

A Conversation with Jim Diffily



Jim is the man who snared the Museum's very first dinosaur specimen, a *Tenontosaurus dossi*, back in 1988, thus launching an impressive paleontology collection. He is the one responsible for a key collaboration that continues today with the Shuler Museum at Southern Methodist University, and it all started with a single phone call.

Jim is a geologist by training -- not a paleontologist -- so when he was asked to visit a ranch in Western Parker County to look at some dinosaur bones found by a 7-year-old boy and his father, he knew he would need some help. So he made a cold call to Louis Jacobs, a nationally known paleontologist at SMU, to ask for some assistance. But first Jim had to persuade the landowners, James and Dorothy Doss, to donate the specimen to the Museum before the excavation could begin. They agreed, and Jacobs helped Jim get the excavation set up and underway. His lab at SMU was used to analyze the specimen and prepare it for articulation.

Jim's first phone call to Jacobs began an important collaboration that has continued over the past two decades and included several joint excavations of dinosaurs (including the Museum's *Acrocanthosaurus*, one of only two complete specimens in existence), as well as research and analysis. Louis Jacobs, Bonnie Jacobs, and Dale Winkler served as scientific advisors to the new Lone Star Dinosaurs exhibit.

For Jim, this exhibit represents the culmination of this collaboration, and just as important, it represents an entirely new way of bringing dinosaurs and the field of paleontology to the public. I recently had a long talk with Jim about the exhibit. Here's what he had to say:

Q. What excites you the most about the new Lone Star Dinosaurs?

A. That we've been able to capitalize on an incredible experience we've had for over two decades, excavating dinosaurs right here in our own backyard, working with some of the most prominent paleontologists in the field, and very quickly bringing it to the general public. Rarely does cutting-edge science go through the process of research, manuscripts and publication and then get delivered to the public in an informal science setting so quickly.

Q. What makes this exhibit different?

A. Unlike most traditional dinosaur exhibits, which in most museums we call "bone shows," this exhibit focuses more on the science of paleontology. It's about science, because we're about providing extraordinary learning experiences in science and history here at the Museum. This should be an extraordinary experience, to give visitors the opportunity to really see how the science of paleontology works -- which is essentially the same as all science.

Q. Could you explain what you mean, for those of us without much of a science background?

A. It's all about learning the skills of observation. Regardless of the field of science, you need to really use your senses and look for patterns and look for the small details that might be significant in understanding something or how it works.

It's about recording all this information and testing your ideas, testing your hypothesis. And all science works that way, whether it's paleontology or astronomy. Astronomers collect light, paleontologists collect fossils, but if you take the data you've collected, whether it be light or fossils, and you use your knowledge of the present and of physics and other disciplines, and you start testing your ideas and making sense of your data and come up with some conclusions and present your knowledge to other people to test so they don't take your word for it -- that's the way science works.

Q What were some of the biggest challenges in developing the exhibit?

A. The challenge was to create a sense of reality in the field site, so that it's not difficult to suspend disbelief and really get into the feeling of being out in nature and trying to tease out the information from a hole in the ground. We had the mantra at the beginning, "Reality rules," "Reality rules." So you create this reality, but you still have to get the information across. For the field site, for instance, we didn't want label copy, because you don't see signage at a field site. But you might see some technology sitting in the environment if a documentary film were being made. So we decided we would use video, with people talking to each other and describing what to do. We made a commitment to use high-definition video because that's what's coming and because of its incredible richness and depth. We also had another communication strategy, and that is, scientists have notebooks where they record information. So we're giving everybody field notes. The field site is technically challenging so we made a commitment to have it staffed full-time with an interpreter, with floor staff. As you move through the rest of the exhibit we added label copy and multi-media, computer-driven interaction and lots and lots of photographs and images. So we've got five or six different ways to communicate our information, knowing that people learn in different ways. And it was a challenge to produce all the communications so that it would target the 5th grade visitor and also interest the caregivers who bring them, and the smaller siblings that might come along. And I had to keep the scientists happy. Because it's difficult to bring fairly complex science to an informal setting and interpret it while staying true to the science.

Q. You're a trained geologist. For neophytes like me, what makes Texas such a treasure trove for all these bones?

A. It's two things. There are very few places in the world where the rocks from the early Cretaceous period containing dinosaurs are exposed to the surface of the earth. To find a dinosaur you have to look at the right age rock but also the right kind of rock. So early Cretaceous marine rock isn't going to have dinosaurs because they were not marine creatures, they were land animals. Consequently, there's very little known about early Cretaceous dinosaurs. We happen to be in a place where there are wonderful sequences of rocks from this period of time and we have access to all of them because our stack of layers tilts ever so slightly to the southeast. And by tilting all the layers, every layer becomes exposed to the surface of the earth. So we have the dinosaur-bearing strata and they are all accessible.

Q. Is Texas unique, or are there other places in the world where you can find so many early-Cretaceous bones?

A. There are places in Utah and Wyoming where there are rocks of this age that are also producing early-Cretaceous dinosaurs. Also in Arundel Maryland, but most of the Arundel clay is covered by urban sprawl so it's not so accessible. This is where *Pleurocoelus* was first dug up in the 1880s, in clay pits used in making bricks.

Q. What's been the reaction of Louis Jacobs and the other SMU paleontologists to what we're doing in this exhibit?

A. They are very excited and very pleased to work with us and to see their work and their passion produced in a museum exhibit that will touch hundreds of thousands of people. Rarely does a scientist get that kind of outlet for the work that they do. They work for other scientists usually. So they enjoy working with a museum that's really doing something with all this great material.