

Bone To Pick: First T. Rex Skeleton, Complete At Last

by Christopher Joyce

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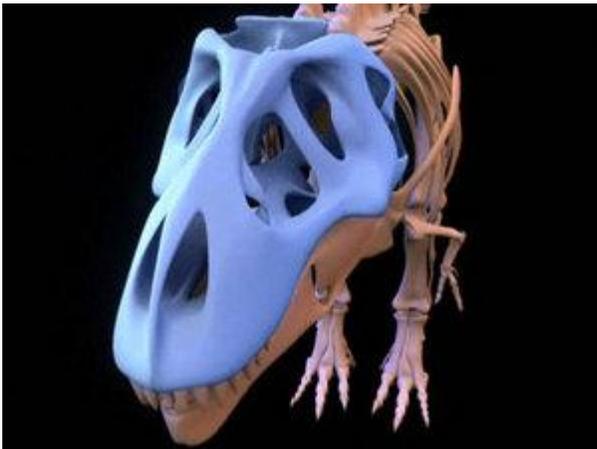
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Interactive: Watch *T. Rex* Come Alive

In the century since the first skeleton was unearthed, our understanding of how the giant predator lived, moved and behaved has evolved. Watch video animations that show the latest research in motion.



Kent Stevens/University of Oregon

Interactives And Video: Watch *T. Rex* Come Alive

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The backrooms of museums are like your grandparents' attic, only the stuff is more exotic — things like fossilized jellyfish, dinosaur eggs or mummified princes.

And if you look carefully, you'll find objects that once changed science but are now largely forgotten. You might call them Lost Treasures of Science. This is a story of one of those objects — a special bone that's part of a special skeleton.

We'll start with Carl Mehling. When he went to the last meeting of the Society of Vertebrate Paleontology in Pittsburgh, he was planning for a good time — first lectures, then party. But he had a nagging worry as well.

"Every moment of every day I had this monkey on my back," he says with a laugh. "A big monkey with short arms and two claws."

The monkey was actually a *bone* — a very valuable bone. It belonged to one of the world's most important skeletons, one that was discovered a century ago in a Montana hillside.

And carrying it around made Mehling nervous. "I didn't want to be the jackass that lost it," he says.

Fossil hunter Barnum Brown discovered and excavated the first *Tyrannosaurus rex* skeleton, starting in 1902. Here, he's uncovering bones in a dusty field in 1901.



Image # 18029/American Museum of Natural History

Fossil hunter Barnum Brown discovered and excavated the first *Tyrannosaurus rex* skeleton, starting in 1902. Here, he's uncovering bones in a dusty field in 1901.



Expedition Notes: In The Field With Fossil Hunter Barnum Brown

The Indiana Jones of fossil hunting discovered the first *T. rex* in 1902.

Barnum Brown, Fossil Hunter

The bone came out of a Montana hillside over 100 years ago, discovered by a man who was a legend among fossil hunters.

In the early 1900s, dinosaur bones were like Egyptian mummies — mysteries that dazzled both the public and scientists. Larry Witmer, paleontologist at Ohio University, says scientists clamored for bones and more bones.

"It was literally the Wild West at that time," says Witmer. "When people went out looking for dinosaurs, they were trophy hunters. They were looking for specimens they could mount in museums. They were headhunters looking for skulls, because they were flashier."

And Barnum Brown was among the best — the Indiana Jones of dino hunters. He was flamboyant; on dinosaur digs, he'd wear a full-length fur coat.

But he was a serious scientist, too. He held the top paleontology spot at the American Museum of Natural History in New York City, a job now held by Mark Norell.

Norell says Brown mixed his science with show business. "People would flock to his train when it arrived in stations across the country," says Norell. "He had a radio program each week, talking about dinosaurs and that kind of thing."



Image # 28767/American Museum of Natural History

Brown (lower left) works in the quarry in 1905 in Hell Creek, Mont., where the first *T. rex* was found. Brown and his team used horses to pull away layers of soil and rock above the dinosaur bones.

The Big Find

In the summer of 1902, Brown went to Hell Creek, Mont. It was a region that had yielded exciting dinosaur bones before. This time, Brown found something unlike anything he'd ever seen.

Brown's team blasted a hillside with dynamite, then dragged the ground with horse-drawn earth-movers. He wrote the museum for more money — and to complain. In a letter to his boss at the museum, he wrote: "The bones are separated by two or three feet of soft sand[,] usually[,] and each bone is surrounded by the hardest blue sandstone I ever tried to work, in the form of concretions."

The team was secretive. Competing museums were known to scout out and spy on dinosaur digs, and Brown knew he had something incredible. He wrote to his boss, "There is no question but what this is the find of the season."

Over three years of digging, the beast emerged from the ground — a huge tail, tiny forearms, a bone-crunching jaw, horrifying teeth.

Big carnivorous dinosaurs had been discovered before, but not like this. Was it truly new? No one knew. Brown packed the bones in plaster — the skull itself weighed over 1,000 pounds — and sent them by train to the New York museum.

There, scientists registered the bones with the number 973. Then they put the pieces together and officially named the huge beast *Tyrannosaurus rex*, the Tyrant King. It was what scientists call "the holotype" specimen of a new species, the first against which all others are compared.



Carnegie Museum of Natural History

When the *T. rex* skeleton was first put on display, it was presented standing vertically, in this Godzilla-like pose, as seen at the Carnegie Museum of Natural History around 1950. Recent studies show the dinosaur actually kept its body horizontal. Watch the videos here to see how *T. rex* walked.

The *T. Rex* Moves West

The *T. rex* was put on display in the American Museum of Natural History's Dinosaur Hall in December 1906. The crowds lined up for blocks. "The public at first just couldn't believe it that there could be a carnivorous animal that was this big that walked North America," curator Norell says.

The *T. rex* was beloved, but Brown soon found more of them, even bigger. The original eventually went into storage until 1941. And then Brown did the unthinkable: He sold it.

The reason he gave, says Norell: "He was very, very concerned that New York City was going to be bombed in World War II."

Now, dinosaur historians say Brown's correspondence contradicts that and suggests that Brown really just wanted cash to hunt more dinosaurs. In any case, he got \$7,000 for the skeleton, which went to the New York museum's biggest rival — the Carnegie Museum in Pittsburgh, which wanted its own crowd-pleasing monster.

However, the skeleton the New York museum shipped to Pittsburgh was incomplete. No one realized that for decades, until a young researcher took his first-ever trip to New York. Thomas Carr was doing research on dinosaurs and spent day after day going through the tall green cabinets that house the New York museum's "spare" bones.

"When I was going through this process of opening up cabinets and looking through shelves," Carr recalls, "I came upon this one cabinet." He looked in, and "with unbelieving eyes," he says, he saw some bone fragments. "I knew what it was because of the number, 973."

The First *T. Rex*, Complete At Last

No. 973 was the identifier given to the first *T. rex* skeleton. Thomas immediately called the collections manager, Carl Mehling, our man with the backpack and the wandering rib bone.

"I was like, *what?*" Mehling recalls.

Mehling knew a bone from No. 973 did not belong in his museum. So he made a few phone calls, and he got out his backpack.



Justy Alicea

Carl Mehling, curator at the American Museum of Natural History in New York, just before exchanging the forgotten rib bone from the first *T. rex*. He's standing in front of the dinosaur's skeleton, which is now on display at the Carnegie Museum of Natural History in Pittsburgh.

Which brings us to Pittsburgh and the last meeting of the Society of Vertebrate Paleontology. It's a raucous bone fest for fossil hunters: There's a late-night auction where scientists sell rare books, as well as "paleontologist Barbie dolls" equipped with rock hammers and khaki shorts.

Away from the action, though, at a quiet table, a transaction takes place. Mehling has arranged to meet the curator from the Carnegie museum, where the holotype *T. rex* is still on display today. Mehling pulls a styrofoam box out of his backpack. He's labeled it "973." His colleague Mark Norell slits open the box.

"Fortunately, bones aren't fragile," Norell says as he hands a slender, curved bone to curator Matt Lamanna from the Carnegie Museum. "So here it is, Matt," says Norell, "the rest of the specimen. I think you've got it all now."

"Nice," Lamanna replies with a laugh. "We thought we had the whole thing, and it's honestly really cool for them to tell me, because I wouldn't have known otherwise."

Everyone is happy. Especially Mehling, who is relieved to finally have that precious rib bone off his back. And Carnegie's Lamanna can put the last bone back into the first *T. rex*, which Lamanna says is staying put in Pittsburgh.

"This is the type specimen of the *Tyrannosaurus rex*," he says. "I mean, come on. It's effectively priceless."

This story was produced for broadcast by Rebecca Davis.

From Fossils To The Future

Learn more about the discovery and excavation of *T. rex* and see how scientists have digitally reconstructed its body.

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VIDEOS: Born To Prey: Watch T. Rex Come Alive Sept. 14, 2011