

From *The Rostrum*, Volume 19, Number 4, July, 2010:

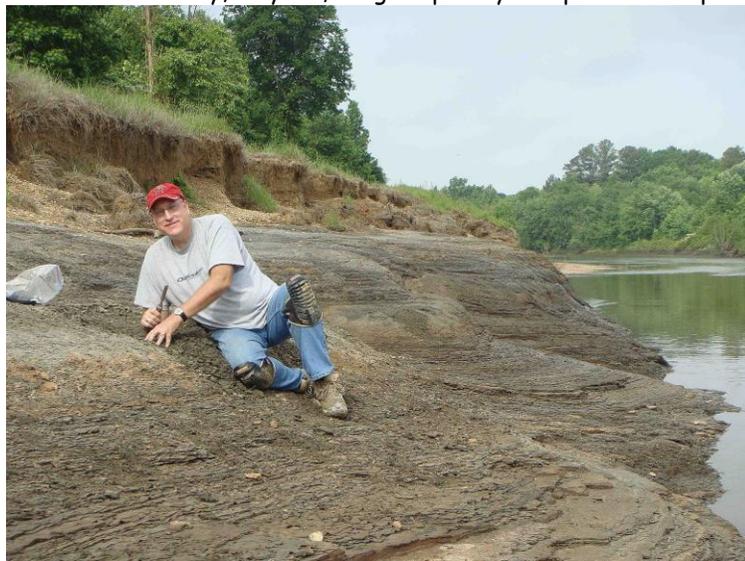
THE MISSISSIPPI CRETACEOUS

Michael Hutchins

It was still dark when the alarm clock rang on Saturday May 8th. I had a 7:30 AM flight out of BWI to catch, the first leg of my trip to Jackson, Mississippi. I was on my way to meet my good friend and the state paleontologist of Mississippi, George Phillips. George works for the Mississippi Department of Wildlife, Fisheries and Parks and is based at the state's Museum of Natural Science in Jackson. I was fortunate enough to have the rare opportunity to accompany George on one of his official exploratory trips around the state, and to assist him in his collecting activities for the Museum. After signing my liability release, I was instructed that I could keep most specimens that I found, but that any rare or unusual specimens of scientific interest would, of course, go into the Museum's collection. Being a scientist myself, I was more than happy to assist George and the Museum any way I could. I was also anxious to learn everything I could from George, as he is an extremely knowledgeable paleontologist.

George was waiting at the Jackson Airport when I arrived, and as soon as I retrieved my bags, we were on the road and headed to our first collecting site. We drove north on the highway for about two hours until we reached the city of Pontotoc. We visited a bulldozer-scraped site on the east side of town. This site represents the "Nixon Sand" facies of the Prairie Bluff Formation, Upper Cretaceous, Late Maastrichtian age. Crawling on our hands and knees we scoured the site in great detail, finding numerous examples of small, burrowing fossil sea urchins, *Paraster variabilis* and *Hemiaster wetherbyi*, some of which had been distorted by pressure. I also discovered a weathered ammonite (*Discoscaphites conradi*), and we both collected numerous small oysters (*Cubitostrea tecticosta*), sea pens (Pennatulacea: Virgulariidae), and crab claws (*Lithophylax* & *Protocallianasa*). Erect bryozoans were also very abundant.

On Sunday, May 9th, we got up early and proceeded up US Highway 78, until we reached Blue Springs.



We exited and pulled up to a large borrow pit about a half mile from a massive, brand new, but never used Toyota assembly plant that was built and then abandoned during the recent (some believe on-going) economic recession. This is also an Upper Cretaceous site, but from the earliest Maastrichtian Stage of the lower Ripley Formation. There we collected numerous crab (e.g. *Dakoticancer australis*) and lobster (*Hoploparia tennesseensis*) parts, including carapaces, claws, and leg sections. A few shark teeth were present, primary *Squalicorax pristodontus*. One of the higher layers contained abundant large mollusks, primarily *Exogyra* and *Pycnodonte*. There were numerous

microfossils as well, some of the most interesting of which were fish ear "bones," or otoliths. [More accurately, they are "ear stones."]

That afternoon, we drove to the city of Aberdeen, where George had permission to collect on the spoil piles of the Panther Creek Bentonite Mine. We parked our truck at the gate and then walked down an overgrown access road for a short distance [\approx 0.1 miles] until we reached the spoil piles, large mounds of dark greenish grey sand, as well as rubble piles of eroding calcareous boulders. Shark teeth of numerous species, including *Squalicorax kaupi*, and fish vertebrae were abundant and very easy to spot, as most were white in color and stood out on the gray sand piles. George found examples of the echinoids *Hardouinia saucierae* in the sand and

Mecaster batnensis in the slightly older calcareous boulders. After leaving the mine, we headed back to Pontotoc and found a hotel for the evening.

We were up early again on Monday May 10th, but the sky looked dark and ominous. We had had broken clouds and relatively cool and pleasant conditions the past couple of days, but the weather looked like it was changing, and changing for the worse. Sure enough, as soon as we drove out of Pontotoc, it began to rain. It was only a light sprinkle at first, but it was clearly time to break out the rain jackets. We proceeded south of Pontotoc until we reached property belonging to Poe Brothers. After meandering down the entrance road for a half-mile or so, we stopped and walked over to the quarry wall, which represents the Ripley Formation of Upper Cretaceous age. The walls consisted of a hard limestone, chock full of fossilized shell material. What we were looking for, however, were examples of the large "pre-sand dollar," *Hardouinia mortonis*. We found a few broken pieces at the first site, but nothing complete, so we hiked another quarter of a mile into the forest where there were additional exposures. Along this wall, we found several complete specimens both in the eroded sand piles at the bottom of the cliffs and in the rock itself. After completing our survey of the cliffs, we trekked over to the mine's maintenance road. The drainage ditch along one side of the road cuts through the Prairie Bluff Formation. There we found numerous shark teeth (*Serratolamna serrata* and *Squalicorax pristodontus*) and George also located some specimens of the small echinoid *Hemiaster wetherbyi*. This is when the weather took a turn for the worse, and the rain suddenly started coming down in buckets. Our pants were getting soaked and both of our raincoats sprung leaks. Not wanting to be deterred by a "little" rain or let it ruin our collecting trip, we decided to proceed into town to buy me some better rain gear, and change into dry clothes. George had better rain gear with him, but needed to put it on. A quick stop at the local Wal-Mart and a gas station and we were back in business.

With raingear in place, we were now ready for the rest of the day. Our next stop was an area George referred to as the "Campground", a wooded ravine south of Pontotoc. As we proceeded into this site, the rain really started coming down. We were comfortable in our rain suits, but the terrain was steep, muddy and slick, and the forest thick and full of poison ivy, a plant that I avoid like the plague, given my severe reaction to it. Finally, we reached the exposure, where again we found a few examples of the large pre-sand dollar, *Hardouinia mortonis*, and two nearly complete tiny tests of the regular echinoid *Phymosoma*. George decided to check the other side of the ravine, so he proceeded down the steep slope and through the rushing creek at the bottom. Not wanting to be left behind, I followed, but started to feel like I was trudging through some exotic jungle rather than the backwoods of Mississippi. Eventually we made it back to the truck, not too worse for wear. I was just happy to be able to keep up with my younger companion. From there, we drove from Pontotoc and stopped at a road cut near Troy. Along these lower Ripley, early Maastrichtian exposures, we found numerous specimens of the small echinoids *Hardouinia aequorea* and *Catopygus fenestratus*. We also stopped at a pond nearby, which exposed a rarely outcropping but now mostly covered section of the lower Ripley Formation referred to as "the Troy beds." There we found additional examples of the two echinoids mentioned above.

We made one last stop that day - a road cut near Montpelier, Mississippi. As we approached this site, the sun began to shine, and as we emerged from the truck, we experienced a feeling of relief from the dampness of the day. We peeled off our raingear as the warm rays began to dry our bodies. The site proved to be good as well. We found numerous high quality, complete mollusk steinkerns, mostly of gastropods representing a wide variety species. At this site, I found two laterally compressed, tightly coiled gastropods that George said he had not seen before; he retained these for the Museum's research collection. As it began to get dark, we decided to head to Columbus to spend the night.

Early the next morning, we drove to a major tributary of the Tombigbee River within the city limits of Columbus and headed about 0.5 miles downstream from the Main Street bridge. This is a well-known collecting site that is visited frequently by clubs and school groups, under the direction of the Museum of Natural Science. The Museum has recovered several dinosaur fossils from this site, including fragmentary remains of two types of ornithopods and three types of theropods. The primary fossil beds lie about 3-4 feet above the water line

and consist of a single layer of a gritty, fossil-rich lag. We found numerous shark teeth of various species by scraping off the upper portion of the lag and sorting through the contents. The teeth are of a deep black color. Many were broken, however, indicating that this was once an area that was subject to a great deal of wave action. Coprolites, or fossil excrement, were also frequently encountered.



We next visited the Dowdie site, a borrow pit located within the Columbus city limits, near a car dealership on Highway 45 North. The exposure represents the Eutaw Formation, very near the Santonian/Campanian Stage boundary. Here we found several shark teeth, primarily *Squalicorax kaupi*, *Cretalamna appendiculata* and *Scapanorhynchus texanus*, and numerous high quality shark and fish vertebrae.

Our next stop was Starkville, the home of Mississippi State University, and long known for its fossil-rich beds of the Prairie Bluff Formation. The first site we visited was a hillside excavation immediately behind our hotel for the night. The Ripley Formation, early Maastrichtian site did not yield numerous high quality fossils, but the ones we did find were excellent. With 5 minutes of arrival, I located a heteromorphic ammonite, which George immediately declared a rare find of scientific importance. The fossil was not complete, but hopefully enough of it was present for identification by an ammonite expert. It will go into the Museum's research collection with my name on it as the collector. George also found a beautiful, complete gastropod fossil, nearly four inches long.

Our last stop of the day, known as the Porkchop Site, is an empty, scraped lot in west Starkville. This site represents the Prairie Bluff Formation, late Maastrichtian Stage. The site had experienced considerable erosion and had not been collected for some time. Fossils were numerous, especially mollusk steinkerns, mostly gastropods and shark teeth (particularly *Squalicorax pristodontus*). Belemnites were also numerous. Here I found two examples of a small nautiloid.

We were up early again on Wednesday, May 12th. We had a long drive ahead of us, and I had to be at the airport in Jackson by around 2:30 PM at the latest to catch my 3:45 flight back to BWI. Nonetheless, we wanted to hit a couple of sites that morning. Our first stop was a road cut and trench along Highway 25 on the west side of Starkville. Within less than 5 minutes, I had found a 2.5 inch *Enchodus* tooth, a large *Squalicorax* tooth and numerous examples of sponge and mollusk steinkerns and examples of a solitary caryophylliid coral. In the nearby trench, I found another piece of a small nautiloid shell.

We made another quick stop along a small road cut on Highway 25 to pick up a few examples of a small brachiopod (*Terebratulina filosa*), which is numerous at that site. We then continued on toward Jackson, stopping in the small suburb of Brandon. There we visited an early Oligocene site near the Crossgates intersection, the only site of the fourteen we visited that was not from the Upper Cretaceous. There we found two complete specimens of the heart urchin (*Schizaster americanus*) and one of the sand dollar (*Clypeaster rogersi*). Also of interest were fossils of the large (0.5 inch) megalospheric foraminiferan (*Lepidocyclina*).

All in all, this was a tremendous trip. I feel that I really got a taste of the Mississippi Cretaceous. Not only did I find numerous high quality fossils for my own collection, I was able to assist my friend George and the Mississippi Museum of Natural Science by finding and contributing three fossils that are of potential scientific significance. George is a wonderful mentor and I greatly appreciated the time that he spent honing my search image and teaching me about 85-65 million year old marine faunas. I hope to get back there sometime soon. All photos by the author.