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Dinosaurs have been in the news a lot recently and Dr. Peter Dodson, associate professor of anatomy at the School, had something to do with that. In December, Dodson introduced *Avaceratops lammersi* to the public at the Academy of Natural Sciences of Philadelphia. This event marked a five-year quest to identify fossil bones found in Montana in 1981.

"*Avaceratops lammersi* lived about 75 million years ago. It was a small, plant-eating dinosaur," he explained. "The first new kind of horned dinosaur found in North America in 35 years, this animal was about the size of a boar and seven feet in length. It is a juvenile and we estimate the adult size at about 12 feet, which is considerably smaller than that of other horned dinosaurs of that period."

Little did Dodson know that a trip to South Dakota to examine some fossil bones would lead to the discovery of a new species. "The first bones were found by Eddy Cole, a fossil collector from Wall, South Dakota," said Dodson. "Cole had travelled to Montana, which is known for dinosaur fossil deposits, to look for bones." Cole began his search on the Careless Creek Ranch, a 46,000 acre ranch located near Shawmut, Montana. Here, in an arid section, he came across dinosaur bones. "Millions of years ago Montana was a wet land, with swamps and rivers and much vegetation. The site of the fossil find is an ancient riverbed, and it appears that the animals perished during a flood. There are many bones from juvenile dinosaurs, crocodiles, turtles, and some mammals."

Good fortune played a large part in Dodson's involvement in the discovery of a new dinosaur. "Cole was somewhat unusual in that he carefully mapped the excavation site and the location of each bone. He also thought that a scientist ought to look at his find before he dispersed the bones." Cole called a friend in Los Angeles who contacted a paleontologist at Harvard. Dodson came into the picture when his colleague asked him to speak to Cole. "It was a bit of a tricky situation," said Dodson. "Paleontologists on the whole are not too keen on private fossil collectors. Also, the bones could have been something quite ordinary."

Dodson visited Cole and examined the 700 fossil bones. The collection was a mixture of remains from a number of species, among them bones from a rare horned dinosaur. Dodson got excited when he spotted a frill, a bony structure extending from the back of the skull of ceratopsids and characteristic of these animals. "I asked whether there were more skull bones at the site," he said. "Cole said 'yes'."

Dodson was determined to obtain the collection of fossils for the Academy of Natural Sciences of Philadelphia. Cole agreed to sell them for \$5,000, even though he had spent about \$8,000 on the excavation. Cole also agreed to take Dodson to the site in 1982. The Academy had no funds available, and Dodson mounted a grass-roots campaign to bring the fossils to Philadelphia. His wife and friends baked dinosaur cookies and created dinosaur buttons. These were sold at paleontology fairs, and Dodson took his message to schools and paleontology meetings. He generated quite a bit of enthusiasm and in ten months the funds were raised.

The National Geographic Society provided a grant which enabled Dodson to travel to the site in 1982. As Cole had promised, there were plenty more bones



Dr. Peter Dodson with a fully reconstructed model of *Avaceratops lammersi*. (photo by David Bennett)

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and in a period of four days 100 additional fossils were excavated. "The site is in an arid area, no water, no shade, the nearest house is 4 miles away. We camped and had to bring everything with us. But it was worth it." Dodson returned to the site again in 1984 under the auspices of the Academy and in 1985 and 1986 with funding from the National Science Foundation.

The fossils from the 1981 and 1982 excavations came to Philadelphia in 1983 and were studied at the Academy. At first it was thought that they belonged to a *Brachyceratops*. But soon it became evident that they belonged to a different species. "The animal was 10 percent larger, and there was a significant difference in the frill bones," Dr. Dodson said. "Our skeleton's frill was solid, whereas the frill of the *Brachyceratops* has openings."

To make sure that he indeed had found a new dinosaur, Dr. Dodson travelled to other institutions to examine their collections of ceratopsid fossils. Funding for this was provided by the University Research Fund. It became clear that the skeleton at the Academy was different. "We had a new kind of dinosaur," he said. "It was an important scientific discovery."

Dodson named his animal *Avaceratops lammersi* after Ava Cole, Eddy Cole's wife, and the Lammers family, owners of the Careless Creek Ranch and very

cooperative to the researchers. Ceratops means horned face.

Peter Dodson teaches anatomy at the School. He also has an appointment in the department of geology and is a research associate at the Academy of Natural Sciences, Philadelphia. He served as chief scientific adviser to the Academy's new permanent dinosaur display. "It is quite fitting that the fossil is here in Philadelphia," he said. "Philadelphia was the birthplace of American paleontology in the mid-19th century. The first reasonably complete dinosaur skeleton in the world was discovered in Haddonfield, New Jersey, in 1858."

Dodson has been fascinated by dinosaurs since his youth. "I always wanted to be a paleontologist, and, of course, finding a new species is just like a dream." He studied geology and received his Ph.D. from Yale. "There are few jobs for paleontologists, so you must do something to earn a living. I chose anatomy and I have been teaching here at the School since 1974—and delighted to be here."



Fossil bones at the site on the Careless Creek Ranch. (photo by Eddy Cole)