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High school students experience paleontology

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Posted: Wednesday, August 27, 2014 8:59 am | *Updated: 11:42 am, Wed Aug 27, 2014.*

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Posted on Aug 27, 2014
by Roxanne Murphy

OHS science teacher 'sharing the dream' during trip to Hell Creek, Montana. Last year, a local teacher traveled to Jordan, Mont., through a paleontology program at the St. Louis Science Center and brought back a dinosaur he named Kendra. This summer he traveled with a fellow teacher, four Owensville and two Hermann students to Hell Creek, Mont., giving them the opportunity of a lifetime.

They helped preserve and remove what might be one of the last dinosaurs alive before their extinction.

Owensville High School science teacher Kevin Lay, with fellow science teacher Amy Aubuchon, OHS seniors Kelsey Kern, Jake Angell and Haley Slane and junior Anthony Soest as well as Hermann students Heather Hingst and Donnita Johnson, drove 17 hours to Paleo X, a new paleontology school operated by Adventure 360 owner Ron Geisler, located at Hell Creek.

"Last year, Kevin and I talked about doing a special thing for the students, to prepare them for college," said Geisler. "If they have seen and heard the words, it will give them a step up."

The group learned after they arrived that an important discovery had been made the day before.

"Alan Westfall found a hadrosaur the day before we got there," Lay said.

The paleontologist on the site, Dr. David Burnham of the University of Kansas at the Museum of Natural History, Biodiversity Institute, had his doctoral candidates working on the new discovery that has been named "Michelle" by her founder.

"I was like no way, they will never let us touch it, but he asked us if we could do it," Lay said.

Group members received between 15 minutes and two-hour instructional periods before they were released into the field on their first afternoon. What started out as ridges soon became an articulated spine on the hadrosaur, popularly known as the duck-billed dinosaur.

"The spine was in articulated form, so it didn't break apart," said Angell, a senior at OHS. "It is really hard to find because millions of years of dirt and water would usually break it up."

Burnham, the paleontologist on the project, said an articulated dinosaur is rare and important to the scientific community for many reasons.

"Articulated means it has been held together by small tissues, so you get the wholistic approach," said Burnham, who has 27 years of experience in the field. "There may be more pieces in tact beneath the surface, sometimes their may be skin implants. When you have back bone, disks add length to the dinosaur so it can accurately measured. That is the object, to know how big the dinosaur is and this is how we get to know that. It would be really nice to know a direct measurement and add something to science."

Michelle's backbone has been estimated between six and eight feet long. In order to determine where to dig next, the group learned how to make bone maps.

"Almost every night we learned about stratigraphy, or the classification of types of rock," said Hermann High School's Hingst. "The area we were digging used to be a river and you could find the streamline."

Hingst and the others were able to use their knowledge of stratigraphy to create a bone map that would show them which direction Michelle had been laying when she died.

"There are probably more bones in that hill because we didn't get the head, arms, legs and pelvis and they could be connected," Burnham said. "The current flow from the river bed indicates the direction of the water into the hill."

The study of rock layer also partially revealed Michelle's time of death.

"Another incredibility, this could have been one of the last ones to live before the extinction," Burnham said.

Hingst described a layer of soil called iridium that only comes from volcanos and space. The layer is thought to be the spot where the asteroid impacted the earth, the cause of dinosaur extinction. Anything above the iridium layer is called the K/T Boundary or Cretaceous-Tertiary extinction line.

Since everything died at the point of the iridium layer, no dinosaur remains are found after it, Burnham told the students.

The six students took turns between working on Michelle and looking for their own finds.

"Dr. Burnham gave us the layout of what we would be looking for, we split up," Angell said.

Since the group happened to be close to Kendra, a triceratops Lay previously discovered, Soest and Hingst hiked with him to her location.

"I plan on taking a trip out there myself next year," said Lay. "I would love to poke and prod around Kendra a little more, dedicate more time solely for the Kendra fossil. I want to go out there as a separate entity from paleo school. There is a separate week for adults to go out there and come back for the school. I think there is more of Kendra out there. It is like an itch. I wish I could move on, but it's hard to."

They didn't spend more than four hours at Kendra. Lay wanted the kids to be focused mostly on their own projects. Angell and Kern found a small bone tooth and claw and Hingst and Soest found a rib bone and a skull.

After Michelle's back bone had been completely excavated, the students worked on casting, using plaster to create a hard jacket. The jacket would protect the remains during Michelle's transportation to the University of Kansas and Burnham's lab.

"We still have to open the jacket and record everything. We have to clean the bones and surrounding rock off to preserve the bones and keep them together," Burnham said.

However, Burnham and Lay are working together to allow the students to prepare Michelle's fossil.

"Our goal is to go back to KU and work on the fossil, opening the jacket, and help prepare it. We are planning to go two days next month," Lay said.

Even if a KU trip didn't work out though, the Adventure 360 Paleo X paleontology school has already made an impact in their lives.

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“My future career, I want to be a paleontologist,” said Kern. “If we can go, we will be there.”

“It’s worth taking a week out of your life to go,” Slane added.

“A once in a life time experience for any kid to even get the chance to apply,” Angell said.

Johnson, a junior at Hermann High School, said it reaffirmed what she knew she wanted to do. “I want to be an archeologist, specializing in Egyptology,” Johnson said.

Geisler and Lay plan to continue working to bring in more students using a flexible curriculum to give them a step up for college and career. Items found by students will continue to go to KU and eventually the Museum of the Rockies. Until then, teachers and students are welcome to work on the finds themselves.

“I have already talked to other schools who have heard or are interested in the program. We are already getting together to plan next summer now,” Geisler said.

Meanwhile, Michelle’s future has just begun.

“Working on the entire animal is going to take a couple of years to clean all those bones,” said Burnham. “If we got the dinosaur clean, we could make a cast and there could be a cast exhibit to go on to the school.”

Geisler also said a display of Michelle at OHS seemed quite possible.

“We have talked with other teachers who have shown interest in displaying, especially if it is what they found. It could maybe even be rotated from school to school,” Geisler said.

In just two years, Lay has managed to bring his dream into the classroom twice.

Last year, after it was approved for Kendra to take up residence in his science lab, an excitement began to stir in his classroom.

Former OHS Principal Dr. Kurt Keller told The Republican “Dinosaurs are something that even big kids are interested in.”

This year, Lay has taken his goals a step further.

“My goal is growth through education. I want to generate excitement that there is no limit where this could go as a presentation into paleontology into the classroom,” Lay said.

Lay hopes to take his same group of six next year along with six new students.

“I want the returning students to be become the teachers,” he said.

This trip was jointly paid for by the Gasconade County R-2 School District’s professional development committee, private donors who wished to remain anonymous and a $100 contribution from each student.

(Anyone local interested in attending next year should contact Kevin Lay. Other interested parties may contact Ron Geisler at adventure3sixty@yahoo.com).

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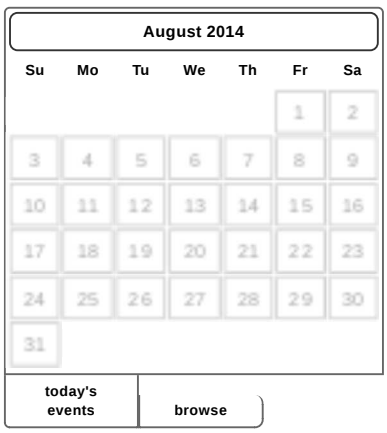

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