The Fossil of the Month for this issue of the Tate Geologic Times newsletter is a group of fossils, including this nice hadrosaur vertebra, right. This particular bone is from the mid-dorsal area of the animal, and is 14 inches long (35 cm). This vertebra and all the other bones shown here are from a bone bed in the Lance Formation of Niobrara County about a half mile from where we collected Lee Rex. It is a rich site called Promise Hill. Many of our dinosaur diggers have been to this site in the past few summers. We have amassed a respectable collection of more than 500 fossils from Promise Hill, including some specimens that have been featured here before (see pachycephalosaur jaw piece, Sept/Oct 2012 and pterosaur finger bone, Sept/Oct 2013).

In this case, rather than using a plaster jacket to collect one bone by itself, we ended up jacketing a group of bones that were too close to each other to isolate. This particular group of bones was collected in September of 2011. Helen Hoff has been working on this jacket since last Christmas and has prepared many fossils from it. Here is a photo of the jacket as Helen was working on it, photo lower left. The brown thing near the left edge is a hadrosaur tail vertebra starting to be exposed. This is upside down from its natural position. Helen spent a lot of time slowly removing rock, looking for bones. While one of the main specimens is the large hadrosaur dorsal vertebra, but two small hadrosaur tailbones were also in there, photo right. She also found a lot of small things as well as chunkosaurs, which is typical for a Lance Formation bone bed.

Bone beds are fairly common in the Lance Formation, yet they can vary in make-up. Promise Hill preserves bones of various sizes, from duck-billed dinosaur vertebrae, below, and three foot long ribs, to the microfossils. Our other bone bed on this ranch is quite similar, but there are also bone beds in the area that preserve only small fossils, and at least one Lance Formation bone bed that has primarily young hadrosaur bones. Fossils from Promise Hill are all disarticulated, which is typical of the Lance Formation bone beds. We have found remains of hadrosaurs, ceratopsians (horned dinos like Triceratops), Tyrannosaurus rex, dromeosaurs, ornithomimids, pachycephalosaurs, crocodilians, several types of turtles and fish, some amphibians and lizards, and numerous species of mammals. These bone beds provide an excellent window into the life of the late Cretaceous of this area.
June is Membership Month! Don’t forget to renew your Tate Geological Museum membership. It is time for everyone to renew. We have lots of activities planned for this year, and would hate for anyone to miss out. Member outings, Kids Only Expeditions, and a discount in the gift shop are just a few of the benefits of membership.

To make it as easy as possible on you, our members, we have included a membership form in this newsletter. You can also update your membership online at caspercollege.edu/tate/index.html click on the “About” tab and then “Museum Membership” tab in the drop-down menu. Please renew today!

LECTURE SERIES:
The lecture series is in full swing. We have had three amazing speakers so far and we are looking forward to one more speaker in May. We had over 350 people show up for Mark Jenkins talk, “Vietnam Underground: Exploring the Biggest Cave on Earth.” Presented by the University of Wyoming Center for Global Studies, Global & Area Studies at UW, UW at Casper, the Wyoming Humanities Council, Casper College and the Tate, this presentation was a great success.

The third talk in the series was well attended and was absolutely fascinating. This talk was also well attended with just over 100 folks in attendance. Thank you to Julie Meachen for giving a fantastic talk about Natural Trap Cave.

IN THE NEWS:
Our newest bronze sculpture, “Essence of Rex” was recently featured in the AAA Mountain West magazine. “Tyrannosaurus Wreaks Wonder in Wyoming.”

LEE REX:
Lee Rex is getting a new home! At the end of April, Lee Rex was moved from his current home in the McMurry Career Studies Center out to his very own space in cold storage. Due to other programs expanding, we were asked to move Lee to a new space. We decided that cold storage was the best solution and are constructing a new room around him for the comfort of our volunteers and visitors. Lee’s new digs will be available for tours in no time, so stop by to see his new space.

Director’s Note:

By Patti Wood Finkle, Director of Museums

Celebrating a New Era!

By Deanna Schaff, Financial Specialist

The museum staff hosted a retirement party for me on March 23 and it was a humbling and joyful experience. I was pleased to see many people that I have worked with over the last 14 years. Some of them preceded me to retirement and made the effort to come back for my celebration. I received a beautiful azalea plant from Marialyce Tobin, a Hoploscaphites ammonite specimen from the Upper Cretaceous from JP and some of the staff, a beautiful pendant from Lynne Swank, gift cards, retirement cards, and an awesome banner, which everyone signed. And, most importantly I received lots of HUGS! This is one time when I’m going to be sentimental and not worry about being unprofessional. Thank you, thank you, thank you! The good news is that I’m back working part time as the financial specialist. They can’t get rid of me that easily.
Spring Art Show:

“From the Earth” spring art show opened at the Tate Geological Museum on Friday, March 27. The show features artwork inspired by objects from the Tate and created by the Casper College ceramic students of Mike Olson and Ryan Olsen. Museum member Jackie Ellis won the raffle drawing for the $100 iTunes gift card. If you were not able to make it to the opening, the 34 pieces will be on display through May 4. You don’t want to miss seeing these unique pieces of art.

“Handyman” by Trisha Miller

“Pterodactyl Jar” by Ernie Trujillo

“Atlas Vertebrae with Lycopod Interior” by Bill Houston

“Untitled” by Andrea Duffield

“Toenails, Teeth to Treasure” by Bobbie Kuxhausen

From the gift shop

The Tate Geological Museum is gearing up for multiple dig expeditions this summer. The gift shop would like to help you gear up for your own digs, whether you plan to attend the Tate Conference field trips, members’ only digs, or go on your own personal expeditions. We have the necessities to ensure a successful experience no matter what skill level or age.
**Dinosaur Digs:**

We are once again offering weeklong dinosaur digs this summer. Three separate weeks are available: June 22-26, August 24-28, and September 14-18. The first week will be to the Lance Formation north of Lusk, Wyoming. We will either be working on a hadrosaur skeleton we have been excavating on for a few seasons, or we will move on to a nearby Triceratops site. The other two weeks will be to the Morrison Formation at Como Bluff near Medicine Bow, Wyoming. There we will focus on a site we started last year that has a sauropod and a camptosaur (medium-sized vegetarian dinosaur). More details and registration forms are available online at caspercollege.edu/tate/index.html. Trips include transportation from Casper, hotel room for six nights, most meals, and of course our expert guidance.

**Werner Wildlife Museum:**

Spring is here and so is the annual influx of field trips from Wyoming schools. There isn’t a week between now and the end of the school year that doesn’t already have several field trips scheduled, so anyone wanting a tour this month or next needs to give us a call and get one scheduled with either Eileen or myself. Some of the groups are quiet and others are joyously boisterous; all are great fun. There’s nothing like 36 first graders to keep one on one’s toes!

Spring Break Camp on Friday, April 3 was a smashing success. Over 70 people visited the museum that day, most of them for “Hooters, Hissers, and Cheep Shots,” a special program on owls of Wyoming. Speaking of camp, plans are already in the works for Museum Adventure Quest Camp in July. The Werner’s topic will be “Wyoming’s Big Cats,” with a special emphasis on mountain lions.

We also had the pleasure of combining efforts with Audubon’s ornithologist/herpetologist Zack Hutchinson, formerly of Science Zone, when Zack presented April’s Raptor Rap program on raptors in communities. This is just the first act in what we hope will be a mutually beneficial relationship. Field trips planned for July and August include a trip to the river to watch the ospreys and possibly (my favorite) a program on the snakes and other reptiles of Wyoming.

We are looking forward to another first when Deyonne Jackson’s elementary students from Woods Learning Center combine with the Werner to present a program called “Where the Wyoming Wild Things Are.” Jackson’s students have been working on an animal unit all spring with visits to the museum and items from skull casts to skins checked out for special studies on animal underpinnings and coverings. Each student has chosen an animal for an in-depth study and on Thursday, May 7 from 6-7:30 p.m. the students will act as docents at the Werner, giving short presentations on their chosen animal. The evening is open to the public and all are encouraged to attend.

We have a new addition at the Werner. U.S. Fish and Wildlife Service recently gave us (on permanent loan) a beautiful new leopard mount. Monica Fowlkes, the work-study student at the Tate Geological Museum, has worked hard creating the textured base for the new mount. She has learned all about plaster, dried grasses, rocks, sand, and land contours. Stop by to see her work anytime and give her two thumbs up if you see her.

The Walk on the Wild Side Wearable Art Show is coming up in May. Deadline for entries is Friday, May 8 with the runway show scheduled for Tuesday, May 19 at Durham Auditorium and an open house to honor the participants on Tuesday, May 26. If you haven’t already started your project, it isn’t too late. Call 235-2108, e-mail indiaHayford@caspercollege.edu, or visit the Werner Wildlife Museum today to obtain guidelines and an entry form.
“T. rex: Back to the Cretaceous” is a film that originally appeared on IMAX screens across the country. (It’s interesting to note that the *Tyrannosaurus* in the film would have been life-sized when projected onto the IMAX screen!)

The story follows Ally Hayden (played by Liz Stauber), a high-school girl who is crazy about dinosaurs. Ally has a summer job at the museum giving tours to groups of schoolchildren, but what she really wants is a chance to go on a real dinosaur dig to make her own discoveries. However her father, paleontologist Donald Hayden (played by Peter Horton) thinks she isn’t yet ready for the rigors and hazards of the field.

Hayden brings back a fossil, which he thinks may be a *Tyrannosaurus rex* egg, the first ever discovered. Staying late at the museum one night working on her own research project, Ally accidentally knocks the egg off the table and inhales some fossil dust. Soon she’s wandering around the museum, periodically shifting back in time to hike through a Cretaceous jungle inhabited by living, breathing dinosaurs. It sounds silly when I write it down but I can’t be too critical – after all, this is exactly the sort of thing I used to daydream about when I was Ally’s age!

In addition to her forays back into the Cretaceous, Ally also visits some intervals in human history, including an expedition led by famous fossil hunter Barnum Brown, and also (particularly interesting to this writer) a chat with the legendary dinosaur artist Charles R. Knight. Knight, convincingly played by Tuck Milligan, shares some insights about dinosaur art and stresses the importance of careful research.

Refreshingly, “T. rex: Back to the Cretaceous” realistically presents the methodology behind dinosaur science, emphasizing the distinction between hypotheses that can be tested using actual evidence, and ideas that are based on mere speculation.

“T. rex: Back to the Cretaceous” probably isn’t suitable for very young viewers – the historical re-enactments probably wouldn’t hold the attention of a kindergartener, and preschoolers might find the scenes of Ally running through the forest calling for her father while the roars of the tyrannosaur sound from the trees behind her a little too scary. But I think that older students, of elementary or junior high school age, will find it fascinating, especially if they’re already interested in dinosaurs and want to learn a little about the men and women behind the scenes who bring these ancient beasts to life. Stop by the Tate Gift Shop for your copy.

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**DVD Review:**

_Imax T-Rex_ is a film that originally appeared on IMAX screens across the country. (It’s interesting to note that the *Tyrannosaurus* in the film would have been life-sized when projected onto the IMAX screen!)

The story follows Ally Hayden (played by Liz Stauber), a high-school girl who is crazy about dinosaurs. Ally has a summer job at the museum giving tours to groups of schoolchildren, but what she really wants is a chance to go on a real dinosaur dig to make her own discoveries. However her father, paleontologist Donald Hayden (played by Peter Horton) thinks she isn’t yet ready for the rigors and hazards of the field.

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**Tate Conference 2015:**

We are excited to bring you the annual Tate Conference. This year’s theme is “Artiodactyls, Perissodactyls and Whales.” We have a full slate of speakers talking about different aspects of these animals, and featuring critters from Pakistan to New Zealand to right here in Wyoming. The conference will take place June 5-7. Talks will be on Saturday, June 6 with the Keynote talk that evening over dinner. Dr. Hans Thewissen of Northeast Ohio Medical University is the Keynote Speaker and will present “Walking Whales: Paleontology in India and Pakistan.” He has done extensive work in the past few decades on the early evolution of whales. We will have copies of his recent book, “The Walking Whales” for purchase and signing. Field trips on Friday and Sunday will be to the White River Formation, which is a local source of late Eocene and early Oligocene artiodactyl and perissodactyl fossils. Friday, June 5 we will head to the Douglas area where we have taken conference field trips several times over the past few years. Sunday, June 7 we will go to a new ranch north of Lusk, Wyoming where the late Eocene Chadronian portion of the White River is exposed. We hope to see many of you here that weekend for a few days of fossils and fun. Registration is available here in this Newsletter or online at caspercollege.edu/tate/index.html.

We have a block of rooms reserved at the Ramkota through Thursday, May 21, so sign up today! There will be another big conference this year, so rooms will be at a premium. For reservations call 307-266-6000. The reservation code is TATE15.
Here are a few pictures of other fossils Helen found in this jacket. First an ornithomimid finger bone piece about two inches (5 cm) long. It is broken; there are two views so you can see the hollow nature of theropod bones, similar to bird bones (1 and 2). Speaking of theropods, she also found a *Nanotyrannus* tooth (3). Again, the scale is in mm. Next is one of the nicest little fossils she found—a pachycephalosaur tooth, about ¼ inch long (4). The box of fossils (5) shows one of the most common fossils in these Lance Bone beds: gar scales. Here is Helen’s accumulation of gar scales from this one jacket. She also collected quite a few clams from this jacket as well. The photo featuring Helen’s finger (6) shows one with a hadrosaur tooth nearby (brown spot between the white clam and Helen’s finger. Again we thank Lee and Vicki Brown for

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**Spring Break at the Museums:**

During Natrona County School District No. 1’s spring break, Casper’s museums hosted free activities for local students from kindergarten through fifth grade. The Tate Geological Museum hosted its activity on Monday, March 30. Students could play ‘Mineral Bingo,’ using mineral test kits to identify real mineral specimens and place them in their appropriate blocks, while younger students built dinosaur skeletons out of pipe cleaners.

The activity was very well attended (over 40 students), and in spite of a pair of wire-cutters that broke 20 minutes into the project, it can definitely be deemed a success.

The Monday activity kicked off the spring break visitor rush for the museum. We had over 562 students and families come through the museum during that week. Thank you to everyone who stopped by for your support!
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: Before the days of space probes and spectroscopy, Venus was a total mystery. Through the telescope, the planet was a featureless white sphere, its surface completely hidden under a veil of clouds. Early astronomers assumed that the clouds were made of water vapor, and went on to surmise that the surface of the planet must therefore be a vast swampy wetland. And if there were swamps on Venus, then why not cycads and dragonflies and maybe even dinosaurs?

Naturally, science fiction was quick to seize on this opportunity for pulse-pounding adventure. The earliest example I know of is Gustavus Pope’s “Journey to Venus,” written in 1895, where Venus is said to be inhabited by “dinosaurian monsters.” But many more giant reptiles of prehistoric aspect were soon to join their ranks in the Venustopian bestiary.

One of the most memorable of these early monsters appears in Edgar Rice Burroughs’s “Lost on Venus,” written in 1933. Blasting off for Mars in his home-made rocket, Carson Napier makes one of the grandest navigational blunders of all time and ends up crash-landing on Venus instead. After a series of adventures Carson finds himself lost in the jungle (accompanied by a beautiful Venusian princess, naturally – it is an Edgar Rice Burroughs story, after all). There they encounter the vere.

The vere is a gigantic reptile, 6 meters in length with a long, crocodile-like snout and a single multifaceted eye. A double row of stout horns adorns its snout. The taloned, lizard-like feet of the vere allow it to effortlessly scale vertical cliff faces, and its body is covered with intricate patterns of red, black, and yellow scales.

The vere has no teeth, but it can use its long flexible tongue to snatch a prey animal and pull it back into its jaws. Then it exhales an anesthetic gas that sedates its victim.

One goat-sized Venusian beast has evolved a defense against the vere – it has a ‘necklace’ of short, forwardly curved horns that make it very difficult to swallow whole.

The vere was the first Venustopian saurian that I encountered in the pages of science fiction – but it certainly wouldn’t be the last! “Dinosaurs on Venus” will continue…

Below: The predatory vere and its un-named victim.
Tate Museum Event Calendar

MAY

6  **Last** Coffee, Tea and Dee of the season, 7:30-11:30 a.m.
7  Woods Learning Center Open House at the Werner Wildlife Museum, 6-7:30 p.m.
12  Tate Lecture Series – Bob Montgomery: “Caves of Wyoming and Beyond” 7-8 p.m.
16  Adult Members’ Only Dig – location TBA
19  Werner Wearable Art Show Runway Walk, 7-9 p.m. Durham Auditorium, Aley Hall
21  Werner Wildlife Museum – Raptor Rap: Field Trip, TBA, 4 p.m.
20-22  Geological Society of America (GSA) Conference

JUNE

Membership Month!
(No Saturday Club during the summer months)
5-7  Tate Conference: “Artiodactyls, Perissodactyls and Whales”
18  Werner Wildlife Museum – Raptor Rap: “Kestrels, Osprey and Other Less familiar Raptors,” 4 p.m.
20  Kids Only Members’ Expedition – location TBA, 9 a.m.-noon
22-26  Tate Dinosaur Dig – Lance Formation

JULY

13-17  Museum Adventure Quest Summer Camp
16  Werner Wildlife Museum – Raptor Rap: Field Trip, TBA, 4 p.m.
18  Adults Members’ Only Dig – location TBA

AUGUST

8  Kids Only Member’s Expedition – location TBA, 9 am. - noon
20  Werner Wildlife Museum – Raptor Rap: Field Trip, TBA, 4 p.m.
21  Tate 35th Anniversary Party!, 4-7 p.m.
24-28  Tate Dinosaur Dig – Como Bluff