What's in a Name? The Battle of Baby T. Rex and Nanotyrannus.

A dinosaur fossil for sale in London embodies one of the most heated debates in paleontology.

The David Aaron gallery has listed a dinosaur specimen for $20 million that it is calling a "rare juvenile Tyrannosaurus rex skeleton." Not everyone agrees. via David Aaron


By Julia Jacobs and Zachary Small
Zachary Small reported from London, and Julia Jacobs from New York.

Jan. 2, 2024, 5:01 a.m. ET

When fossil hunters unearthed the remains of a dinosaur from the hills of eastern Montana five years ago, they carried several key characteristics of a Tyrannosaurus rex: a pair of giant legs for walking, a much smaller pair of arms for slashing prey, and a long tail stretching behind it.

But unlike a full-grown T. rex, which would be about the size of a city bus, this dinosaur was more like the size of a pickup truck.

The specimen, which is now listed for sale for $20 million at an art gallery in London, raises a question that has come to obsess paleontologists: Is it simply a young T. rex who died before reaching maturity, or does it represent a different but related species of dinosaur known as a Nanotyrannus?

The dispute has produced reams of scientific research and decades of debate, polarizing paleontologists along the way. Now, with dinosaur fossils increasingly fetching eye-popping prices at auction, the once-esoteric dispute has begun to ripple through auction houses and galleries, where some see the T. rex name as a valuable brand that can more easily command high prices.

“It’s ultimately a quite in-the-weeds question of the taxonomy and the classification of one very particular type of dinosaur,” said Steve Brusatte, a paleontologist at the University of Edinburgh. “However, it involves T. rex, and the debate always gets a little bit more ferocious when the king of dinosaurs is involved.”

On the internet, juvenile T. rex versus Nanotyrannus has become something of a meme, providing fuel for jokes on niche social media channels. (“I won’t believe in Nanotyrannus until it shows up at my own door and devours me,” a paleontology student with the handle “TheDinoBuff” joked recently on the social media site X.)

The gallery selling the specimen discovered in Montana — which is known as Chomper — was faced with a choice. Call it a juvenile T. rex? Label it a Nanotyrannus? Or embrace the ambiguity of an unresolved scientific debate?

The specimen, which is known as Chomper, was discovered in eastern Montana. via David Aaron

The David Aaron gallery in London went with calling it a “rare juvenile Tyrannosaurus rex skeleton.” It cited an influential 2020 paper on the subject led by Holly N. Woodward, which used an analysis of growth rings within bone samples from two disputed specimens — which are estimated to have been similarly sized to Chomper — to argue that they were juveniles nearing growth spurts.

Salomon Aaron, a director of the gallery, said paleontologists had advised it to classify the skeleton as a juvenile T. rex, and he questioned whether either label was necessarily more lucrative.

“I don’t think it had any impact on price because in either respect it is a magnificently complete, beautifully preserved and extremely rare specimen,” Aaron said.

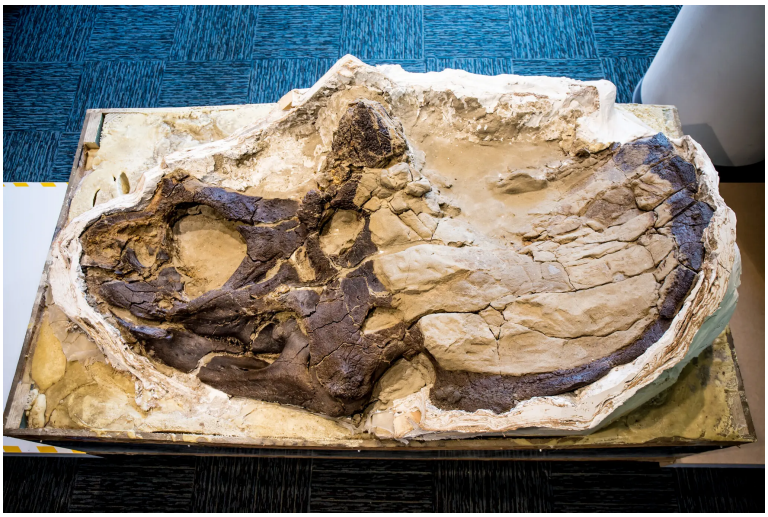
But Pete Larson, a fossil expert who is known for his involvement in excavating two of the world’s most famous T. rexes — Sue and Stan — said he believed that Chomper was a Nanotyrannus. The specimen was featured on a 2020 episode of the Discovery Channel documentary series “Dino Hunters,” in which Larson pointed to the size of its hand bones and the apparent fusion of its nasal bones as evidence that it was not a juvenile T. rex.

“You have a group of scientists that say it’s a juvenile T. rex and you have a group of scientists that say it’s a Nanotyrannus,” Larson said, in an interview, of the choice facing the gallery. “So they’ll go with the one that makes more money.”

Another specimen that is certain to shape the debate in coming months is a paleontological marvel known as the Dueling Dinosaurs, a remarkably well-preserved fossil of a tyrannosaur that was discovered alongside the remains of a Triceratops, giving the impression that the animals might have died while fighting each other.

The Dueling Dinosaurs specimen — which was discovered by a team led by Clayton Phipps, the same fossil hunter who excavated Chomper — was out of researchers’ grasp for years, holed up in storage during a court battle over who owned it. But after the legal issues were resolved, the North Carolina Museum of Natural Sciences acquired it in 2020. This spring, the museum plans to open an exhibit in which the public will be able to visit the Dueling Dinosaurs at the same time paleontologists are actively studying it.

A specimen known as Dueling Dinosaurs includes a Triceratops and a tyrannosaur that has not been classified. via North Carolina Museum of Natural Sciences



The skull of the Triceratops. The North Carolina Museum of Natural Sciences plans to display Dueling Dinosaurs this spring. via North Carolina Museum of Natural Sciences

One of the questions they will be studying is how, exactly, the tyrannosaur should be classified.

“We need to sort out what, in my career, has been one of the most complex questions to address, because you have to distinguish so many variables,” said Lindsay Zanno, the museum’s head of paleontology, listing growth, sex and the fossilization process as examples. “That has been why it has perplexed the scientific community for years.”

The origin of the paleontological debate dates back to 1942, when an expedition from the Cleveland Museum of Natural History unearthed a 22-inch dinosaur skull in Montana. It was originally identified as a Gorgosaurus, but in the 1960s a new analysis argued that it belonged to a juvenile T. rex.

The debate has raged ever since. Even to nonscientists, there are clear differences between the skull of that specimen and those of adult T. rexes: The smaller skull has a more slender snout and thinner, more bladelike teeth. In the late 1980s, research led by the paleontologist Robert T. Bakker argued that those differences, among many others, indicated the specimen was a new species. He christened it Nanotyrannus lancensis.

But about a decade later, the paleontologist Thomas Carr made the most detailed argument yet that the 1942 specimen was in fact a juvenile T. rex, attributing the differences to its immaturity. “Every bone in the skeleton of these animals changes with growth,” said Carr, who has researched the question for more than 20 years.

Since the turn of the century, the debate has been enlivened by the discovery of new specimens, including a 21-foot-long one named Jane. One of the specimens in Woodward’s study, it was unearthed in Montana in the early 2000s and is on exhibit in Rockford, Ill., at the Burpee Museum of Natural History.

The dinosaur Jane, which is on display at the Burpee Museum of Natural History in Rockford, Ill., is part of the paleontological dispute. Burpee Museum

In the latest foray into the debate, Nick Longrich, a paleontologist at the University of Bath, has argued for Nanotyrannus as a distinct species, countering Woodward's key conclusion about Jane and another specimen in a preprint of a paper that caused a stir among his colleagues at October's meeting of the Society of Vertebrate Paleontology.

"It's almost gotten religious," Longrich said of the passions stirred up over the debate, describing it as "one of the ways that you signal group identity" in paleontology circles.

But science, of course, is based in evidence, and many paleontologists believe that truly ending this dispute requires more of it. That is where some worry about the growing market for dinosaur fossils at auction houses and art galleries.

Academic paleontologists view the spiking price tags for dinosaurs — following the sale of the T. rex Stan in 2020 for $32 million — as a growing crisis in their field, fearing that important specimens could end up out of the reach of researchers.

Aaron, of the London gallery, said he hoped that Chomper would go to a museum where scientists could study it, but there is no guarantee.

"We need more specimens to solve the mystery," said David Evans, a paleontologist at the Royal Ontario Museum. "And this is exactly the type of specimen that scientists need."

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