FIELD NOTES
By Bill Heffner

Greetings from the Bone Lab. It’s been a busy and productive winter, to date. The cold season brings us indoors, a time to work on the fossil material from that years dig season and an opportunity to fine tune our collections records, a nice way to say, can we find the bones we claim we have.

Preparations and inventory, that’s how we spend our winter. Fossil material, mostly 100 million year old dinosaur bones and petrified woods from eastern Utah are brought in and stored in our below ground collection rooms throughout the dig season. There they sit until the short, cold winter days force us indoors and we start the process of fossil preparation or “prepping”. Fossil material as it comes in from the quarry sites is covered in mud and clays, sometimes embedded in hard sandstone and almost always broken. Prepping often starts with simply taking the many pieces and washing them in water and then laying them out, matching the broken ends and reassembling the pieces to make as complete a bone as circumstances allow. We have at our disposal an array of materials and tools to aid in this process. If water alone won’t remove the matrix stuck to the fossil, we can try an acid bath or solvents and/or mechanical means such as hammer and chisel, dental picks and pneumatic air scribes (tiny hand held jackhammers). Once cleaned, we have special glues and epoxies designed specifically for fossil material. Some are thick to fill gaps when reassembling two pieces, some are thin to penetrate and stabilize whole sections, some are claylike to fill and reconstruct missing areas and some are thin plastic coatings to protect crumbly surfaces. The goal here is to protect and stabilize these rare fossils, making them available for study and public viewing.

We here at the Prehistoric Museum take some pride in the fact that our rate of bone prep remains pretty close to the rate at which we excavate and collect fossils. In fact, this winter we prepped out 100% of the bone from our quarry, EO2, and we are about 75% along the way on material from the Suarez Sister site. When you consider that we have several quarry sites and that each site has bones numbered in the thousands, we are doing very well. Some credit must go to the CEU students who have put in many volunteer hours in the prep lab and have helped us, measurably, in achieving this goal.

The final step dealing with preparation is the pulling together of the paperwork concerning a given fossil into a prep report that contains...
outs, sharpens his #2 pencil and his growing pile of inventory print finds his way to the bone lab, grabs just like the postman, Craig Royce twice a day, every day, rain or shine able to find stuff. Thanks, B2. And, cord keeping, in short, we will be state of the art cross referenced re unmatched levels of accessibility, heard her talk about this, we have en process of WORDS to EXCEL. To printouts, confirming and correct ing through reams of computer material prepped out that season. Big job, this inventory. Many hours spent confirming numbers, ID’s and location. Occasional mysteries get solved and each year we are a step closer to perfection (ya, sure!).

This year we were blessed with the dedicated volunteerism of two Utah Friends of Paleontology members who have put in countless hours and expertise in this inventory effort. Barb Benson (B2) after pouring through reams of computer printouts, confirming and correcting data, has begun the conversion process of WORDS to EXCEL. To hear her talk about this, we have entered a new age of accountability, unmatched levels of accessibility, state of the art cross referenced record keeping, in short, we will be able to find stuff. Thanks, B2. And, twice a day, every day, rain or shine just like the postman, Craig Royce finds his way to the bone lab, grabs his growing pile of inventory printouts, sharpens his #2 pencil and retreats to a dusty little corner. He works tirelessly, bent over his little pile, occasionally emitting faint sounds, hopeful sounds. And then he’s gone, no fanfare, just a faint eddy of powdered matrix following him out the door. I’ve asked a number of times what it is that he is doing. Nobody seems to know, but we are all agreed that he is an inspiration and we all feel better for the time that he spends with us. Thanks, Craig.

Occasionally new technology comes along promising to make our jobs easier and better. A year ago we got introduced to an industrial system called CO2 Abrasion. It’s kind of like sand blasting without the sand. We wondered what it would do at removing matrix from dino bones. Contacts were made, interests were exchanged and a preliminary test was conducted. The results were promising, but the process is expensive, so applications for various grants went out and now we wait patiently for possible funding. In the meantime, this winter we got word of a solvent, dimethyl sulfoxide, that among it’s many properties, will dissolve or disaggregate many sandstones without hurting the fossil. Almost too good to be true. Well, we decided to find out and set up our own test. We took nine small matrix samples from our three principle quarries, cut them into neat little cubes, dropped each cube into a beaker and added some DMSO. With minimal waving of hands and few incantations, the following day brought some impressive results. All nine samples were either reduced to a clay slurry in the bottom of the beakers or a soft, crumbly mass that breaks apart at the lightest touch. This is a pretty exciting start.

As I write this newsletter, a second test is cooking at the lab right now which involves a larger chunk of matrix with some fossil bone material embedded in the surface. This will tell us how easily the bone can be removed from the matrix and if any damage to the bone is apparent. An added perk with this solvent is that it’s toxic level has tested fairly low allowing John and me to work with it in relative safety. At least, to date, we haven’t turned into frogs or newts, though some might argue, “how would you know”?

Another new toy, that was, in fact, put in the mail to us today, is a cool substance called Linear Foam. If you have ever been to a Podiatrist and had an impression made of the bottom of your foot you would have stepped on a piece of Linear Foam. In the same way it cast an accurate impression of your foot, we can us it in the field to cast the ancient footprints of dinos or protomammals that one finds all over our high desert. It sure will beat carrying water and plaster everywhere, waiting while it dries and then carrying it back. This stuff is weightless and compact, instantly reproduces the imprint and leaves no residue on the fossil. So if you know where there are some nice tracks out in east Utah, give us a call and we will set up a time go on out and use this foam to replicate the fossils and add them to our collection. We would appreciate the help. We would appreciate the help.

Speaking of help, some of this early Spring weather that was drifting about last week got the better of a bunch of us and we headed out into the field for a day. Mike Leschin, with the Price BLM called and wanted to share with us a site with...
lots of surface bone he came across. We spent a grand day in the sun poking around the northern Swell checking out mountains of fossil dino bone, surface scatter, spread over a large area. Plans for this Spring now include going back out to this site and digging some test pits to see if there is more material there.

Many of you museum members are active folks who get out and hike, picnic and play in our deserts of eastern Utah. Over the years it is probable that some of you have come across fossil material, the location of which you could share with the museum. This kind of support is an invaluable resource for us and our community. This museum exists not just to collect artifacts of our ancient past, but to make this knowledge available both for research and for the general appreciation of our phenomenal antiquity. Many of our best and most productive quarry sites are in locations that came to our attention through the kindness of rock hounds, desert buffs, hunters, ranchers, ATV enthusiasts and simply lovers of the out of doors. Please consider sharing with us some of the cool stuff you come across. And, by the way, we are interested in any fossil material of our prehistoric past, petrified woods and plant fossils, marine fossils, tracks, mammal fossils, fish, birds, other flying things, dinosaurs, yes, and really putting together cool rocks.

The museum is currently a display of minerals that fluoresce. If you have any of that stuff sitting around and are inclined to share, you could become very popular, very quickly. When the line outside our door thins out, we do go out and look for fossils on our own. March 17th and 18th the weather looked promising and we headed out to spend a couple of days exploring some promising fossil bearing formations that we spotted last year. It was be nice, after a winter inside prepping bones, to get back outside, expand our search and feel the warm sun on our face. I remind you again, as members of the museum, you are always invited to join us on these outings. Just give us a call and we can give you the details. No cost. We have the 4 wheel drive transportation and tools, maps, GPS and some idea where the bones should be. You would need to provide your lunch and water, and soon, sun block. These are usually one day outings. Occasionally, if the area is far enough away, we will do an overnight. Keep us in mind.

And finally, let me inform those of you who might be interested, of some paleo happenings that are coming up in May. The Utah Friends of Paleontology (we have a local chapter here in Castle Country) will have their annual state chapter meeting in St. George, 6pm, May 21. This meeting is sandwiched between two interesting conferences, May 19-21, Conference on Fossil Resources-Partners in Paleontology and May 22-24, Cretaceous Conference, both also in St. George. If any of this is of interest to you, contact Bill or John at the museum bone lab, 613-5654, and we can give you the details, maybe even arrange a ride to St. George.

Warm weather is coming. Get out and join us and revel in this wondrous high desert we call home.

Until then, Bill
(or dying) and has been known to try to take a mouse out of the alligator’s mouth if he doesn’t swallow it promptly enough. She also likes goldfish and meal worms as “chasers” for her mice as well as floating food pellets for between meal snacks.

The spiny-tailed monitor from Australia has shown a decided preference for meal worms. Like the winner at a hot dog eating contest, she will stuff them in her mouth one after another and look for the next one while she is eating. Her personal best to date is 27 large meal worms at one feeding, although to be fair, that was all the meal worms that were available!!

The water monitor is an opportunistic feeder, regularly taking live mice from the branches of his basking tree. Like the alligator, he employs headshakes to weaken and kill his prey. The mice frequently fight back, often leaving him with a bloody lip or neck, but to no avail. It is impressive to watch him swallow a mouse as large as his head. He is somewhat of a glutton, frequently eating two mice and then following up with 6 to 8 live goldfish captured from his water bowl. I think he got his piscatorial preferences from associating with college fraternity pledges. If nothing else is available, he will also eat carrion (dead mice) or insects.

These feedings have become very popular, since we started scheduling them at 4:00 PM Fridays, with 30 to 55+ people showing up to watch each week. The vast majority of children are mesmerized by the feeding activities and many adults can’t turn their eyes away. Bring your friends; it’s better than wild kingdom. Best of all, with a new or renewal family membership that costs only $30.00, that is a whole year of feedings at less than 58 cents a visit. If you would like to help sponsor these feedings, your tax-deductible donation of $20.00 will feed the animals for a week.

Another planned exhibit will feature a reconstruction of a hand-dug coal mine complete with dinosaur tracks on the ceiling. The focus of this exhibit will be on the relationship of coal beds to dinosaur tracks (and other fossils found in the coal mines of this region).

We feel that this exhibit is long overdue considering the importance of coal to our regional economy and the importance of the coal beds in our understanding of past environments, flora, and fauna of these coastal swamplands during the Cretaceous.

The Hall of Man has a planned new exhibit on Absolute and Relative Dating (NO, NOT a clandestine social outing with your cousin or sister!!) of fossils and artifacts. This exhibit will illustrate how we derive the dates found on the exhibit labels.

The largest new exhibit being designed will feature the fossils of the Cretaceous Mancos Seaway and their relationships to the energy resources of this region. It will probably be several years before this exhibit opens.

If you haven’t been to the museum in a while, come and enjoy the changes. If you have been here recently, bring a friend who hasn’t seen the museum and show off the most popular tourist attraction in Carbon County. Hope to see you soon.
Exciting new archaeology find

Living Fossils from the Mesozoic Gardens

Early Mesozoic Plants
Spring is here and we are starting fieldwork again on the San Rafael Swell. We have already been out recording sites, including rock art and several lithic scatters. Our next Saturday on the Swell is scheduled for April 25. We will be recording and mapping a Fremont Village that we will be excavating over the next few years; starting the very important task of documentation. We will have lunch at the site—there is no shade so please bring a hat with a brim and plenty of sunscreen, and warm clothes in case it is windy. In the afternoon we will visit the famous Rochester site. A narrow, rocky hiking trail is involved, but well worth it for the spectacular Barrier Canyon and Fremont style petroglyphs.

Oregon Public Broadcasting has finished up the pilot for the “Time Team USA” archaeology series. It will probably air on KUED in June. It features the U of U’s new excavations in Range Creek, and also the Pilling Figurines, with scenes shot right here in the museum. Stay tuned for more about the program…

This summer we are working on archaeological sites in Range Creek (including excavation, survey, and further documentation of granaries and the flute site), Nine Mile Canyon, the Price River Canyon, and the San Rafael Swell. We will also be trying to identify the location of several sites in the area of Robbers Roost. There will be lots of hiking and hot, thirsty days, but is a great way to spend time out in the field. If you are interested in volunteering, if you know sites that need to be recorded, or if you just want to hang out with archaeologists for a few days, contact us at the museum.

The College of Eastern Utah Archaeology Field School
The CEU/Prehistoric Museum Field School will run four weeks this year, from June 8 through July 3, in Range Creek. We will continue excavations at one of the sites we started last year: a small Fremont farming village with several pithouses and a stone masonry structure. We may also investigate a second group of three structures that we found above the excavation area last year, and begin mapping and excavations at the Burnout Village—the largest village in Range Creek.

The College of Eastern Utah has open enrollment, and accepts applications on a first-come, first-serve basis. The cost is $175 for three credit hours, in addition to a special fee. For more information contact Renee Barlow at 435-613-5290 or renee.barlow@ceu.edu.

Renee Barlow,
Curator of Archaeology
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So you’d like to go back in time to see real dinosaurs and other ancient reptiles? Yes, that would be very cool. And if you start by giving a T-rex a bone, things will be, well - interesting. Dangerously interesting! So go ahead - offer him that bone and see what happens. Along the way you’re bound to encounter many other animals from the past, creatures wild and amazing. Dangerously amazing! (Softcover) Fully illustrated 9 x 11 inches; 29 full-color pages

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Large living fossils in the museum

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