrsboro Rock and Fossil Shop owned by Eldon George. For both display, and in some cases for sale, are some fabulous fossils and minerals from around the world. Eldon and his rocks and fossils were written up in the National Geographic in the 1980s!

Our second stop was at a small Provincial Park in Arisaig, located on the western shore of the Cape George Peninsula. These outcrops at Arisaig are late Ordovician [448 million years ago (m.y.a.)] through Silurian to early Devonian (400 m.y.a.). They are a series of sandstone and mudstone layers that formed at the bottom of a shallow sea. In pieces of the eroding material we saw (and collected) brachiopods, snails, clams, and pieces of a straight nautiloid. There were supposed to be trilobites also, but we did not see any. We did find pieces of crinoid stems, and a small cone-shaped shell called a tentaculite.

Our last fossil area was in a town called Sydney Mines, located on the northeastern tip of Nova Scotia. This region is the site of numerous coalmines, and at one time it was the major producer of coal in the world. The coal seams extend out into the ocean, and some mineshafts actually extend one-fourth mile out under the ocean. Here Carboniferous plant fossils similar to those found at Joggins, as well as numerous seed ferns are found. We went with a graduate student, employed by the local Geology Museum, on a "field trip" to an area near Aconi Point, to search for these fossils along the Stubbert coal seam. We walked along a bluff, high above the sea, for about one half mile before dropping down to the beach. The tide was dead low, exposing a layer of shale containing loads of fronds of several types of seed ferns. All of these would have been under water, just an hour before our arrival. For this reason the shale was very soft, and could be split easily with our fingers! Here we collected *Neuropteris* sp., *Linopteris* sp., *Lepidodenderon* sp., *Alethopteris* sp., *Calamites* sp., and *Sigillaria* sp., etc. Each of our samples
was wrapped in newspaper to dry and harden.

Because they were bounced around in our car for almost a month, and because they were so very fragile to begin with, some arrived back in Baltimore in less than tip-top shape. Since returning, I have used a fine camel's hair brush to remove any loose dirt and then sprayed them with a clear acrylic spray. This preserves the carbon and prevents it from blowing off. I also collected a piece of coal with pyrite in it.

We would love to return to both Joggins and Sydney Mines in the future. If anyone is considering a trip to Nova Scotia, lots of material is available on the web, or we can provide additional information. Nova Scotia is a great place to vacation and fossil!

Submitted by Bob & Pam Platt

Something New About Lee Creek

Editors note – Steve Grossman wrote this article last year for The American Fossil Federation's July 2002 issue of their newsletter *The Fossil Finder*. It's being republished now to get everyone's collecting zeal in gear for the club's Spring trip to the site. Enjoy!!

Many people who collect fossils only talk or write about what they find: the size, the location, etc. This story is different. I hope you can sit back for a minute, relax, and think about some other factors that come into play, on a trip of this magnitude, once or twice a year. Sure I'll mention some of the fossils found, but there is another story that affected me, just as deeply, as finding fossils.

There are two people; both are my good friends that I personally want to thank. They are Hammon Hobbs and George Powell. Why? Because I drove both of them crazy for months prior to the April 2002 trip, by asking them the same questions regarding EVERYTHING at Lee Creek, over and over and over again. I had never been there and I had to know everything about that place before I arrived. This was a fulfillment of a fantasy for me, to finally get to Lee Creek. My dear friend, Hammon Hobbs, arranged for me to go, drove us down, arranged the motel stay, and handled every aspect of the trip. Thank you Hammon! George Powell, the one person I really look up to in the fossil collecting world, invited me over to his home, and for hours, I drilled him and asked every question I could think of regarding Lee Creek. He showed me his collection from Lee Creek, he explained how he found a lot of the specimens, the different geological formations, the material in these formations, etc. – on and on for hours. At one point, I leaned back on the dining room chair, it broke and I fell backwards on my back, and I couldn't get up. Remember that George? I also want to thank George for being my personal guide in the mine – was I lucky!

If it doesn't rain, a six-hour trip can be fun (tolerable), as long as one can eat, go to the bathroom, and then find $1.19/gallon gas. Hey Hammon, remember that price? The location is our secret. Somewhere on Rt. 64 East through North Carolina, I saw the "Stonewall House", with a huge Civil War re-enactment going on. It was really neat seeing all the re-enactors in period dress. On Rt. 17 South, I was taken back with the scenery, as if I had gone back in time to the 19th century. So many old dilapidated wooden homes that were abandoned and in different stages of decay. Many homes alongside the road, and back from the road, were partially covered up, and half-buried by trees and brush. This 100-150 year old scene aroused my curiosity. Who were these people from the past? How did they live? What did they do? What were their joys and sorrows? What was life like in rural North Carolina in the mid 1800s? This period of history was staring me in the face. Then, as we were driving, the gravestones appeared all over the place. I saw them on the roadside, next to the dilapidated houses, some in the fields, others on the edge of the woods. A few had fences around them, others had nothing around them, and still others were partially obscured by vegetation. Who were these North Carolinians? Life and death prior to, during, and after the Civil War – just an awesome scene! And now years and years later, everything is gone. Being raised in the suburbs of Montgomery County, Maryland, I had never seen anything like this before. It was very emotional for me, something I will never forget.

Finally, we reached Washington, NC, where our motel was. Just minutes before, I felt as if I were in the 19th century, now I'm back in the 21st century with all of the modern conveniences. We took a ride to the mine and first went over a bridge that stated the same river had two names. One the Tar, the other the Pamlico. Where in the D.C. area do we have that?

I did not realize the importance of Washington, NC during colonial times and the Civil War until I read the plaques and markers.

After we turned east on Rt. 33, the excitement started to build. Within a couple of miles of the mine, I saw the draglines in the far distance way behind the railroad line. On Rt. 306 North, I couldn't believe the size of the scoop by the side of the road that had dug tremendous amounts of earth - it had flowers planted in and around it. Yes, the adrenaline was flowing pretty well.

At 3:30 PM Hammon parked the truck in the lot and we met George Powell. He showed us some of his finds from his day in the mine. But he said the "better picking would be in the parking lot". My heart sank, but it was kind of fun finding teeth on the surface of the lot for almost an hour. I looked out in the distance, and started to get an idea of the size of the operation and my heart started to beat again. At that point, I was really looking forward to getting into the mine the next day! I ask all of you reading this; did you sleep the night before your first experience into Lee Creek?

Sunday morning finally arrived, and after breakfast at the Golden Arches, we drove the 30 miles or so to the mine – mostly in a light rain. What luck!

I never saw any wildlife by the side of the road. Why not? I still haven't figured it out. Halfway down Rt. 33 Hammon told me to look close to the road pavement and I would finally see my wildlife – a box turtle crossing the road.

We arrived at the parking lot at 7:45 AM and lots of people were searching the lot surface for shark teeth. I saw George Powell and he started getting on my case about the rain jacket I was taking into the mine. I told him I had just spent over $70 on it, one of the breathable kinds, and there was the look of rain in the sky. Again he said, "You don't need that, it's not going to rain in there". Well, I didn't believe him, and I stuffed it in my backpack with all of the other junk I needed. Heavy! Yes George, I learned something. George told me several times before the trip, and again in the lot, that he didn't mind me coming along with him, but that I had to stay up with him while he was collecting. I want all of the AFF members to know that I am 6 feet tall, weigh 250 pounds, and I'm totally out of shape. How in the world was this old, bald man, who weighed more than me going to tire me out in the mine? Couldn't happen – could it?

After getting on the bus, and listening to the rules, and signing off on the appropriate paperwork – we were finally off. This place looked like a miniature city, and the mine landscape looked like the moon. I was totally blown away! We got to our destination and it appeared to be about 200 yards wide and ½ mile in length. How in the world was I going to climb the first 20-foot wall just to start? This was tough. As George and I walked, I found it terribly difficult to stay up with this ex-mailman, but I did the best I could. George explained and showed me all of the formations and what they contained. This was fascinating! Sometimes we would speed up, other times we would slow down. Finally, I found a few small teeth. George had just found a tusk to something, and then a huge *hemipristis* upper that measured over 2 inches across the top. It had been bitten off. George was excited – he felt this tooth easily could have measured 2 ½ inches or more. This would have been his largest *hemipristis* upper he had ever found. Was I his good luck charm, or was George doing what he does best? I found a couple of huge tiger shark teeth that had a beautiful crème color. It got hotter and hotter in the mine – my backpack got heavier and heavier with each step. I was wearing down quickly. Then I got a headache. I already drank several bottles of water, but could not stay up with George after a couple of hours.

George and I saw two people digging and plastering some kind of skull in the side of a sharp angled cliff. We talked for a while and then started to look again for the giant Meg. For a second I thought George had lost his footing, and when I turned around, he was holding a gorgeous 2 ¼ - 2 ½ inch upper mako that his foot had kicked out of the ground when he slipped. Again, his good luck charm had worked. We saw another collector with another club and started to talk to him. The anticipation of someone finding a huge Meg was driving me crazy after all these hours. All three of us started to walk when it happened! George was about 10 feet behind the two of us when he yelled out, "Come back here, it's a big tooth". We walked back, and next to 10 sets of footprints, 2 lobes – one broken at the top, were sticking out of the ground. Slowly, George took pictures and dug the tooth out and there it was – a lower 5-inch Meg that was beautiful. I couldn't believe the number of people who had walked a couple of inches to a couple of feet away from the tooth. And we were convinced that this was just another piece of broken bone. Did I learn a valuable lesson about keeping one's eyes open, even next to someone else's footprints?

After all the excitement my head was pounding. I was dead tired and later on I found out why my feet were killing me. There were 4 huge blisters on the bottom of my feet caused by my boots being just a

little too wide. All the up and down and side to side climbing had wrecked the bottom of my feet and I was hurting. Well, it was only 1:30 PM but I was finished for the day and for the season. I found approximately 65 teeth during this trip so I was happy. Did I find the 5-6 inch Meg or 2 ½ - 3 inch mako? NO! But I had the learning lesson and adventure of my life. I finally had made my trip to Lee Creek and I was loving life.

In the future, I hope to be in better physical condition. Knowing when to slow down and check out everything at certain key locations will always be in the back of my mind. Maybe I will locate a big tooth, but even if I don't, the experience will be what is truly important to me. (But I still would like to find that 6-inch tooth!)

Submitted by Steve Grossman

CMMFC January 25, 2003 Meeting Minutes

The winter meeting for the club was held on Saturday, January 25th, 2003 in the CMM administration building. Numerous members and guests, including a school class, were present.

President Grenda Dennis called the meeting to order at 12:55 p.m. Grenda informed the general membership that the club's officers had held a board meeting earlier that day and that the following items were discussed: CPR Training, Club Website, a club Fossil Hunting Safety Brochure, and a possible Community Beach Day at Plum Point.

Grenda poised the question "What is our club interested in?" to the meeting's attendees. Her suggestion of: Education, Preservation and Fun, were seconded by several members. Grenda also called for a nominating committee to seek out people interested in being considered for this year's election of club officers. Paul Murdoch, Chuck Soares and Robert Platt volunteered to make up that committee. The next meeting will be held on Saturday, April 12th, 2003 at the usual 3rd floor location.

Next Kathy Haberny stated that she is working on the Spring trip schedule, that it will be rather extensive, will include trips along the Bay and to out of state localities, and will include joint trips with other clubs.

Paul Murdoch proposed the idea of the club having a trip to the Virginia Museum of Natural History Carmel Church research site. The two options were to schedule a collecting trip for 15-25 people for 4-6 hours at a "cost" of a $25 donation. The second option was a trip for 6-8 people to assist the VMNH excavate a yet-to-be-determined specimen from the site, no personal collecting. The "cost" for this would be to offset the VMNH's materials cost for the excavation. It was put to a vote and since about 4 people were for each option it was decided that the club would pursue the excavation trip with the VMNH, and anyone who wanted to collect at the site was encouraged to sign up for the site's general trip that the VMNH usually offers at least once per year. Paul also mentioned that Sue Hamilton was looking to see if any club members would be willing to assist her with the numerous "Fossil Field Experience" trips planned for the year. She would like to have two CMMFC members volunteer for each trip, which are held on Saturdays and conducted usually at either Matoaka Cabins or Scientist Cliffs. The dates for the 2003 trips are as follows: May 17th, June 14th, July 19th, August 2nd, September 20th & October 18, 2003.

In addition, Paul mentioned that he had numerous handouts available to members on the following: A study by the Federal Government to create a National Park for the Chesapeake Bay, Several recent copies of the Bay Journal, information for a trip to Mongolia with the Global Research and Discovery Network, and membership applications for the newly created "Friends of the Aurora Fossil Museum". Paul also announced that he had been selected to serve on the "Friends of the AFM" initial board of directors and that more information including a website for the group would be available shortly.

Paul also had some bad news…apparently the mining company that had once considered activities in the Liverpool Point vicinity, has renewed its interest in developing the area and creating a barge loading dock in the Potomac River to ship its products. Several club members told stories they had heard about the mines past issues with bald

eagles and the impact this would have on the environment. As more on this develops it will be posted on http://www.nanjemoy.net/protect/.

Pam Platt mentioned that an annual trip opportunity to assist paleo-professionals in Florida is coming up. The trip primarily concentrates on land mammal remains such as camels, bison, rhinoceros, etc. It's a camping trip so you would be roughing it, and all of the finds are the property of the trips sponsors, no personal collecting is allowed.

The CMM's curator of paleontology, Stephen Godfrey, had numerous fossils on display. Three of particular interest were a section of porpoise jaw from the St. Mary's formation from an as of yet undetermined species; a set a six fused cervical sperm whale vertebra from the Calvert formation found by Bill Counterman and a Sea Robin (spiny fish) skeleton found in the lower Calvert formation also found by Bill Counterman. Only one other set of fused vertebra is known from the Calvert formation and that is from Popes Creek. Both of Bills finds are documented "firsts" from the Calvert Cliffs - Congratulations Bill!! Stephen also mentioned that he was working on two papers: One for Bill's Sea Robin and one for Jean Hooper's Start Gazer partial fish skull from the St. Mary's formation. Both will most likely be new species! Congratulations to both!! Thanks to all of the other members who brought in their finds to share!!!

The club then had two guest speakers: Richard Rogers, the President of the CMM's Volunteer Council, and Mike McCloskey, who gave a great presentation on how to properly and professional photograph even the very smallest of one's fossil specimens.

Richard talked about how anyone can be an official CMM volunteer for as little as a total of 24 hours a year, after completing a mentor program. Also of interest was how the CMM is dependent upon volunteer hours when applying for grant monies, so everyone's hours do help! The Paleo Department, in particular right, now needs help with cataloging and preparing specimens, so if interested, please become a volunteer. ,You can become a volunteer by contacting Leslie King by email at kingls@co.cal.md.us or by telephone at (410) 326-2042.

Mike's talk was very thorough in all aspects of proper photography. The main points were: utilization of equipment and knowing what its limits are, avoidance of shadows thought multiple lights and mirrors and using a dependable developer. He even brought in some fabulous pictures of some fossils from his own collection, to show the results of using some of his creative ideas. Mike is a long-time club member, and for a number of years was the club's field trip leader. Thanks again Mike for sharing with the club!

David Bohaska of the NMNH spoke of his recent collecting trips to the South Carolina mammal site at Giant Cement quarry, and of trips to North Carolina. He was also recently to New Zealand to attend a conference on vertebrate fossils and had the opportunity to take a few field trips while there.

A guest of note this meeting was Gwynteh Saunders, a reporter for the *Southern Maryland Weekend*.

Submitted by Flo Strean, CMMFC Secretary

Please note - If anyone would like further information on any of the trips mentioned above or is interested in becoming a club officer, attending a board meeting, or just general information on becoming more involved with the club, please email the club or send a note to CMMFC P.O. BOX 97, Solomons, MD 20688

Treasurer's Report

As of January, 31, 2003, the balance in the club's account is $4,194.00. Outside of normal operating expenses (newsletter, postage, etc.) for the club, only the recent expenditure of $41.00 for a pair of walkie-talkies to be used on field trips, has been incurred. Figures for receipts from both new and renewal membership fees are currently unavailable.

That stated, I would like to go into further detail on how the club's assets have been spent and accumulated over the last 5 years. Since 1997 the club has experienced a revenue flow of $7,232.05. Details of which were: $5,521 (76.34%) has come from dues, $801.45 (11.08%) from donations, $494.05 (6.83%) from fossil book sales, and $415.55 from miscellaneous sources. The club's expenses

during that same time frame were $4,720.36 and resulted from the following: $2,303.18 (48.79%) for newsletter printing costs, $968.20 (20.51%) for newsletter postage costs, $547.51 (11.60%) for telephone reimbursements, $210.75 (4.46%) for trip costs, $202.75 (4.30%) for miscellaneous supplies, $184.07 (3.90%) for meeting expenses, $153.90 (3.26%) for memorial donations and $150 (3.18%) for CMM library purchases.

To summarize, club dues and the cost of issuing *The Ecphora* are the biggest credits and debits to the account. This is acceptable to me only when one considers that the original reason for charging dues was to offset the costs of publishing the newsletter. If we as a club are satisfied with letting dues cover costs of the newsletter, and hopefully leave a small residual balance towards next year, then we are right on course. I hope, however, that this is not the case.

According to the club's by-laws:

"The purpose of the club shall be to: *Assist the Calvert Marine Museum, other societies, clubs, educational and scientific institutions, professionals and amateurs engaged and field collection, preparation, research and education in Paleontology, Geology and other related sciences. Arrange and conduct field trips for the enhancement of knowledge and enjoyment of this hobby. Provide opportunities and arrange for the exhibition and display of fossil specimens, collections, and other objects related to this hobby; to provide opportunity for the transfer of interest and knowledge in the field."*

My individual opinion is that we need to do more to truly fulfill our club's purpose and, as expected, those things cost money. Some ways that we may be able to easily save some money is to urge members to receive the newsletter via email. Currently almost a full 75% of everyone's dues is spent just on the printing and mailing costs for the newsletter! If we could get just 20% of the membership to accept an email newsletter, it would have significant long-term savings. Another way to make an immediate impact is to increase our membership roll. There are three ways we, as a club, can make that happen:

1) By increasing our club's presence in our biggest venue – The CMM itself! Currently the club is attempting to have a small area established near the prep lab so that a read-only copy of our newsletter, membership applications, and newly created club brochures can be made available to the public. We also hope to have the paleo department and/or the club be mentioned more predominantly in the CMM's own newsletter *The Bugeye Times*.

2) Make the club's newsletter the best fossil club newsletter option available. This way other fossil hunters will want to read what we have going on. The newsletter really is our best way to reach everyone, and if each of us as a club member enjoys it, we should share it with a friend, who in turn may want to join.

3) Offer the best local trips to sites along the famous Calvert Cliffs that other clubs may not be able to offer. It's in this area that the club's direct affiliation to the CMM pays the largest dividends for most of our members.

Other ways to save money are being investigated. Maybe the club can hold raffles for a collecting trip at someone's private site, a boat trip, or a cast of some rare specimen. Another way is to simply raise dues, which has not been done since the club first instituted them.

Raising dues will only be proper if we, as a club, feel that it is appropriate, and if most members feel that they are getting their money's worth. Otherwise any dues increase may cause a drop in club membership and leave the group worse off financially than it was before.

I realize that joining the CMMFC is expensive. It's the most expensive club on the east coast, but only due to the fact that membership is contingent on joining the CMM first. No one likes to spend a lot of money, but what other fossil club offers all of these benefits:

-Admission to the CMM for the entire year
-CMM newsletter
-Museum store discount
-First "dibs" on museum events
-Two boat ride tickets for the William B. Tennison
-CMMFC newsletter
-Access to the CMM's library

-Numerous fossil trips with a Paleontologist (how much per day would you get charged for doing that out west!!!)
-The opportunity to have your finds displayed in the CMM's rotating display case at the entrance to Paleo Hall.
-The opportunities to assist the CMM excavate a fossil find.
-A club website where your fossil finds can be posted for all to see.

Personally, I think that the club only spending $150 over a 5-year period to add to the CMM's library holdings is woefully inadequate. It, however, is up to the club itself to determine what the thrust of its assets should be spent on.

I urge all clubs members to think about how the club can save money, and also what they would like to spend it on. If you have some talent or access that would help the club save money, please let a board member know. For everyone else, please come to the next meeting prepared to discuss.

Submitted by Paul R Murdoch Jr.

CMMFC Field Trips & Events

Please remember to call in for yourself and family members (spouse and children of the member), or for one other club member only, on the date and time indicated. You must be a current member of both the fossil club and the Calvert Marine Museum to participate in the trips. For information about club membership, contact Pam Platt. The number of participants allowed for trips are often limited, so if you find out that you won't be able to attend after calling in, please contact Kathy immediately, so she can contact those on the waiting list. Information on directions, lodging, meeting times, and meeting places will be provided at the call-in.
Call-ins are to Kathy Haberny at 410-549-4701.

March 22, Saturday Morning - Scientists Cliffs. Miocene Calvert Formation site on the Chesapeake Bay. Invertebrate (*Anadara, Mercenaria, Nuculana*, *Ecphora, Crepidula*) and vertebrate material including *C. megalodon* teeth, crocodile teeth and crab claws have been found here. In past trips, several specimens of the rare Miocene brachiopod, *Discinisca lugubris* were found. Distance from Calvert Marine Museum: approximately 20 miles. Limit 15. Call-in to Kathy at (410) 549-4701, Tuesday evening, March 18, 6:30-8:00 p.m.

April 12, 2003, 12:30 p.m. - Spring Fossil Club Meeting and Public Lecture.
Mary Ellen Didion-Carsley of *Media Art and Design Studio*, a professional artist who is currently doing scientific illustrations of some of the Miocene dolphin skulls in the Calvert Marine Museum collection, will present a ½ hour show-and-tell on scientific illustration.

April 19, Saturday – Willows.
Lower Calvert Formation locality in Calvert County. Shark, marine mammal and other vertebrate material have been collected here. Small shark teeth are abundant and may include cow shark (*Notorynchus* sp.), whale shark (*Rhincodon* sp.), and angel shark (*Squatina* sp.) specimens. The distance from Calvert Marine Museum is approximately 30 miles to the north. Limit 12. This will be a joint trip with the NJPS. Call-in to Kathy at (410) 549-4701, Tuesday evening, April 15, 6:30-8:00 p.m..

April 26, Saturday - Devonian and Ordovician Invertebrate localities in Auburn, PA and Swatara Gap, PA. Martinsburg formation, late Ordovician period.
With luck and persistence, the trilobites *Cryptolithus tesselatus* and *Flexicalymene* sp., the brachiopod *Onniella (Dalmanella)* sp., and starfish specimens may be found in addition to crinoid stems, segments and calices, and the cephalopod *Michelinoceras* sp. The distance from Calvert Marine Museum is approximately 220 miles. No limit. Call-in to Kathy at (410) 549-4701, Tuesday evening, April 22, 6:30-8:00.

May 3, Saturday - Ramanessian Brook. Joint trip with the NJPS.
This is a late **Cretaceous** marine vertebrate site in Monmouth County, NJ, with an approximate age of 75 million years. The brook exposes the **Wenonah/Mt. Laurel formations**. Teeth from the

Crow (*Squalicorax* sp.), Porbeagle , and the Goblin (*Scapanorhynchus* sp.*)* sharks, fish teeth (e.g., *Enchodus* sp.*, Edaphodon* sp.*, Anomaeodus* sp.), ray teeth and scutes, sawfish (*Ischyrhiza* sp.) teeth, Chimera jaw pieces, and rarely, Mosasaur and Plesiosaur fossils can be found here. The members of the NJPS will bring their "prize finds" to help familiarize the newer CMMFC people with the location. Bring a ¼-inch screen and a shovel, and wear waders or sneakers into the stream. Long pants are also recommended. The distance from Calvert Marine Museum is approximately 250 miles. Limit 12. Call-in Tuesday evening, April 29, 6:30-8:00, to Kathy at (410) 549-4701.

May 30, Friday - Belgrade Quarry, near Maysville, NC. Most of the exposed material at this mine is **Eocene**. A **Pleistocene** gravel layer is also exposed for sifting, and occasionally, reworked *C. megalod*on teeth may be found. Both sifting the material that you dig from the site, and surface collecting from the spoil piles are productive. CMMFC members' finds from past trips include the teeth of *C. auriculatis*, small sharks, crocodiles, sawfish, and mammals. Although in the past, hardhats, safety glasses, and steel toe boots were not required, recent policy changes at Lee Creek indicate that it may be wise to bring them along just in case the policy has changed at this quarry. Limit 10. Distance from Washington, NC approximately 60 miles to the South. Call-in Tuesday evening, May 20, 6:30-8:00, to Kathy at (410) 549-4701.

May 31, Saturday - PCS Phosphate Mine ("Lee Creek"), Aurora, NC. Yorktown Formation and Pungo River Formation (Miocene). This site is famous for producing a diversity of vertebrate and invertebrate remains, including the giant and highly prized *Carcharocles megalodon* shark teeth. In addition to the immense number of shark species represented, including the relatively rare bramble (*Echinorhinus blakei*), whale (*Rhincodon* sp.) and false mako (*Parotodus benedeni*), hunters can find abundant whale, porpoise, turtle, fish, and mollusk specimens. Seal, walrus, squalodon, and seacow material have turned up on rare occasions. Steel toe boots, hard hats and safety glasses are required now, as per federal regulations. The mine will loan hard hats and safety glasses for the day. This site also may require physical exertion due to hiking over uneven or muddy terrain. The travel time from the Washington, DC area is approximately 6 hours. Limit 20. Call-in Tuesday evening, May 20, 6:30-8:00, to Kathy at (410) 549-4701.

June 14, Saturday - George Powell's Fossil Collection. George has kindly invited our members to his home to see his enormous fossil collection, amassed over many decades of collecting and study. He suggested that visitors may also bring some of their unusual finds for identification. Limit 10. Call-in to Kathy at (410) 549-4701, on Tuesday evening, June 10, from 6:30-8:00.

June 21-22, Saturday and Sunday - Red Hill and Swope's Pit. Devonian Catskill and Mahantango Formations. This will be a joint trip with the AFF and MGS. Doug Rowe, a site paleontologist for the Academy of Natural Sciences in Philadelphia, has again granted us permission to return to this spectacular Devonian fish site in the mountains of North-Central Pennsylvania. We will work as volunteers for the Academy for the day. Collecting will require rather strenuous digging and splitting of rock. However, the hard work can be rewarded with interesting fish material, including teeth, scales, fins, bones and head plates. The fauna includes paleoniscids, placoderms (armored fish), primitive chondrichthyans, acanthodrians (spiny sharks), actinopterygians, and sarcopterygians. We will be allowed to keep many of the collected specimens (such as scales, spines and teeth), and unusual finds will be collected for study at the Academy.

On the way home on Sunday, we will stop at a popular Mahantago Formation site, known for producing well-preserved and abundant trilobites (*Phacops rana)*, and several species of cephalopods. Lodging information will be available during the call-in. Distance from Calvert Marine Museum: approximately 244 miles (Swope's Pit) and 305 miles (Red Hill). Call-in Tuesday evening, June 17, 6:30-8:00 p.m., to Kathy at (410) 549-4701.

July 12, Saturday - Calvert Marine Museum's SHARKFEST. Fun-filled activities for the whole family. Volunteers are needed to help with the Paleo Department and Fossil Club exhibits. Please call in if you will be able to help for all or part of the day. Call Stephen Godfrey at (410) 326-2042 ext. 28. If he is not at his desk, and you leave a message, be sure to include your name and telephone number. Alternatively, you could e-mail Stephen at: godfresj@co.cal.md.us

Non-CMMFC Field Trips

Virginia Museum of Natural History 2003 Trips

Join VMNH staff on their paleontological field trips and learn about the fascinating geological history of the Middle Atlantic States. These trips were designed by Dr. Lauck Ward, Curator of Invertebrate paleontology at VMNH, and cover a wide variety of ages and environments representative of the last 550 million years. More detailed information is available by request at butchd@vmnh.org, or at 276-666-8644. All trips are filled on a first-come, first-served basis. Some trips have limits on the number of participants. Fees associated with these trips are considered to be donations to the VMNH Foundation. All funds are used to support research at VMNH. Suggested donations for each trip do not include accommodations, meals, transportation, or park entry fees.

To make a reservation, send a message to butchd@vmnh.org with the subject "Field Trip". Tell which trip you are interested in, and how many adults and children will be attending, or call 276-666-8644. To make a donation, mail a check payable to VMNH Foundation to:

Virginia Museum of Natural History
Attn: Research Field Trips
1001 Douglas Ave.
Martinsville, VA 24112

Schedules and itineraries are tentative. Trips may be cancelled due to inclement weather or lack of enrollment. Rare specimens may be retained by curators for the VMNH collection.

March 15, April 4-5
Morehead, KY

This trip explores the Paleozoic (570-250 million-year-old) sediments exposed in various road cuts in the vicinity of Morehead, Kentucky. Collect crinoids, brachiopods, bryozoans, and trilobites from deposits that predate the Appalachian Mountains. We will meet in Morehead on Saturday morning, visiting various stops in northern Kentucky. On Sunday we will return to Virginia, making additional stops. Bring a trowel, plastic baggies, and a bucket. Dress to get dirty. Access is moderate, with some walking required, and getting wet is likely. For an additional fee, on the April trip only, you can travel by museum vehicle (this is limited to the number of seats available).
9 a.m Saturday-12 noon Sunday. Suggested donation: $35 ($75 if traveling by museum vehicle).

March 29, September 20
Chuckatuck Quarry/Mobjack Pit

The trip includes stops at the fossil pits south of Smithfield near the town of Chuckatuck. There, over 200 species of well-preserved fossil marine shells, three million years old, can be collected, including snails, clams, sand dollars, and bryozoans. These deposits include the last occurrences of the scallop Chesapecten, and the snail Ecphora, before their extinction. At noon we travel to Chippokes State Park, eat lunch (lunches can be obtained from numerous fast-food restaurants in Smithfield), and then examine the cliffs and beaches at Chippokes. The four to seven million year-old fossils found there include whale bones, shark teeth, and large marine shells including large specimens of Virginia's state fossil Chesapecten jeffersonius, the first New World fossil to be figured and described. On Sunday morning we will travel to the Mobjack Pit, which has four million-year-old sediments that are rich in fossil shells. Bring your own lunch, a trowel, plastic baggies, and a bucket. Dress to get dirty. There is easy access for the young, elderly, and disabled, but there are no restrooms.
9 a.m.-3 p.m. Saturday. Suggested donation: $25 adults, $15 children under 12.

Chippokes/Chuckatuck/Mobjack Home Page

June 21
Martin Marietta-Carmel Church Quarry

Visit one of the richest vertebrate fossil sites east of the Mississippi. The 12 million-year-old Calvert Formation deposits at Carmel Church contain at least five species of whales and two dozen shark species, as well as manatees, crocodiles, turtles, birds, and bony fish. Don't miss this extraordinary site! This is one of Virginia's most important vertebrate fossil sites that produces thousands of shark teeth and numerous whale, dolphin, manatee, turtle, fish, and ray bones. You may bring your own fossils for identification. This is an active research site yielding deposits ranging from sixty million to about four million years-old. Bring your own lunch, a trowel, plastic baggies, and a bucket. Dress to get dirty. There is easy access for the young, elderly, and disabled, but there are no restrooms.
9 a.m.-1 p.m. Suggested donation: $25 adults, $15 children under 12.
Carmel Church Home Page

June 22, July 26
Westmoreland State Park

Take a trip along the spectacular cliffs of the Potomac River, in an area rich in paleontology, ecology, and history. The 140-foot high cliffs expose sediment ranging for 3.5 million to 14 million years old, and have produced fossils of whales, seals, crocodiles, sharks, and numerous seashells. These cliffs have been studied by naturalists for nearly 200 years. While on the trip, take time to explore the scenic beauty at Westmoreland State Park and the historic structures and museum at Stratford Hall. Accommodations and park fees are not included in your donation. There is a campground at Westmoreland State Park, and hotels are available in Montross and Colonial Beach. Bring your own lunch, a trowel, plastic baggies, and a bucket. Dress to wade and get dirty. Access is moderate, with some walking required, and getting wet is likely. There are no restrooms.
9 a.m.-3 p.m. Saturday or Sunday. Suggested donation: $25 adults, $15 children under 12.
Westmoreland Home Page

October 17
Martin Marietta-Belgrade/Martin Marietta-Castle Hayne/Old Dock

This trip to the North Carolina Coastal Plain includes time periods not preserved in the sediments in Virginia, with fossils that indicate much warmer water. We will meet Saturday morning at the Martin Marietta-Belgrade Quarry, which includes the Cretaceous PeeDee Formation and the Eocene Castle Hayne Formation. We will then travel to the Martin-Marietta-Castle Hayne Quarry, which includes similar units to Belgrade; large numbers of sea urchins can be collected here. Time permitting; we will visit the Old Dock locality, which includes extremely rich deposits of the Pleistocene Waccamaw Formation. Bring your own lunch, a trowel, plastic baggies, and a bucket. Dress to get dirty. Access is moderate, with some walking required, and getting wet is likely. There are no restrooms.
9 am-3 pm. Suggested donation: $25 adults, $15 children under 12.
PLEASE NOTE THAT THIS TRIP IS ON FRIDAY, NOT SATURDAY.

VMNH Dinosaur Trip Opportunity

Would you like to participate in a future dig as a volunteer? A limited number of volunteers will be able to help the research team during the summer. Each may be at the site for one week and must pay their own airfare as well as a fee to cover camping expenses and meals. If you are interested, please contact Dr. Fraser by email at nfraser@vmnh.org or by telephone at (276) 666-8642. Check it out on the web at:
http://www.vmnh.org/Dinodig/DINODIG.HTM

Giant Cement "Camelot" Saga

Back in early January, I received my member's copy of the North Carolina Fossil Club's newsletter, *Janus*, and read an article in it by the club's President, Rich Olsen. The article was about a recent, extensive, probable Pleistocene aged

mammal bone bed nicknamed Camelot (attributed to the numerous camel bones found at the site), which was discovered at the Giant Cement Quarry in South Carolina. This site has been referred to in press releases as the "La Brea Tar Pits of the East Coast." The article's heading made it seem like their was an issue between the local collectors, who originally made the find, and the South Carolina State Museum, who was now in charge of the site, but the article gave no details.

I was still upset about the recent theft of a whale skull from a CMM dig site along the Calvert Cliffs, so I was looking for a way to direct the frustrated energy I was experiencing due to that situation towards something positive. This seemed like a great opportunity to do just that.

After I contacted several of my usual fossil news sources, there seemed to be a tremendous amount of rumors circulating about the site, and who did what to whom. I initially considered submitting the *Janus* article as-is to be published in *The Ecphora,* but thought instead that I could do a better service to all by contacting both sides and trying to clear the air. I, unfortunately, was not 100% successful. I was unable to convince the original discoverers of the site, after numerous attempts through neutral parties, to come forward. But I was able to get in touch with Jim Knight, the Curator of Paleontology at the South Carolina State Museum, and one of his paleo Volunteers, Vance McCollum. We discussed the site and its discovery at length and the following article tells its story:

Although the Giant Cement quarry is well known for its Eocene marine fossils, there have been some notable Pleistocene terrestrial fossil discoveries made there from time to time; For example, the Ardis local fauna, published more than 10 years ago. Mammal fossils representing a number of genera have been found in the overburden dirt that is removed to reach the limestone. For many years, knowledgeable collectors have been searching the overburden piles, slopes and wall faces looking for the prized specimens that occasionally appear. During the last two years in particular, more and more Pleistocene mammal fossils were showing up in the dirt slopes, and many collectors were hot on the trail, looking in the vertical back walls of the quarry for the strata producing these fossils.

It was not, however, until late spring of 2002 that the fossil formation was finally discovered. Rick Carter, a very experienced collector, was in the quarry as a guest of another collector, when he spotted a sandy layer exposed for the first time. It was about eight feet below the topsoil line in the back wall of the quarry. He realized that this was a likely fossil deposit, and after digging back in the sand he was proven correct. Several beautiful and rare fossils were collected that day. After comparing the coloration, density, and types of fossils found in this layer to the specimens found in the spoil mounds of the preceding two years, it was a good bet that this was the exposure everyone had been looking for.

Since Carter had permission to collect at the quarry as a guest, he, his host, and several other collectors continued to dig into the fossil layer and remove fossils during the summer months. Due to a previous agreement made with the host, who invited the collectors in that first day, the majority of the notable mammal fossils found in the subsequent months ended up in one private collection. Rick Carter and another collector suggested to the other collectors from the first day that the site should be turned over to the South Carolina State Museum (SCSM). The State Museum, however, did not have a section of the site finally set aside until midsummer.

During the time the site was collected by the private collectors, no scientific data was collected with the fossils, so they would be of no particular value in future publications on the fauna. Few fossils were donated to the museum during this time. The fossils that were donated consisted primarily of a few mammal limb bones and a handful of bird bones. However, none of the more important skulls and mandibles were included. The State Museum, of course, has **neither the will nor the legal right** to confiscate any fossils from anyone or anywhere, so all of the fossils remained with the original collectors. Several weeks passed while the State Museum waited for the overburden to be removed (a major safety consideration!) from their set-aside area. During this period, the State Museum was incorrectly told that the collecting hours they were previously granted had been reduced. This turned out to be erroneous, due to a communications glitch

between some of the quarry officials. However, others continued to collect.

Since there was an apparent delay in removing the overburden from the State Museum's site, and since the other collectors seemed to be allowed to collect freely while the Museum volunteers could not, Jim Knight, the Curator of Paleontology at the SCSM, decided to contact the CEO of Giant Cement to see if he could expedite movement on the site and restore original access times. **These were the only reasons Dr. Knight contacted the CEO of the mine**. The CEO kindly arranged a meeting with the State Museum, and his second in command, to get things moving in the right direction for the Museum. At the subsequent meeting with this official, Museum personnel were informed that the site was no longer in existence. Knight had to explain that the site was, indeed, still there and was being actively collected. The official was very surprised because he thought the site was gone and had issued orders, several months earlier, to all concerned that the site was not to be collected by anyone. It was his understanding that, following his orders, the site was left alone from that time, and that the site had been subsequently destroyed by mining operations. After being taken to the site by Museum personnel, he realized that someone, as yet unidentified, had plundered the area set aside for the Museum. When he realized that he had not been informed that the site was still there and was being actively collected, he closed the site down to all collectors except for the State Museum volunteers. This was a total surprise to the State Museum, as no one from the Museum had expected, or asked for, this action to be taken. It was a realistic reaction none-the-less, considering that the CEO's orders had been somehow, possibly deliberately, disregarded. During the next two weeks, Knight and the Museum volunteers voiced their opinions that the other collectors regain their collecting privileges in the quarry.

In late September, the overburden was removed from the State Museum's site and digging began in earnest. When the digging began, the first three collectors of the original site were all invited to participate in the State Museum dig, but they chose not to. Over the course of the next few months, the site was collected extensively with the help of volunteers from other museums and universities. A grid system was established to locate fossil associations. Compass orientations were taken on the longer bones in an effort to determine the direction of water flow when the bones were deposited. A great deal of effort was expended by a lot of people to develop the collection as a scientifically important one.

Problems have persisted for the Museum at the site. The first skull found by State Museum personnel was located at dusk, without time to collect it. It was reburied, but was stolen by the time the Museum returned at 8:00 AM the next morning. Looters have invaded the site on a number of occasions, removing who knows what. Thieves recently dug a trench through one of the more productive areas of the site at night. Someone went in and destroyed part of the grid system so he/she could dig under the stakes! It is hard to imagine, what would make a person risk hard jail time and large fines for criminal trespass, grand theft, and/or receipt of stolen property. Lawyers could probably think of other charges. Make no mistake - if caught, the looters will be prosecuted to the FULL extent of the law by the mine's management.

Complete horse skull next to a saber toothed cat ulna!

The site has been very productive but seems to be now coming to an end. The final tally of finds will take time but the following is partial list of the

specimens that so far have been retrieved and preserved by the SCSM for all to enjoy:

Horse: skulls - (2), mandibles - (2) complete ones (both rami) and about (3) single rami
Opossum: (3) rami
Tapir: one skull and a ramus
Sloth (megalonyx jeffersoni): one skull and both rami for that skull
Peccary (platygonus): (1) complete lower jaws and one complete skull
Deer: one skull and probably 6 or 8 rami
Wolf: one maxilla section with three teeth
Camel: one skull, two complete lower jaws and numerous rami
Alligator: ramus with a single tooth
Rodent: two rami
Smilodon saber cat: (5) complete or partial skulls and 4 rami
Turkey: numerous bones

Submitted by: Jim Knight, Vance McCollum & Paul R. Murdoch Jr.

Smilodon lower jaw

PS - Vance has created a website displaying some of the SCSM finds from the site. It's located at http://www.earthrelics.com/uniques.jsp?id=12

March 14-16: *Clifton Mineral, Gem & Jewelry Show* sponsored by the North Jersey Mineralogical Society, Pope John Paul Elementary School, 775 Valley Rd., Clifton, NJ.

March 15-16: *39th Annual Gem-Mineral-Fossil Show*, sponsored by the Gem, Lapidary, & Mineral Society of Montgomery County, MD, Inc., Montgomery County Fairgrounds, 16 Chestnut Street, Gaithersburg, MD

March 22-23: *35th Annual Gem Mineral Fossil Show* sponsored by the Buffalo Geological Society, Erie County Fairgrounds, Hamburg, NY.

April 5-6: *Philadelphia Mineral Treasures & Fossil Fair 2003 Annual Show & Sale*, presented by the Philadelphia Mineralogical Society & the Delaware Valley Paleontological Society, LuLu Temple, 5140 Butler Pike, Plymouth Meeting, PA. Saturday 10 AM – 6 PM, Sunday 10 AM – 4 PM.

April 11-13: *26th Annual Atlantic Micromounters Conference* sponsored by the Micro-mineralogists of the National Capitol Area. Contact Steve Weinberger (cweinber@bcpl.net) for info and registration.

April 12-13: *34th Annual Gem, Mineral & Fossil Show* sponsored by the New York Southern Tier Geology Club, Senior Citizen Center, Johnson City, N.Y.

April 26-27: *31st Annual New Jersey Earth Science Association Gem & Mineral Show & Outdoor Swap* sponsored by the Franklin-Ogdensburg Mineralogical Society, the New Jersey Earth Science Association & the Sterling Hill Mining Museum in Franklin, NJ.

May 17 - 18: *35th Annual Jewelry, Mineral & Fossil Show,* sponsored by the Berks Mineralogical Society, Leesport Farmers Market Banquet Hall, Route 61, Leesport, PA

Upcoming Area Shows in 2003

May 17: *14th Annual Swap/Sell* at Goucher College sponsored by the Chesapeake Gem & Mineral Society. Goucher College, Kraushaar Auditorium Pavilion, Dulaney Valley Rd just off I-695; Towson, MD.

Information submitted by Robert Ascreen

Interesting News Links

Shark Populations Down:
http://abcnews.go.com/sections/scitech/DailyNews/sharks030117.html

Ancient Elephant Graveyard Opens Near Rome:
http://dsc.discovery.com/news/briefs/20021230/elephant.html

Huge Ancient Ocean Predator Found:
http://dsc.discovery.com/news/briefs/20021230/pliosaur.html# More information about these and similar creatures can be found at:
http://www.oceansofkansas.com

Four Winged Dinosaur possible Ancestors for Birds:
http://abcnews.go.com/sections/scitech/DailyNews/fourwingeddino030123.html

Lemurs Self Medicate when Pregnant:
http://dsc.discovery.com/news/afp/20030120/lemur.html

Students Discover Giant Squid Fossil at an Street Intersection in Arkansas:
http://www.cnn.com/2003/US/South/01/23/arkansas.fossil.ap/index.html

Sediment layer in NY harbor traces 9/11m disaster
http://dsc.discovery.com/news/afp/20030127/hudson.html

Progress being made in Teleportation experiments
http://dsc.discovery.com/news/afp/20030127/teleport.html

Cloneable Mammoth Cells Discovered!
http://dsc.discovery.com/news/afp/20030203/mammoth.html

Scientist to drill into a Volcano!
http://dsc.discovery.com/news/afp/20030210/volcano.html

Shiny Blue Clouds at the Edge of Space:
http://abcnews.go.com/sections/scitech/DailyNews/nighshiningclouds030228.html

NMNH Paleo Training Program

The purpose of the Paleontological Training Program (PTP) is to acquaint interested members of the public with fossils and the history of life, as well as methods of paleontological collecting, conservation, collections management, and the nature of research at the Museum of Natural History. We hope the PTP will also serve to encourage participants to volunteer in areas of research, collections management, or other departmental activities.

The core curriculum of the PTP consists of two sessions:
1) Spring Session: Introduction to Geology and Paleontology - with one or more field trips.
2) Fall Session: Paleontological Preparation Methods and Collections Management Procedures and Museum Ethics.

A fee of $100 per student is charged to cover the cost of each term. A certificate is earned for completion of the entire program.

Web Information:
http://www.nmnh.si.edu/paleo/ptp.html
And at the CMMFC's website!!
Contact: Jennifer Young,
young.jennifer@nmnh.si.edu, (202) 357-4030.

President's Column

We had a very informative general meeting last month. Richard Rogers, President of the CMM Volunteers, spoke to the club about volunteering at CMM and for the CMMFC, keeping track of volunteer hours and their importance in garnering funding for the museum. Volunteering is a growth experience for the volunteer as well as being beneficial to the museum, a veritable win-win situation.

Mike McCloskey addressed the group about photographing one's specimens. He allowed us to see his albums of remarkably beautiful photographs

capturing the structure and the intrinsic beauty of the things we collect. He explained to us that we didn't need expensive photographic accessories to create quality photos. Mike showed us his basic equipment, which consisted of a plate of glass, white paper, colored construction paper, a backlight and plastic building toys requisitioned from his son. These things formed the foundation and the stage for his exquisite photos. One of the most expensive pieces of equipment in his toolbox was the macro lens that he uses to photograph fossils at a very close range. We can adapt his ideas even though we may not have a macro lens.

As always, members brought items from their collections, which is always fascinating and a terrific way to learn via direct observation and by questioning the collector. We were also privy to a recent rare find by Bill Counterman, assistant to the curator of paleontology. He brought in a very complete fossil of a spiny sea robin. It is thought to be approximately 18 million years old. The specimen was found in the lowest Miocene layer, the Calvert.

But I believe the most important "find" of the board meeting and the general meeting was the general consensus that education was the premier goal of the club. To learn from one another, to learn via research in the field, in the paleo lab, from the Ecphora, from workshops, from speakers that address our club, and from the museum, and to impart this knowledge to others is the focus of our existence. We come from different backgrounds and have various specimens we like to collect or research, but we all come together to share it all, to educate and increase our knowledge about that great Miocene Sea of so many millennia ago. From whence we came…the journey is truly fascinating!!!!!

Grenda Dennis

Members' Finds Get Public Recognition

Members Bill Counterman and Paul R. Murdoch Jr. each had one of their finds mentioned in publication. Bill Counterman's find of a spiny sea robin was the focus of an article that appeared in the *Southern Maryland Weekend section of The Calvert Recorder*. The paper was kind enough to see that the CMMFC was sent the article, and it is included in its original full length, including picture, below. Congratulation to both Paul & Bill on their noteworthy finds!! The article follows:

CMM Scientist Reaps New Fossil Find

By Jesse Yeatman
Staff Writer-The Calvert Recorder
February 7, 2003

The assistant curator of paleontology at the Calvert Marine Museum had taken many walks in search of fossils over the years, but last Christmas he found a surprise present on the exposed shore of a low-tide Chesapeake Bay. Last December, Bill Counterman stumbled upon what might be a new species of prehistoric fish, an 18 million-year-old fossil of a spiny sea robin.

"Luck has a lot to do with it. I was looking for other things that may have eroded out. I wasn't expecting to find fish fossils," Counterman said of his discovery.

Counterman noticed a small sliver of bone, barely an inch long, exposed in the wet silt off the shore of southern Anne Arundel County. The bone warranted closer inspection because of its dark color, he said. "Fish bone has different color and texture from sharks, dolphins or other animals," Counterman said. "At first it just looked like a broken fish bone."

Curator of the museum Steven Godfrey is very excited about the possibilities of Counterman's find. "Bill has a natural ability to spot fossils," Godfrey said, correcting Counterman's modest attitude of the "lucky" discovery.

The specimen Counterman found is about six inches long and has thorny scutes — or spines — covering the tail. The protective armor is still mostly intact, which may mean the fish was fossilized quickly by a rapid covering of silt.

Both paleontologists were extremely pleased at the way the fossil held together for so long. "It's rare to find pieces this complete, I was very lucky," Counterman said. "The fossil prepared itself as it dried over a period of a week or two," Counterman said. The specimen dried and delaminated from the rock base. Counterman then gently dug out the bony fossil using a dental probe instrument. "Sometimes

we can chisel out fossils. With small delicate bones like this we use an instrument such as a dental probe. It has a small needle on the end for precise work," Godfrey said.

The pair will document the fossil with photographs, illustrations and a written description. Sometime this month, Godfrey and Counterman plan to take the fossil to an expert on sea robins in Florida, Dr. Bill Richards. He is a member of the National Oceanic and Atmospheric Administration, which is recognized as a leading authority on such finds. He will examine the fossil and determine if it is unique enough to be labeled a new species. If the native fossil is determined to be a new species, the museum will have the opportunity to name it. Counterman declined to give any ideas on the new name, at least until it is confirmed as a new species. "I'd like to get an article published in an international scientific magazine if it all works out," Godfrey said.

The pair believes the fish is approximately 18 million years old because of certain features of the fossil and the rock/silt it was found in. The Calvert Formation, which comprises a layer of land along the western shore of the Chesapeake Bay known as the Miocene, has generally been accepted to date from 5 to 25 million years old. The fossil was found in the lower Miocene layer, which gives it the 18 million year old dating. Hopes are high that the fossil is a new species.

The bottom dwelling fish, known commonly as a spiny sea robin, still exists today in at least 120 different species. Also known as armored gurnards, the fish commonly swims in oceanic waters around 600 feet deep. Spiny sea robins average in size from 12 to 16 inches and have unique protrusions from the gill area that allow the creature to crawl on the sea floor.

The piece may be put on exhibit at the museum after it is scientifically documented and preserved. The Calvert Marine Museum has the largest display of fossils, next to the Smithsonian, in the region.

Bill examining the details of the fossil find

Virginia Museum of Natural History, Guidebook Number 3. *Vertebrate Fossils From the Potomac River, Westmoreland County, Virginia* written by Alton C. Dooley, Jr.
November, 2002

Paul R. Murdoch Jr., along with Alton C. Dooley Jr. of the VMNH, and VMNH volunteer Carter Harrison spotted a section of a yet unidentified kentriodontid dolphin in the cliffs at Currioman Bay on a VMNH field trip on the Potomac River during 2002. The guidebook centers on the geology and paleontology of Westmoreland County, VA and the public parks contained therein; most notably Stratford Hall (the birthplace of General Robert E. Lee) and Westmoreland State Park.

The Picture is from the above-mentioned VMNH publication. Scale bar is applicable for jaw and cranial elements only. Tooth is approximately 3cm in total length.

Most of the lower jaws, including one tooth, and partial sections of the cranium were recovered. This specimen is the only one of this type of dolphin that has been quarried from the Potomac River, and currently is in the VMNH's collection. Although it is a first for the VMNH from the site, the NMNH is presumed to have a few kentriodonts in its collection from the Potomac River. Still , a rare find indeed!!!

Kentriodonts are one of the rarer families in the order of cetecea found in the Miocene. It's been estimated that one could find 50 or more eurhinodelphid skulls for every one skull found of a kentriodontid. The best-known species of kentriodontid, to most people familiar with the Calvert Cliffs, is *Hadrodelphis calvertense*. This is most likely due to the holotype specimen of the species belonging in the CMM's collection.

Kentriodonts had bulbous, stout teeth, unlike the thin, elongated teeth of the eurhinodelphids. Kentriodnts also lacked the elongated snout of the eurhinodelphids, instead having a snout more similar to today's modern porpoises.

Friends of the Aurora Fossil Museum Update

As most of you already know, the Aurora Fossil Museum (AFM) has a new group to help support it's initiatives – The Friends of the Aurora Fossil Museum. The group has an application available on it's website: http://www.aurorafossilmuseum.com/ (which is still under construction but anticipated to be fully operational shortly), or you can call 252-322-4238 and ask for one to be mailed to you. Membership levels start at the $25 level and go all the way to the $125 family membership. Membership benefits include a discount at the AFM store, trips into the PCS Mine(s), education programs, guest speakers and much more!

The Friends program will be used to improve, expand, and benefit the AFM through both financial and volunteer means. Just joining the group does not mean that one is a Friend. The group anticipates all members becoming involved in some aspect of bettering the AFM, whether it be through specimen donations to the AFM or its auction, volunteer hours or special project participation. The group's Board understands that everyone does not have the ability to physically be in Aurora NC several times a year but we do hope that each member can offer the use of their talents/abilities wherever they are located.

The group's big event of the year is coming in May with the Aurora Fossil Festival on Friday and Saturday of Memorial Day weekend. The Board hopes that all of the members of the Friends group will be there for the festivities and help out for an hour or two during the event in some capacity. Numerous fossil dealers and speakers will be there and we hope to have displays from many of the clubs that collect in the mine.

Hope to see many of you there!!

Submitted by Curtis Ormand Jr. & Paul R. Murdoch Jr. – Board Members of the Friends of the AFM.

UNIT 19, BOSTON CLIFFS MEMBER, CHOPTANK FORMATION

Another in the series on the catalogued collection of the Calvert Marine Museum

The 12-15-foot thick bed of fossil –rich reddish to yellow sand that extends from the vicinity of Parker Creek south to Cove Point, that Shattuck[1] designated Zone 19, was in turn, renamed the Boston Cliffs Member by Gernant[2], who studied not only the Calvert Cliffs exposures, but also age-comparable sections on the Eastern Shore in Talbot County, at Paris, the mouths of St. Leonard Creek and Hellen Creek in Calvert County, Maryland, and at localities in Westmoreland County, Virginia.

Gernant's study of unit 19 sediments, fossil macrofauna, ostracods, and foraminifers led him to conclude that the Boston Cliffs Member was deposited during storm events in an open-shelf environment during a slight warming trend. He describes the member as consisting of shelly, reddish-brown-to-brown muddy fine sands, bounded by a lower gradational contact and an upper contact defined by an oxidized, indurated sequence. The fauna was similar to, but less diverse than, that in the Drumcliff Member (unit 17), suggesting that deposition took place in slightly warmer, deepening water (<30-35 m) than during deposition of the Drumcliff. The presence of barnacles, oysters, and scallops in the top layers of the member was interpreted as indicative of shallowing water in an inner shelf environment. He also suggests that the water was still shallower (<20m) and more brackish during deposition of the top levels at Eastern Shore locations.

More recently Kidwell[3, 4] (1989, 1996) has concluded on the basis of field studies of Calvert Cliffs that the Boston Cliffs Member formed during a second pulse of shoreline retreat/marine transgression during deposition of the Choptank Formation. She concurs with Gernant on the importance of storms for the concentration of shells in the lower shoreface and concludes that the shell material was derived primarily from local, rather than exotic habitats. A chart (1989, pp 5-6) summarizing shell bed features indicates that the Boston Cliffs Member is a tabular-shaped bed of very shelly, muddy (1-11%) sand covering approximately 3,000 square kilometers. It consists of a series of onlapping facies separated by discontinuities and is bounded below by a burrowed firm ground and above by a gradational sequence that has been beveled by erosion. Another chart (1996, p. 5) places the age of the Boston Cliffs Member at about 12,000,000 years.

The Boston Cliffs shark teeth and ray dental plate and spines in our collection were collected early on by Eshelman, Bohaska, and Kaltenbach at Camp Conoy and the BGE plant site and more recently by Godfrey at the mouth of Hellen Creek and by Werts and Counterman at Boston Cliffs. The other vertebrate fossils—turtle plate, bony fish remains, dolphin elements, and peccary molar—were found by Riker and Bohaska at Camp Conoy and the BGE plant site. Invertebrate specimens were also collected from the above named sites, as well as from Calvert Cliffs State Park, Drumcliff (Jones Wharf), Parker Creek, Scientists Cliffs, and Governor Run. Astartes, corbulas, chesapectens, and oyster shells far out number other species named in the following list.

[1]Shattuck, George Burbank, 1904. Geological and paleontological relations, with a review of earlier investigations, in Miocene, Text, Maryland Geological Survey, p. lxxxii.

[2]Gernant, Robert E., 1970. Paleoecology of the Choptank Formation (Miocene) of Maryland and Virginia,
Maryland Geological Survey Report of Investigation No. 12.

[3]Kidwell, Susan M., 1989. Stratigraphic condensation of marine transgressive records: origin of major
shell deposits in the Miocene of Maryland. Journal of Geology, 1989, vol. 97, no. 1, pp 1-24.

[4]Kidwell, Susan M., 1996. Miocene strata of the Calvert Cliffs, Maryland. Fieldtrip Guidebook for Students in the Paleobiology Program, University of Chicago. Unpublished manuscript

Boston Cliff Fossils in the CMM Collection

VERTEBRATES
REPTILES
Cheloniidae [Turtles]
Procolpochelys sp. cf. *P. grandaeva*
1 costal plate
SHARKS
Hemigaleidae
Hemipristis serra
1 tooth
Alopiidae
Alopias sp.
1 tooth
Carcharhinidae
Carcharhinus sp.
1 vertebral centrum
10 teeth
Sphyrnidae
Sphyrna sp.
1 tooth
RAYS AND SKATES
Myliobatidae
2 partial spines
Myliobatis sp.
7 partial dental plates or fragments
Aetobatus sp.
7 dental plate fragments
Rhinopteridae
Rhinoptera sp.
1 dental plate fragment
BONY FISH
Teleostei
2 otoliths
4 teeth
1 partial skull
2 vertebrae
7 hyperostoses [“tilly bones”]
Sciaenidae
Pogonias sp.
1 tooth
MARINE MAMMALS
Odontoceti [dolphins]
1 caudal spine
1 partial mandible
1 periotic
Kentriodontidae
?*Hadrodelphis* sp.
1 associated set of mandible fragments
LAND MAMMALS
Tayassuidae [Peccary]
Cynorca proterva
1 lower molar

INVERTEBRATES
MOLLUSKS
PELECYPODS [Bivalves]
Arcidae
Dallarca elevata
Dallarca *sp. cf* D. elnia
Isognomonidae
Isognomon maxillata
Pinnidae
Atrina sp. cf *A. harrisii*
Pectinidae
Chesapecten nefrens
Chesapecten sp. cf *C. monicae*
Eburneopecten cerinus
Ostreidae
Ostrea sp.
Ostrea carolinensis
Lucinidae
Parvilucina crenulata
Stewartia anodonta
Diplodontidae
Diplodonta acclinis
Carditidae
Carditamera protracta
Astartidae
Astarte obruta
Crassatellidae
Marvacrassatella marylandica
Tellinidae
Florimetis biplicata
Semelidae
Semele sp. cf *S. carinata*
Glossidae
Glossus marylandica
Veneridae
Dosina acetabulum
Macrocallista marylandica
Mercenaria cuneata
Petricolidae
Pleiorytis calvertensis
Corbulidae
Bicorbula idonea

Corbula inaequalis
Varicorbula elevata
Hiatellidae
Panopea americana
GASTROPODS [Snails]
Turritellidae
Turritella subvariabilis cf *T.variabilis dianae*
Epitoniidae
Epitonium marylandica
Naticidae
Lunatia heros
Polinices duplicata
Muricidae
Ecphora meganae williamsi
BRYOZOANS
Celleporidae
Palmicellaria convoluta
Membraniporidae
Membranipora fossulifera
ANTHOZOA [Corals]
Astrhelia palmata
CRUSTACEANS
Decapoda
Claw tips
Cirripedia sp. cf *A. harrisii*
Balanus sp. [barnacle]

Submitted by Pat Fink

Editors Column

In case you missed it in the previous articles, I'd just like to point out that Bill Counterman found a spiny sea robin! Good job Bill!

It's good to see that we have some member articles in this issue. If anyone has a trip journal or collecting story they would like to have published, please send it in. We'd love to have it. Also, if you have a find from 2002 that you are especially proud of (it doesn't have to be huge or a rare find), please send us a picture so we can post it in the next newsletter.

I would just like to remind people to please let us know if you are willing to receive *The Ecphora* via e-mail instead of the costly printed version. If you choose to receive the edition via email, there are many benefits: 1) it will be in color, 2) all of the links for email addresses and on-line articles will be a mouse click away, 3) the club will incur a substantial savings in printing and mailing cost, 4) these savings can be passed on to allow the club to make other tangible purchases for the club or the CMM's Department of Paleontology.

Also, just a reminder that it's not too late to donate to Bubbles the sea otter! The museum is still accepting donations to build a new and bigger habitat for her. You can donate to Bubbles online, at www.calvertmarinemuseum.com/donations.htm.

For the next meeting, Treasurer Paul R. Murdoch Jr. will be donating a cast of a basilosaurus (archeocete) tooth from the famous specimen at Louisiana State University to be raffled off. All proceeds to go the Club's general fund.

Basilosaurus tooth to be raffled.

The tooth is made from water-extended polyester and is lightweight and very durable. Tickets will be $0.50 a piece or 3 for $1.00. Over a hundred must be sold or the raffle will be extended to the next meeting. Whenever possible, tickets will also be made available for purchase on the upcoming fields trips. The specimen it was cast from is regarded to be the most complete and best-preserved skull ever found of this species, which is over five feet in length! Although this specimen was found in Louisiana, this species is the state fossil of Alabama.

Now for long range planning…I would like everyone to consider for next year if the club should start actively participating in the fossil shows of some of our brethren; namely the Aurora Fossil Festival (AFF) and the Delaware Valley Paleontological Society's (DVPS) Fossil Fair. Both are a considerable distance from our club's home base of the CMM; however these two events are large, comprehensive, and associated with two groups that the CMMFC has had strong past dealings with. Hopefully the club can reinvigorate the relationships with these two entities and a stronger bond can be forged. Although it is too late this year for the club to officially elect to participate in the DVPS's Fossil Fair, there is still time to determine if the club will take part in the events at the Aurora Fossil Festival in May.

Additionally, the Aurora Fossil Museum (AFM) is very interested in forming a relationship with the CMM and the CMMFC, since it's geology and paleontology overlaps. No better way to get things started than to spend a weekend in Aurora when the whole town is thinking fossils! A few members may already be going down independently from the club to assist the Friends of the AFM with the preparations for their festival. It would be nice to get a few more and make it official. If the club decides to participate via a vote at the next meeting, a sign-up sheet will be made immediately available and further details provided.

Submitted by Hillary Murdoch

Current Events in the Paleo Prep Lab

Since November, the biggest and most viewable fossil being prepared is a small baleen whale skull that was quarried by the CMM in May and June of 2001. A picture of it being removed from the cliffs appeared in the CMM's 2001 Summer edition of *The Bugeye Times* and can be viewed at the following link:

http://www.calvertmarinemuseum.com/bugeyetimes/summer2001/bugeye_times_page5.htm

The find has not yet been positively identified to a species level, since the diagnostic parts located at the rear of the skull have yet to be uncovered, but the condition of the find makes it very rare. As you can see in the picture below, the skull's snout elements are extremely well preserved. When a skull is discovered, normally only the dense bone sections located at the rear of the skull are found intact. Sometimes, the centermost portion of the snout is preserved as well. In this case, however, the snout elements (maxilla and premaxilla) are intact to the tip of the skull.

Front view of the snout. The maxilla have pulled away and are resting on top of a rib. Several epiphysis and vertebra are viewable at the rear of the jacket.

These bone elements are three millimeters or less thick!!! The left lower jaw, although not 100% complete, is preserved along the entire length of the bone, including the attachment processes at the rear of the jaw. Having this will further assist the paleo staff in making a positive identification of the find.

CMMFC member and Paleo Volunteer Pam Platt has been working on preparing the find since late

November. I would like to take the opportunity to publicly THANK her for the work that she has done on this specimen. There were numerous large cracks in the matrix of the jacket when it was brought to the prep lab from storage and upon seeing this; we all feared that the bone inside would have been damaged. However, due to Pam's skill, persistence, and cautious determination, the find is being preserved in amazing detail. More work remains to be done but it is looking just fantastic so far. GREAT JOB PAM!!!

Submitted by Paul R. Murdoch. Jr.

Reminders:
The next club meeting will be held on Saturday, April 12th at 12:30 in the usual meeting room on the third floor of the CMM. Mary Ellen Didion-Carsley from Media Art and Design will be the guest speaker at the meeting. She is currently working on scientific illustrations of some of the Miocene dolphin skulls in the CMM's collection.

The Ecphora is published four times a year and is the official newsletter of the Calvert Marine Museum Fossil Club. All opinions expressed in the newsletter are strictly those of the authors and do not reflect the views of the club or the museum as a whole. Items published in *The Ecphora* may be reproduced with the written permission of the editor or of the author(s) of any article contained within.

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