The Tate Geological Museum’s 35th Anniversary celebration was a resounding success! Nearly 300 people came to the party, including many old, new and current volunteers, members, families, Casper College faculty, staff, and our new college president. Kids had their faces painted by the talented Mary Ann Budenske, fished for dino skulls with the Wyoming Geological Association, and panned for minerals in the backyard. The highlight of the evening was drawing the door prize tickets (congratulations to all of the kids who won) and then drawing the winner of the beautiful amethyst cathedral donated by Goolsby, Finley and Associates. Congratulations to Mitch Meyer!

I would like to thank all of our donors, sponsors and volunteers who helped to make this event a success. Thank you to Anne Carlsen, Nancy Doelger, and Mike Bingle-Davis for helping to plan, set up, and run this event. Also thank you to Rosa Goolsby, Jeanneta Baugh, Bob Maxwell, Don Stagg, Brittany Bartz, Becky Rothenberg, Lynne Swank, the Bureau of Land Management, Wyoming Geological Association, and the Tate’s faculty and staff for helping to keep the event running smoothly. It has been a great 35 years and with the continued community support that we receive, we are looking forward to a fantastic 35 more!

By Patti Wood Finkle, Director of Museums

More event pictures on page 3.
THANK YOU!
This has been one busy summer! With digs, vacations, conferences and our summer attendance well above 2000 folks a month we have been one busy museum. Thanks to our volunteers we were able to have booths at several summer events including the Fort Caspar 150th Anniversary of the Battle of Platte Bridge Station and the Casper Rock and Mineral Show.

I would like to thank Becky Rothenberg; Mike, Marron and Alice Bingle-Davis; Karl Osvald; Melissa Connely; Sherry Thomas; Liane Herring; Nancy Doelger; Terra Hess; Addie Finkle; Anne Carlson; Lynne Swank; Bob Maxwell; JP Cavigelli; and Russell J. Hawley for staffing the booths.

SAVE THE DATE – NATIONAL FOSSIL DAY
We will have our Annual National Fossil Day Open House on Saturday, Oct. 10 from 10 a.m.-4 p.m. While the actual NFD is on Wednesday, Oct. 14, we thought we would celebrate on a weekend this year. Join us for the Fossil Road Show, cookies, games, tours, and fossil-related activities such as the shark tooth hunt and make your own fossil post card. Also each child can take home their very own Ice Age mini dig kit! Watch for more information on our website and on Facebook or call the museum for more information.

VOTE FOR DEE THE MAMMOTH:
(Listed as “Dee Mammoth Image”)
Vote for Dee to be in the top 10 list of Wyoming’s Most Significant Artifacts. “This program is being launched by the Wyoming State Historical Society in partnership with the University of Wyoming Libraries in celebration of 125 years of Wyoming Statehood. Its purpose is to provide recognition to the cultural institutions throughout Wyoming that preserve and provide access to collections that enhance our enjoyment and understanding of Wyoming’s heritage and provide ongoing learning and research opportunities.”

(Direct quote from: lib.uwo.edu/wyoming/top_ten_historical_artifacts/home_wyoming_artifacts.cfm)

Go to the website, search for “Wyoming’s most significant artifacts” or scan the QR code to vote before the polls close on September 30!

TATE HISTORY PROJECT:
Do you have any old (or even not so old) photos of the museum, digs, volunteers, or events? We are going to digitize our printed photos this year and we would love to add yours to the collection. Stop by with your photos or drop them off for a day or two to be scanned. Any and all museum-related photos welcome!

©Drawing by Zack Pullen.

Director’s Note:
By Patti Wood Finkle, Director of Museums
Tate 35th Anniversary: pictures
This time around I’ll be reviewing “The Four-Winged Dinosaur,” an episode of Nova that first aired in 2008. It centers on the discovery of *Microraptor*, a tiny theropod dinosaur found in the province of Liaoning in China. The *Yixian Formation* consists of fine-grained shales that formed as volcanic ash rained into an ancient lake almost 130 million years ago. Fossils of fish, lizards, insects, and mammals have all been found in the Yixian preserved in exquisite detail, often including scales, fur, membranes, and other soft-tissue features. *Microraptor* was a dromaeosaur, a close relative of the famous *Velociraptor* of “Jurassic Park” fame. There were three surprising differences: for one, the *Microraptor* was only the size of a small guinea pig, another was that all around the *Microraptor* were impressions of feathers – and not downy ‘dino-fuzz’ but full-fledged (pun intended) avian-grade flight feathers – and finally, in addition to long flight feathers on the arms where you’d expect them, there were also flight feathers extending from the creature’s hind legs – thus, a four-winged dinosaur!

“The Four-Winged Dinosaur” is a scientific detective story, showing how teams of paleontologists, artists, and even aeronautical engineers struggle to understand this enigmatic creature. Could it fly? And if so, how did it use its second pair of wings? How closely was it related to modern birds, and what can it tell us about the origin of flight? Using multiple techniques ranging from 3-dimensional reconstruction to wind-tunnel tests, the teams attempt to answer these and other questions. The scientists don’t always agree with each other (in fact, they usually don’t!) but this sort of debate is an important part of the scientific process.

Now mind you, this isn’t “Jurassic Park.” There are only a couple of very brief (although very good) computer animated depictions of the living animal, so it might not hold the attention of younger viewers. But for anyone interested in seeing the multiple lines of evidence that scientists use to try to reconstruct the behavior of an extinct animal, “The Four-Winged Dinosaur” is a fascinating must-see.
Museum Adventure Quest Camp returned to the Tate in July – twice, actually; this time there were two groups. Students in the kindergarten through second grade age category joined us on Tuesday, followed by the third through fifth graders on Wednesday.

First, the students were asked to dissect a chocolate chip cookie with a dental pick. The catch was that after they had extracted all of the chocolate chips from the cookie (intact!) they were required to glue the cookie back into its original shape. This, of course renders the cookie itself inedible, but there was some consolation in the fact that the students were allowed to eat the chocolate chips. This exercise gave them an idea of the meticulous and painstaking work that goes into fossil preparation.

Next was “Fish School.” Students cut out and glued together their own fish puppets, and then they went outside to learn how to swim in a shoal as real fish do. If all of the students follow a few very simple rules, the whole shoal can make lightning fast changes of direction and avoid predators more effectively. Getting the students to move as a school, rather than simply playing “follow the leader” was a challenge, (it gave me more respect for what a fish can do with a brain only the size of a pinhead), but they eventually picked up the technique – which served them well when the instructors came after them in the role of the shark!

We concluded their visit by making dinosaur lapel pins and taking a brief tour of the museum.

Many thanks to volunteers Anne Carlson and Rose Carrico for helping to set up and run these activities.

Introduction to Scientific Illustration:

Have you ever wondered how scientists and illustrators know so much about an animal just by looking at the bones? One of the best ways to learn about and study an object is to draw it. You will have the chance to draw authentic fossils from the Tate’s collection. The Tate’s very own Russell J. Hawley will give a brief introduction to drawing scientific illustrations then help you embark on a drawing experience of your own.

Supplies and an evening snack will be provided or you can bring your own.

This class is $5 per person, is designed for adults and children 16 and older, and will be held at the Tate on September 15, from 6-8:30 p.m. Call the Tate to reserve your spot today.
Tate Dinosaur Dig Update:

Our first pay-to-dig dinosaur outing was a success. A half dozen people joined us working at the OLLI site, a triceratops site in Niobrara County. This is a site that was started years ago, although we had not been here for a few years. Exploring at the OLLI site led us to discover several pieces of frill and some unidentified bones, some rib pieces, and a nice vertebra. On our last visit a large plaster jacket was made over some bones. When we returned in June 2015, this jacket showed signs of weathering, so one of the goals was to re-jacket these bones. That was successfully done and the last day was spent at other sites.

There is a dinosaur in a rock on this ranch that we often stop at for “show and tell.” To collect this one would be a huge undertaking and we are not ready to commit to that yet, but in walking around the site we did find a potentially very exciting fossil. It seems that right next to this dinosaur is a crocodile skull or something like that. Crocodile skulls are extremely rare in the Lance Formation, which is odd, because their teeth are actually quite common. More exploration will be done on this one hopefully before the snow flies.

Then we went to a microsite called Lighting Hill, where for years we have collected some small Cretaceous bones and teeth. One of our participants, Dianne Epstein, found a rather large bone in the bone bed. This turned out to be a hadrosaur pubis. While collecting it, we found a nearly complete turtle right next to it. These two totally unrelated bones right next to each other suggested we might have a substantial bone bed at this site. About 20 feet away, Suzy MacIntire dug into the same layer and found a nice dinosaur rib and some other bones, one of which has since proven to be a turtle jaw. Hans-Deiter Sues at the Smithsonian identified it as a turtle mandible. (Suzy volunteers at the Smithsonian, and I was in Niger with Hans many years ago).

Now we have a new bone bed to work on at Lee and Vicki’s. Again, Thank you very much to Lee and Vicki Brown for letting us work on their place.
Members Only Digs Update:

By J.P. Cavigelli, Tate Geological Museum Collections Specialist

It has been a busy summer here at the Tate Geological Museum. We have had a few kids’ digs and members only digs. The first kids’ dig on June 20 was out to a ranch south of town where the Steele Shake has a lot of baculites. About 20 folks joined us for this one and many pieces of baculites were found. A few lucky people even found an ammonite. The second kids’ dig was to a site in the Jurassic Sundance Formation north of town where about 20 participants collected belemnites, the internal shells of extinct squids. These are often called petrified bullets, because they are long and pointed cylinders, reminiscent of a rifle bullet. Folks also found samples of the common Jurassic clam Camptonectes and a few participants found fossils of star-shaped crinoid stems.

The members’ dig was to the Cretaceous Rock River Formation near the town of Rock River, Wyoming where we looked for ammonites and various Cretaceous clams and snails. The site here is known for a variety of ammonite species and some extraordinary color preservation. About a dozen folks joined us for this outing and all found fossils. Above is an example of an ammonite called Oxybeloceras, commonly called a hairpin or trombone ammonite.

We have another members’ only dig coming up on September 12. We will send out an email to all members to let them know where we will be going.

We would like to thank Peter Garrett of Garrett Ranches for allowing us to run kids’ digs on their land, not only this year, but several times over the past few years.
The weather is beginning to cool off, the crab apples in the front yard are red, and the deer are showing up resplendent in their velvet antlers. Must be fall at the Werner Wildlife Museum and time to let everyone know what lies in store for the next few months.

First of all, the new schedules for the popular Animal House and Raptor Rap programs are out. Be sure to drop by the museum to pick one up and incidentally check out the exhibits. September’s programs will be, “Life in a Prairie Dog Town: Prairie Dogs, Ferrets, and Rattlesnakes” on September 10 and “Beaks, Talons, and Real Good Eyesight: Raptors of Wyoming” on September 17. In October, join us for “Beasties That Go Bump in the Night: Nocturnal Animals” on October 8 and “The Great Horned Owl: Nocturnal Bird of Prey” on October 15. All programs begin at 4 p.m. and last for approximately 40 minutes.

New for fall of 2015 is Family Movie Afternoon, held after school the first Thursday of every month. We’ll be showing documentaries and movies about wildlife in Wyoming and throughout the world. Watch the newspaper for the monthly movie selection or just come and be surprised. Programs will begin promptly at 4 p.m. and last about 50 minutes.

The room that will become the new children’s area has been cleared and is awaiting painting. As soon as painting is complete, construction of a cave, an eagle’s aerie, a tree, and various interactive areas will begin. Melissa Connely, museum curator, is head builder and will be aided by That Girl (me) and That Other Girl (Eileen Lemm) of Werner Wildlife Museum Facebook fame.

Starting this fall, Werner Wildlife Museum will host a monthly adult study group on wildlife in the intermountain west. Participants are encouraged to share their own knowledge as well as benefit from that of others. Wildlife biologists, enthusiasts, writers, photographers, and artists are all welcome. If you are interested in becoming a part of this group, please call the museum at 307-235-2108 or drop by and talk to Eileen or me. An organizational meeting will be held on Thursday, September 24, 2015 at 4 p.m.

Wild Country, Wild Art – juried art show

Calling all artists in Natrona and Converse counties, including faculty, employees, and students at Casper College! It’s time to start thinking about your entry for the Werner’s annual all-media art show to celebrate Wyoming’s wildlife and wild places. This year’s theme is “Wild Country, Wild Art.” Guidelines and entry forms for the show will be available in early September so everyone has plenty of time to prepare. Deadline for entries is November 11, 2015 at 4:30 p.m. The show will be open to the public at the Werner from November 13, 2015 until February 29, 2016. To honor the wild theme, artists are requested to limit their images to those that can be found in the wild: no humans, domestic animals, or human-made structures, please.
Q: You’ve often said that science fiction writers used to assume that there were dinosaurs on Venus. Can you give specific examples?

– Michael Bylsma, Thermopolis, Wyoming

A: Dinosaurs on Venus!
Part Three (continued from the last two issues)

Carson’s adventures concluded with the last book in the series, “Carson of Venus,” published in 1937. Most of the story takes place in an urban setting, but at one point Carson does have to cross the sea in search of the princess, who seems to have gotten herself kidnapped (again). In that chapter we learn that the seas of Venus swarm with aquatic monsters, many of them so gigantic that they make the mosasaurs of the Western Interior Seaway look about as menacing as a bowl full of guppies. Most abundant of these is the rotik. In addition to its two lateral eyes, the rotik has a central eye on the end of a flexible stalk. When swimming at speed the rotik folds the stalk down along its back for better streamlining, but it can also raise the stalk into a vertical position for use as a periscope.

Robert Heinlein threw his hat into the Venusian ring in 1941 with the publication of his short story “Logic of Empire.” We never do learn the name that the natives use for themselves; the human colonists of Venus generally just call them “the little people.” These reptilian creatures are thoroughly aquatic, as much at home under the water as above it, and can hold their breath for much longer than humans can. The head is flat, the hands and feet are webbed, and there are a pair of cheek pouches that can be used to hold bits of string and other useful items. They have an inordinate fondness for earth tobacco, something the colonists use to their advantage in trading. The little people are generally quite friendly and helpful, almost seeming to welcome the encroachment of the human invaders.

C. S. Lewis depicted Venus as a water world with floating islands, flying frogs and mermaids in his 1944 novel “Perelandra,” but sadly no dinosaurs make an appearance – the closest thing to a dinosaur that we see is a little dragon-like reptile with brass-colored scales.

Saurians played a much more prominent role in 1943’s “Clash by Night,” a novella written by Henry Kuttner and C. L. Moore. Humans flee to Venus after the Earth is wracked by nuclear devastation, but they end up having to build all of their colonies under the sea – the land surface of Venus is uninhabitable due to “huge and fierce reptiles.”

Heinlein revisited Venus in 1948’s “Space Cadet.” Matt Dodson and his friends crash-land on Venus and find themselves in the middle of a hostage situation – as it turns out, the Little People are only friendly as long as you mind your manners. We also learn that their technology is nowhere near as primitive as it seems.

So the 1930s and 1940s certainly saw their share of Venusian dinosaurs – but the weirdest was yet to come!

“Dinosaurs on Venus” will conclude in the next issue.

Below: Heinlein’s ‘little people’ (left) and the Rotik (right).
Tate Museum Event Calendar

SEPTEMBER
12  Adult Members’ Only Dig  
   (Rescheduled from May)
14-18  Tate Geological Museum Dinosaur Dig –  
   Como Bluff
15  “Scientific Illustration” class
16  Coffee, Tea, and Dee, 7:30-11:30 a.m.
26  Smithsonian Day Live!  
   Tate (10 a.m.-4 p.m.) and  
   Werner (1-5 p.m.) open

OCTOBER
3  Saturday Club – Geology outing
10  National Fossil Day (observed) –  
   open house, 10 a.m.-4 p.m.
14  National Fossil Day
21  Coffee, Tea, and Dee, 7:30-11:30 a.m.
26-27  Math & Science Teachers’ Conference

NOVEMBER
7  Saturday Club – Geocaching/GPS
13  Werner Wildlife Museum Art Show –  
   “Wild Country, Wild Art” opening reception
18  Coffee, Tea, and Dee, 7:30-11:30 a.m.

DECEMBER
9  Coffee, Tea, and Dee, 7:30-11:30 a.m.
12  Annual Holiday Open House, 10 a.m.-4 p.m.