

My Beloved Brontosaurus: On the Road With Old Bones, New Science, and Our Favorite Dinosaurs by Brian Switek in “pasatiempo,” in the *Santa Fe New Mexican*, November 29, 2013

Author Brian Switek’s passion for dinosaurs was fully evident by the time he appeared as a stegosaurus in a preschool skit about dinosaurs. A conflict between the herbivorous-plated dinosaur with tail spikes and another dinosaur was incorrectly portrayed. The green-suited, nascent scientist then improvised and explained the misrepresentation to the audience. After that auspicious episode — and years of research, study, and digging — the “five-year-old pre-history fanatic” matured into a well-known science writer and dinosaur expert.

Switek’s long-ago performance reflects one of the themes running throughout his *My Beloved Brontosaurus*. Ongoing paleontological research and debate conflict with popular culture’s depiction of these extinct beasts. The confusion is easy to understand. Dinosaurs excite the imagination. Endearingly or horrifyingly portrayed, they appear in songs and films and have inspired television shows like the *The Flintstones*. A purple representative of the creatures hosts the children’s program *Barney & Friends*. In the western U.S., where so many dinosaur skeletons have been discovered, erroneously depicted behemoths graze beside highways to entice tourists. Museum signage can be incorrect or outdated. Even the brontosaurus of the title has become passé, in a sense — research has resulted in the creature’s new categorization as *Apatosaurus*. “New dinosaur discoveries come out faster than you might imagine,” he tells the reader.

One of the most stunning of those discoveries is that birds are closely related to dinosaurs. This “changed the entire perception of what dinosaurs were,” Switek writes. “Dinofuzz,” early feathers on avian dinosaurs, were for warmth, not flight. That lineage survived the extinction at the end of the Cretaceous period and continues in the birds we see today — just look at a roadrunner. How and why the likes of *Tyrannosaurus* and *Triceratops* were extirpated is another area of continuing research. An asteroid that crashed to the Earth is popularly believed to be the cause. Switek deems it “one of the most devastating episodes in the history of life.” A 111-mile-wide impact crater near the Yucatan Peninsula supports the theory. This event rained fire, steam, and debris that wrought massive, widespread destruction and could have “flash fried” North American dinosaurs, according to one paleontologist. However devastating the impact was, it did give mammals a leg-up for their “big evolutionary chance.” Factors such as climate change, receding seaways, and intense volcanic activity also played a role.

“Signs of fossil sex are hard to find,” Switek writes. Studying the biology of dinosaur sex is complicated, because fossilized skeletons bear no soft tissue. The discovery of an oviraptorosaur — whose appearance with feathers, crest, and beak resembles a “terrestrial parrot” — illuminated aspects of a female dinosaur’s reproductive system. Two preserved eggs cradled in the oviraptorosaur’s hips were recovered at a site in China. But that breakthrough doesn’t explain how the whirl, twirl, and tango of dinosaur love was actually performed — particularly in the case of the *Kentrosaurus*, a cousin to the stegosaurus. The bone-piercing spikes running down the animal’s back and tail

would seem to hinder the usual approaches to coupling favored by man and beast. Less mind-boggling is the thought of a species up to 80 or 90 feet in length making whoopee.

Considering how dinosaurs lived, dominated, and then disappeared drives Switek's narrative. He outlines previous thinking in chapters devoted to dinosaur development, their societies, and appearance, their bones and extinction, even the sounds they may have made. Whoever stopped to think that dinosaurs were "vocal, social creatures?" Switek's immediate prose enables the reader to accompany him to museums and meetings to overhear conversations with other experts in the field. He also takes us to dinosaur discovery sites, such as New Mexico's Ghost Ranch quarry, "one of the richest Triassic localities in the world." *Coelophysis* bones by the thousands have been discovered there. The slender, bipedal carnivore, 9 feet long, is the state's official fossil.

Besides explaining how dinosaurs changed during their heyday in prehistory, from 250 million to 66 million years ago, Switek also recounts the history of paleontological research in the United States. Working with bits and pieces of skeletons, paleontologists since the late 19th century understandably misidentified and mismatched bones. Scientists today, particularly since the 1980s, are working with those same puzzle pieces but are aided by computer modeling and instant communication with colleagues all over the globe.

A fiberglass replica of a *Brachiosaurus* skeleton, consisting of 280 bones, overlooks dithering passengers in Concourse B at Chicago's O'Hare Airport. This gigantic skeleton and those seen in museums are emblematic and deliver a sober, affecting message. Any contemplation of dinosaurs and their fate gives one pause, signaling our planet's ever-evolving history.