Amateur Fossil Hunters Dig Up Trouble in Montana

CHOTEAU, MONTANA—Are amateur fossil hunters a blessing in disguise or a plain old curse? How about a little of each? Consider the case of the *Albertosaurus* fossil that lies buried on land owned by the Peebles family near the town of Choteau. *Albertosaurus*, a huge, flesh-eating monster, was a cousin of *Tyrannosaurus rex*. No complete *Albertosaurus* fossil has ever been found in the United States, and excavating this one might offer important data about the life cycle and eating habits of this carnivore and its prey. What is more, the beast was found by amateur fossil hunters—in this case a family from Bellingham, Washington. That makes amateurs a boon to paleontology, right?

Then again, maybe not. The family that found the bones was trespassing on the Peebles' land. Not only that, because they weren't trained in excavation methods, they damaged many of the bones they dug up. To cap things off, when they got back to Bellingham, they announced their discovery to the press, sending a swarm of trespassers across the Peebles' land. And partly as a result of this mess, the *Albertosaurus* is still buried—and looks as though it might stay that way for some time.

Situations like this aren't trivial for paleontologists. The thousands of amateur dinosaur fossil hunters greatly outnumber the 50 or so academic professional dinosaur paleontologists working in the United States. Indeed, the saga of the *Albertosaurus* is the latest episode in a troubled history of tensions between amateurs, paleontologists, and private property owners at one of the most famous fossil-hunting grounds in the United States: Egg Mountain, an area in central Montana that used to be part of the Peebles ranch.

In 1978, paleontologist Jack Horner made a discovery there that changed dinosaur history. He found fossils of nests containing eggs and baby duckbill dinosaurs, strongly suggesting for the first time that dinosaurs nurtured their young, rather than simply laying eggs and leaving them, as contemporary reptiles do. Horner christened the family-oriented duckbills *Maiasaura peeblesorum* in honor of the Peebles.

MICHAEL ROTHMAN

Graceful giant. *Albertosaurus*, a genus of the family Tyrannosauridae, lived between 65 and 97 million years ago. The creature, which weighed 1800 kilograms and stood more than 3 meters tall, was a meat-eater.

Despite that honor, the Peebles' initial experience with dinosaurs was not a happy one. For instance, when the Peebles first gave Horner permission to dig on their land, all they asked, they say, was that Horner keep the location secret. "We didn't want any publicity," says Robert Peebles. But privacy was hard to come by: Soon film crews from *Sesame Street* and other national media were shooting at the site. Horner, for his part, says he "never went to the press. They came to us." As Egg Mountain proved one of the most significant dinosaur digs in the world, he says, keeping it secret proved impossible; the resulting publicity, says Horner, was detrimental to him and his colleagues as well as to the Peebles. "In 1984 we had 3000 uninvited people come to our camp," says Horner, who is now director of paleontology at the Museum of the Rockies in Bozeman, which is affiliated with Montana State University.

By 1980, Choteau (permanent population, 1700) was besieged by 10,000 tourists in passionate search of dinosaur bones. The significance of the finds made the Peebles nervous that their land might be be taken away by the state. "There was scuttlebutt going around that the state was intending to use state antiquity claims to confiscate the land if we didn't sell, because it had scientific importance," says Peebles. No state official ever threatened Peebles, he concedes, but gossip suggested someone was looking into the issue.

"We weren't interested in selling the land," says Peebles, but the combination of publicity and gossip proved too much. The Peebles sold 600 acres of their ranch to the Nature Conservancy, which developed Egg Mountain as a fossil-hunting preserve. The family sold the land for its agricultural value only, forfeiting the paleontological value. And that isn't necessarily a trivial sum: A complete *Tyrannosaurus rex* skeleton may fetch as much as $1 million from commercial fossil collectors.

Reopening old wounds. The wounds from that past history are part of what make the current *Albertosaurus* episode so painful. The fossils were discovered last summer by the family of Bruce and Janine Parker. The Parkers signed themselves and their sons, then aged four and six, up for a daily tour conducted by the field paleontology school at Egg Mountain. The daily tour is a brief affair; the field school also offers more extended sessions in which amateur bone diggers learn the basics of paleontology from professionals at the Museum of the Rockies.

After the tour, the Parkers wandered onto the land still owned by the Peebles, and it was there that they found the bones. Because the Parkers weren't schooled in paleontological excavating techniques, they damaged the bones so badly, according to Horner, that reconstruction may be impossible. Before they left, they turned the bones over to Egg Mountain—not to the Peebles, their legal owners. Back home in Bellingham, the Parkers contacted newspapers in Oregon, Washington, and Montana, and announced their new paleontological find.

The Parkers say they simply didn't realize they were on private land. "We'd been at the Museum of the Rockies site and thought we were still on it," says Bruce Parker. "We were driving down this gravel road and got out to look around and stretch a little. We looked down and right next to the road was a

C. POTERA

Sticks and stones may ... Fragments of the *Albertosaurus* skeleton as they were returned to the Peebles family.

bone." The museum's tour, according to Parker, didn't point out the boundaries of private land adjoining the museum site. After digging the bones out of the ground, he adds, they left them at Egg Mountain because they assumed the museum school was the rightful owner.

Peebles heard of the *Albertosaurus* discovery from an Associated Press story. Then, as in 1978, phone calls began pouring in from other journalists. One newspaper reported erroneously that Peebles was opening his land to public digging for a fee. So many fossil hunters called to sign up that "we almost had to change our phone number," says Peebles. After the bones left at Egg Mountain were examined by Horner and David Varricchio, director of the Egg Mountain field school and a graduate student at Montana State University, they were returned to the Peebles.

"We got out to look around and stretch a little. We looked down and right next to the road was a bone."

—Bruce Parker

The bones on the Peebles' property could answer some questions that were raised but not answered by Horner's earlier work. Complete dinosaur skeletons are always rare, especially those from carnosaurs, because flesh-eaters in any ecosystem tend to be fewer in number than the herbivores they prey on. Additionally, bones of carnosaurs are lighter than those of herbivores and don't survive as well. Until now, only scattered fragments of carnosaurs have been discovered on Egg Mountain. Those fragments suggest that either *Albertosaurus* or another *T. rex* cousin, *Daspletosaurus*, was the probable predator of the duckbills.

Excavating a complete skeleton would help resolve the puzzle of who the main Egg Mountain dinosaur predators were. The examination by Horner and Varricchio of tail, pelvis, skull, and nasal fragments suggests that the answer may be *Albertosaurus*, a cousin of *T. rex*. Named for the province of Alberta in Canada where several have been found, *Albertosaurus* was a graceful giant, 7.5 to more than 9 meters long, that may have weighed in at 1800 kilograms. Horner says the skeleton on the Peebles' land dates back to 78 million years ago.

For the moment, it doesn't look as though this giant will be excavated soon. Peebles says he has received offers from museums in Colorado and Alberta, although he refuses to disclose the amounts. Despite these offers, Peebles says that until recently he hoped to reach an agreement with the Museum of the Rockies to excavate the skeleton. He proposed raising $5 donations from students of all ages to help pay for the excavation. Profits would have been divided among the Museum of the Rockies, the Old Trail Museum in Choteau, and the Peebles in a 42:16:42 split.

But the Museum of the Rockies declined the Peebles' proposal. "As a nonprofit organization, we didn't feel the proposal justified our giving a portion of the profits to a private individual," says Art Wolf, director of the Museum of the Rockies. He adds that "maybe eventually we'll work something out." On the other hand, there may not be any agreement. "It may just end up staying in the ground," says Peebles.

No one seems to come out of the *Albertosaurus* episode unbruised. Bruce Parker says the way the story has been reported in local newspapers "offended us. We thought we found something really important, but they always bring up the controversy that we were trespassing and stealing bones." Parker says his family "felt a great deal of regret for causing [the Peebles] grief. That caught us off-guard."

The *Albertosaurus* episode illustrates the need "for more consideration and understanding" among amateur fossil collectors, professionals, and landowners, says David Trexler, curator of paleontology at Choteau's Old Trail Museum. At Egg Mountain, Varricchio says it's time to teach amateurs about the rights of private landowners. Varricchio, who was at Egg Mountain only a month when the Parkers visited, says he assumed amateurs knew about private property rights. Now, he says, he realizes that that's a "big assumption." After that experience, he says, "I know to be more careful."

On a national level, the Society of Vertebrate Paleontology (SVP) is tackling the situation through outreach. University of California, Riverside, paleontologist Michael Woodburne, who heads the SVP's government liaison committee, stresses that the SVP does not want to police amateurs or cut them out of the process of fossil hunting. Instead, the SVP wants to "educate people that a lot of fossils get destroyed by amateurs," says Woodburne. He adds that "we want to increase the ability of amateur participation in securing fossils." For the moment, however, the best way to do that is just as unclear as the best way to get the Peebles' *Albertosaurus* out of the ground without any further damage.

–Carol Potera

Carol Potera is a science writer who lives in Great Falls, Montana.

ASTRONOMY

Hubble Gets Help From a Cosmic Lens

W. COUCH (UNIV. OF NEW SOUTH WALES)/ R. ELLIS (CAMBRIDGE UNIV.)/ NASA

Zooming in on the early universe. In the foreground of this image from the Hubble Space Telescope is a rich cluster of galaxies, Abell 2218; webbing the image are the distorted shapes of more remote galaxies. The galaxies lie as much as 10 times farther away than the foreground cluster, three quarters of the way back to the big bang, and would ordinarily be too faint for study. The cluster's enormous mass, however, has acted as a gravitational lens: It has bent light from the background galaxies, brightening and magnifying them. By augmenting the Hubble with such gravitational lenses, astronomers hope to probe the structure and star populations of ordinary galaxies in the early universe.