October 11, 2008: Central Texas Echinoid Run

While juggling family obligations I was unsure that this particular trip would even happen, but a break in the clouds put me on the road by 5 a.m. With a flashlight I was soon working an exposure of Georgetown formation (100 MYA) and soon caught a large but slightly rough *Holaster simplex* echinoid in my fossil tractor beam. Not a bad start, and I finished up with a 12 inch garden grade *Mortoniceras* sp. ammonite. While later beating a little excess matrix off the specimen I had a baby Mort show itself, so chalk up 2 ammonites and one echie for that site.

FIG 49: Georgetown formation *Mortoniceras* sp. ammonite (Site 218)

I spent the remainder of my time in the Walnut formation, a little older at 105 MYA. The sites had gotten a little rain the previous week, not enough to wash out a bumper crop of specimens but I did lay hands on 2 nice *Phymosoma texanum* echinoids in short order out of this particular creek bed.

FIG 50: Walnut formation echinoids *Phymosoma texanum* (Site 123)

I next put in some time reworking a developing construction site cutting into a large hillside. The exposure was not yet covered by a retaining wall so I worked the upper yellow and lower blue-gray layers for echinoids. After an hour or so of searching I turned up a *P. texanum* or two and a big bag of *Heteraster* echinoids, some dusted with pyrite.

FIGS 51-52: Walnut formation echinoids *Heteraster texanus* and *Heteraster mexicanus,* one *P. texanum (*Site 404)

FIGS 53-54: Walnut formation gastropods, one pyritized (Site 404)

Pressing on I worked a small and easily overlooked gravel lot on hands and knees. 30 minutes of work produced about 10 examples of the small and ornate echinoid *Salenia mexicana*.

FIG 55: Walnut formation echinoids *Salenia mexicana* (Site 352)

I then made a random stop at a new exposure cutting into tan marls of the Walnut or Comanche Peak formation and found it to be loaded with more *Heteraster* echinoids garnished with a *Phymosoma* or two. Gotta love finding new and unexplored sites!

FIGS 56-58: Walnut or Comanche Peak formation exposed at Site 484 this page, *Heteraster* sp. and *Phymosoma texanum* echinoids found there next page

An hour long drive put me again in an out of the way exposure cut into a hill and exposing the nodular marl and limestone of the Walnut formation. More rain prior to my visit would have been helpful, but the handful of echinoids *P. texanum*, 2 *S. mexicana*, and one *Coenholectypus* made it all worth the effort.

FIG 59: Walnut formation echinoids *Phymosoma texanum, Coenholectypus* sp. and *Salenia mexicana* (Site 50)

Not wanting to drive through deer country in the dark in my little car this time of year, I opted to pull the plug a little early this time and get on home with my loot.

October 18, 2008: Wandering Waco with TheFossilForum.com

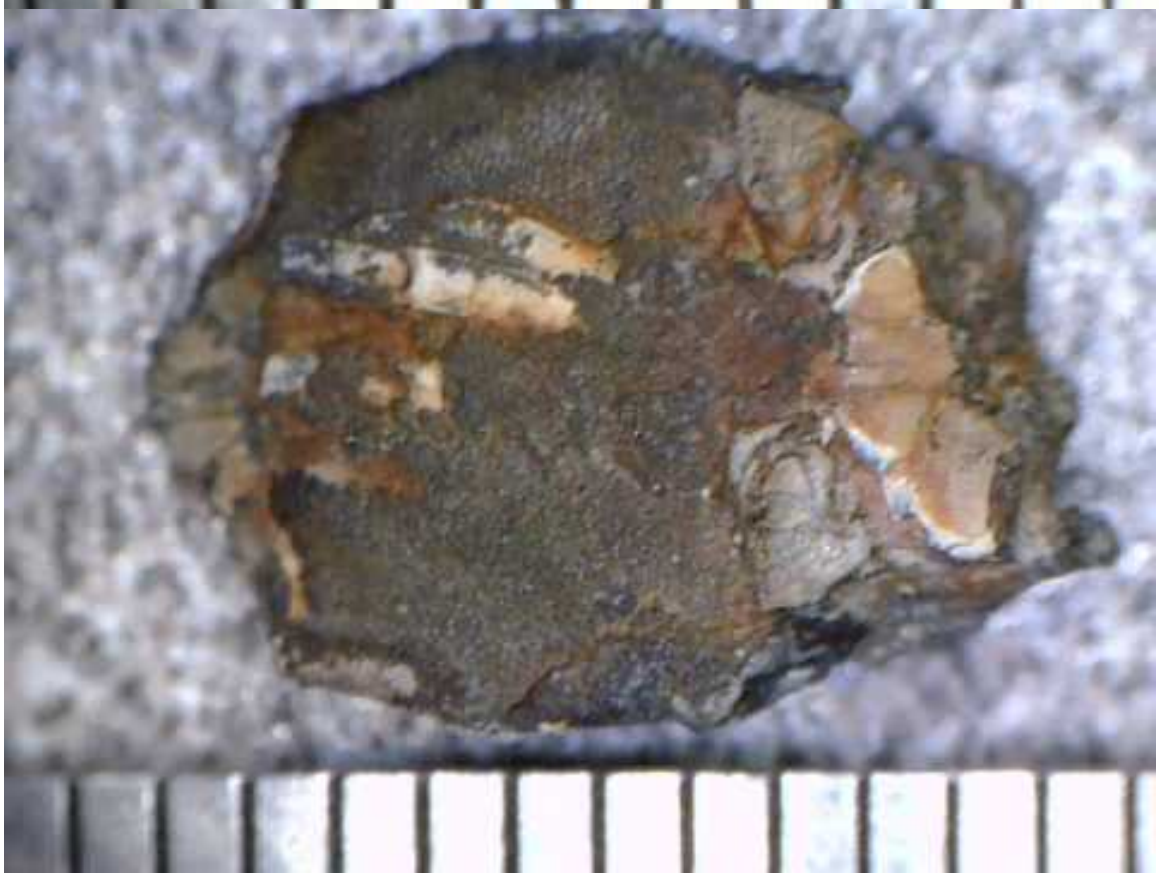
Now I have seen it all, technology meeting prehistory….I belong to an internet fossil forum, thefossilforum.com, and the Texas contingent finally pulled together our first group trip, this time to the Waco Pit. Not one to look a gift horse in the mouth, I gladly piled into Brian Evans' van with my old buddy Tom Fisher and enjoyed a free ride compliments of Brian's company gas card. This borrow pit at the foot of the Lake Waco dam exposes the gray clays of the Del Rio formation (98 MYA), eroded nicely by several inches of recent rain. A host of diminutive marine fossils issue from this clay, and 25 sets of scrutinizing eyes converged on the site at 9 a.m. for a 3-4 hour up close look.

After exchanging pleasantries with the group my detachment of 3 roving fossil attack ninjas (John, Tom, and Brian) joined me in the back of the pit, soon joined by Lance and Roz. "Hey Lance, have you ever found a *Ptychodus* tooth here?" I asked. "Not yet" , Lance responded. "Hey Dan, is this some kind of tooth?" Brian pondered…Of course it was a splendid example of the palatine crusher tooth *Ptychodus decurrens*.

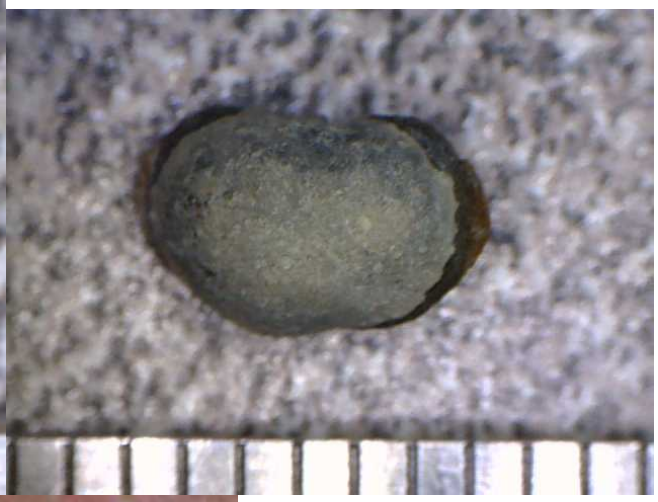
I countered his spectacular find with a perfectly preserved *Goniophorus scotti* echinoid then my first crab from this site, possibly a species of *Cretacoranina*. My day was already a justified with these finds, but anticipating more company on a small portion of the exposure, we dropped into the spillway for the remainder of our search.

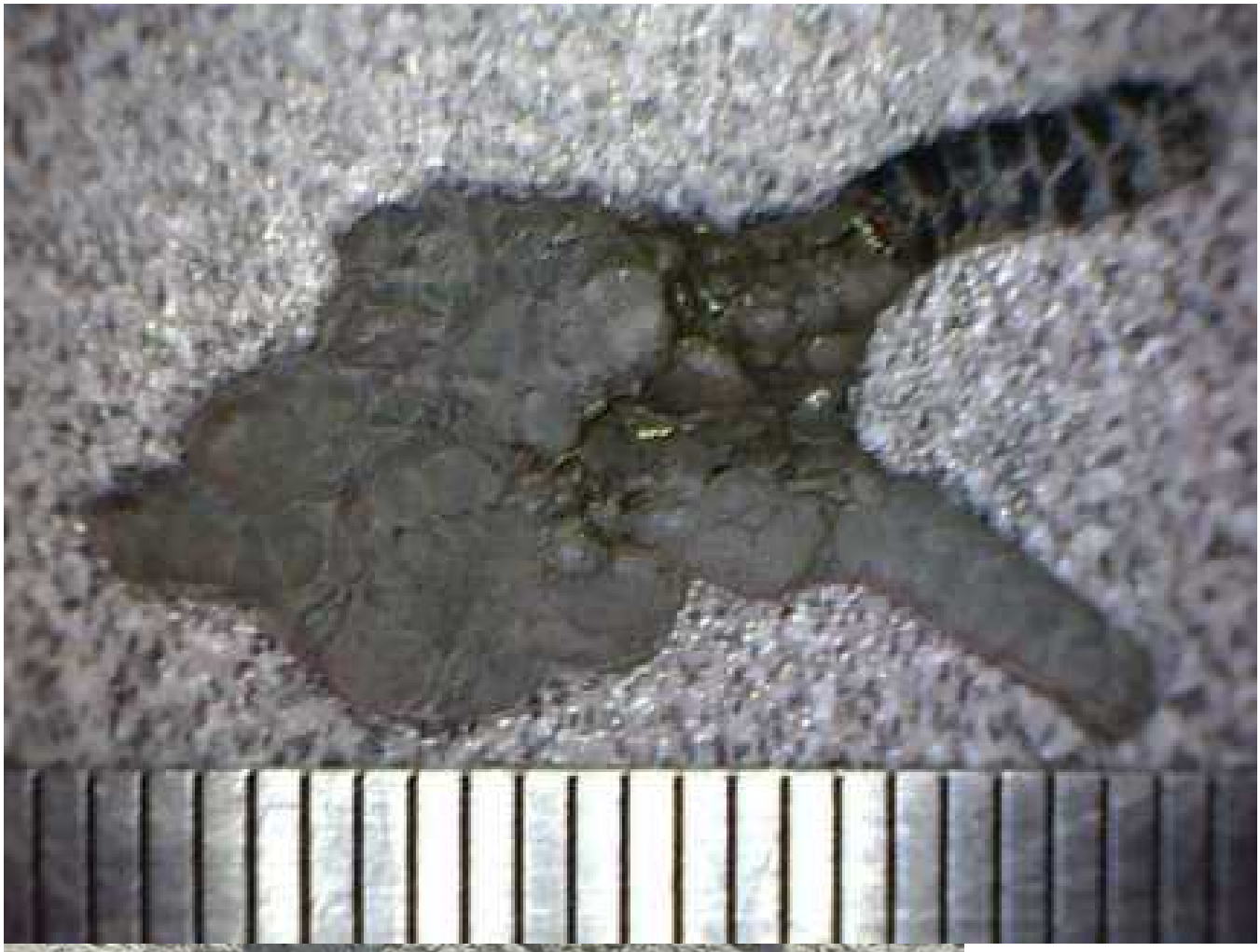
A cornucopia of good finds came to our collective hands. John grabbed the largest *Engonoceras serpentinum* ammonite I've ever seen come from the site, clearly from above the pyritic zone. He also grabbed a nice brittlestar apical disk with 5 stubby legs plus a big *Leptostyrax macrohiza* (shark) tooth and several *Cretolamna appendiculata* teeth and a *G. scotti* echinoid of his own. We all found shark teeth it seemed as well as shark vertebrae and many, many small pyritized ammonites.

FIGS 60-61: Friends of the author working an exposure of the Del Rio formation (Site 46)



FIGS 62-67: Three views each of Del Rio fm crabs *Cretacoranina* sp. and *Necrocarcinus* or *Xanthosia* sp. this and next page (Site 46)



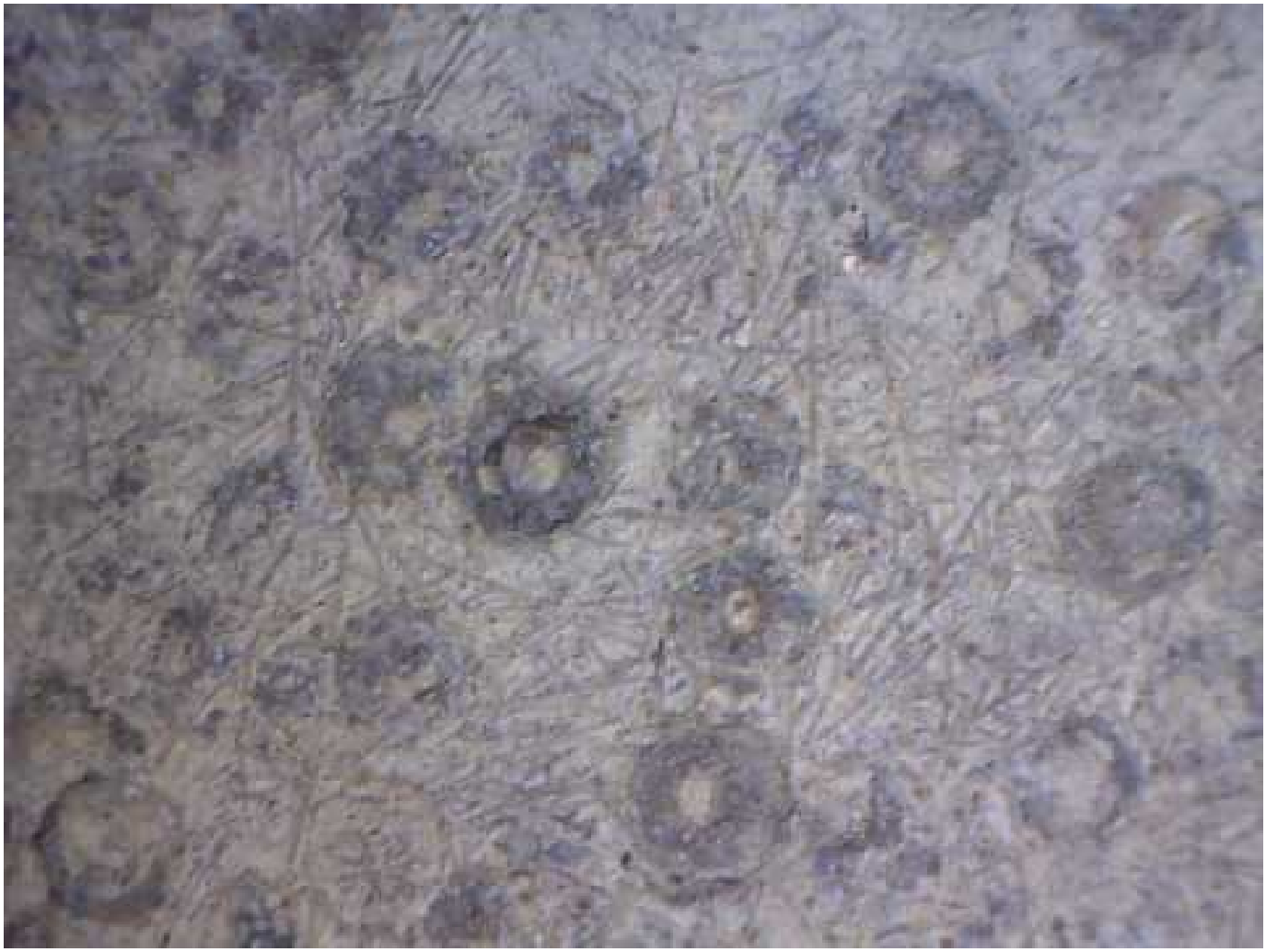


FIGS 68-69: Partial brittlestar *Ophiura graysonensis* followed by shark tooth *Cretolamna appendiculata* (Site 46)

FIGS 70-71: Shark tooth *Cretolamna appendiculata* followed by unidentified shark vertebra (Site 46)

FIGS 72-75: Shark teeth *Cretolamna appendiculata* and various shark vertebrae followed by pycnodont incisors this and next page (Site 46)

FIGS 76-81: Echinoids *Goniophorus scotti*, macro size this page, details of one small mortality slab of many individuals on a bed of spines next 4 pages (Site 46)



FIGS 82-84: Echinoid fragments *Phyllacanthus* sp. above, pyritized micromorphic ammonites *Adkinsia* sp. bottom left and *Engonoceras serpentinum* bottom right (Site 46)

FIGS 85-89: Pyritized nautiloid top left, ammonites *Otoscaphites subevolutus* top right, *Mantelliceras* sp. center, *Plesioturrilites brazoensis* below (Site 46)

FIGS 90-91: Group shot of ammonites taken by the author above, mystery fossil below (Site 46)

We reconvened at the parking lot for lunch, but most of the group headed off to a ranch for an exploratory trip. Hedging our bets, my small cadre opted to stay at the pit and wring out the morning's success. We picked up Ramo in the process, an insurance adjuster from Kansas temporarily in TX to deal with Hurricane Ike damage. We rolled out the red carpet for him.

I lucked into another crab heavily encrusted in pyrite; it probably falls in the *Necrocarcinus* or *Xanthosia* spectrum. I ended up with a total of 6 *G. scotti* echinoids plus a micro slab of tiny juvenile *G. scotti* specimens on a bed of spines – quite spectacular really. I took my share of teeth including a bizarre 3 cusped tooth I've never seen before, possibly a partial maxillary dentition of a pycnodont. A partial *Ophiura graysonensis* brittlestar specimen rounded out my take, and the icing on the cake for me was a silver dollar sized shark vertebra, the biggest I've seen from this site, sitting atop a pedestal of clay and screaming "take me home!" I was not alone in success though as Ramo scored several *C. appendiculata* teeth and Brian picked up a rhyncholite, or squid beak.

FIG 92: John Jackson's ammonite *Engonoceras serpentinum* (Site 46)

FIGS 93-95: John Jackson's shark teeth *C. appendiculata* top left, *Leptostyrax macrohiza* top right, Brian Evans' rhycholite (squid beak) below (Site 46)

With ample daylight left we all agreed to head south for a little echinoid collecting in the Walnut formation (105 MYA). A band of cream colored nodular limestone persisting through several adjacent road cuts proved quite productive for the 5 of us, and Ramo was ecstatic to find his first echinoids ever. We each got at least a handful, all *Heteraster texanus* and *Hemiaster whitei*.

FIG 96: Tom Fisher below and Ramo above canvassing the Walnut fm (Site 48)

FIG 97: Brian Evans' shark tooth (Site 48)

FIG 98: The author's best example of the echinoid *Hemiaster whitei* (Site 48)

FIG 99: Good friends, good finds (Site 48)

Darkness brought an end to our onslaught on Mother Nature, and with much back slapping and hand shaking over the day's successes, both personal and community, we dissipated like smoke into the night air and went our separate ways.