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### The Accidental Palaeontologist

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United Kingdom  
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Michael "Mike" Taylor keeps four tattered sketches of dinosaurs in a black folder at his home in Ruardean, U.K. Taylor remembers his dad, a car mechanic, drawing the pictures for him when he was 8 years old: a *Triceratops*, a *Styracosaurus*, an *Allosaurus*, and Taylor's favourite, an *Apatosaurus* (*Brontosaurus*). "There is something about the pictures," Taylor says. "I don't know that I would have had the sophistication to express it then, but they capture a wishful elegance to the animal."

Like a lot of kids, Taylor loved dinosaurs as a child. He read classics such as *The How and Why Wonder Book of Dinosaurs*, and he knew, for example, that *Tyrannosaurus rex* had two fingers whereas other dinosaurs had three. But as often happens as children grow, his interest in dinosaurs faded. He got caught up in computers, selling his first program at the age of 13. He got a degree in pure maths and now Taylor, 39, makes his living developing protocols that try to convince computers to talk to each other.

Not long ago, Taylor rediscovered his passion for the big-boned creatures and decided to pursue a Ph.D. in palaeontology alongside his day job. In November, he published a paper on a newly discovered species of dinosaur, which he named

*Xenoposeidon*. The elephant-sized sauropod (think Littlefoot from *The Land Before Time*) pulled Taylor into the world of professional palaeontology and into the media spotlight. Not bad for a guy pursuing a Ph.D. for fun. "I just wanted to study dinosaurs," Taylor says.

#### THE FIRST ACCIDENT

Taylor can't pinpoint when exactly he decided to study dinosaurs as an adult. "It just crept up on me," he says. But he does remember the moment he decided to publish. On a September 2003 flight from England to Washington, D.C., for his day job, he read what he described as an awful paper. "I spent hours scribbling all over it," he says. "I thought, 'I could do better.'"

Three years earlier, Taylor had joined the [Dinosaur Mailing List](#), a listserv for professional palaeontologists and enthusiasts. When he read about a new species named *Sauroposeidon*, which was estimated to weigh about 55 tons and have a length of almost 30 meters, he contacted the author, [Mathew Wedel](#). Taylor and Wedel became quick friends, and their conversation never stopped.

Sauropods, like Wedel's *Sauroposeidon* and the *Apatosaurus* Taylor's dad drew, intrigued Taylor because of their size. They have small heads, long necks, and huge bodies. "There is sheer wonder," he says. "How can animals like that possibly work?" If people hold their arms out in the air for 5 minutes the muscles fatigue, yet sauropods hold up a 40-foot neck for much longer. As Taylor read more papers, further indulging his interest, he acquired more and more technical knowledge.

"I told Mike that he would eventually want to publish his own papers," Wedel says. "It is inevitable because you see something crying out to be done. The science we have is tiny compared to the science we don't have."

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Wedel was right. Taylor eventually wanted to look at bones. To do that he needed access to collections, and for that he needed a university affiliation. "The Ph.D. was an accident," Taylor says. He found a Ph.D. adviser in [David Martill](#), a palaeontologist at the [University of Portsmouth](#), U.K., through a friend on the listserv and got started in September 2004, a year after his eye-opening plane trip.

Taylor had the personality and drive to make a part-time education work. He had no trouble getting back into learning, Martill says, a fact Wedel attributes to his "intellectual fearlessness" and "relentless question-asking." Taylor says it was hard at first, but he received support from colleagues and friends. "I could send them my dumb questions," Taylor says. And once he started describing bones, his work raced forward. "The more I looked at the bones, the more they exerted control over me," he says.

For palaeontologists, the [Natural History Museum](#) in London is an ideal playground. [Its collections](#) include 9 million fossils from around the world, some as old as 3500 million years. The museum has bones from two of the first three dinosaurs to be named. Taylor was most interested in the Wealden collection, which has bones dating back 140 million years to the early Cretaceous, a time when the abundance and distribution of sauropods was changing. Taylor decided to revisit old dinosaur names, about a dozen of which were handed down before complete skeletons and comparative specimens were available. Some bones had been collected 150 years earlier and had not been looked at since. Taylor found that when he followed his interest, doing the science was surprisingly easy. "There is no priesthood or secret society you have to join," he says. "Anyone can do it."



**Mike Taylor displays the dorsal vertebra** that led him and a colleague to describe a new species of dinosaur, which they named *Xenoposeidon*.

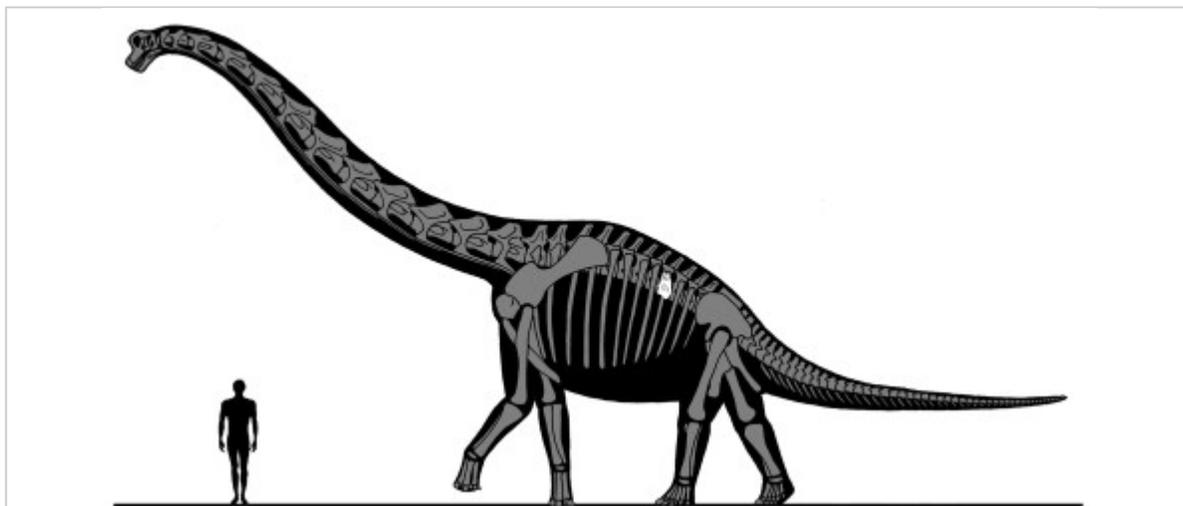
## THE SECOND ACCIDENT

One day while looking through the cabinets for the vertebrae of two species, Taylor's eyes fell momentarily on an unusual bit of backbone. "I thought almost immediately that this is a very strange thing," he says. "Because I spent so long looking at dorsal vertebrae, subtle differences look terribly, terribly wrong."

To anyone else, the specimen, originally found in Sussex in the 1890s, may not have been surprising. But this piece of backbone had a distinct sharp tip and a teardrop-shaped canal, among other uncommon features. Taylor called another colleague he had met through the listserv, [Darren Naish](#).

From one partial bone--and the context Naish was able to provide--Taylor and Naish reconstructed what the creature might have looked like when it lived 140 million years ago. Taylor says it is not unusual for palaeontologists to create something out of very little, to draw a lot of information from a few pieces of bone. As such, there ends up being different recreations and interpretations of dinosaurs, including the calm and sluggish species his father drew and the dynamic, scary monsters depicted today. *Xenoposeidon* was smaller than most of the sauropods Taylor admired, but it was an "earth-shaker" just the same.

Taylor and Naish published the analyses and reconstructions in November in the [journal \*Palaeontology\*](#). For a moment, Taylor says, he knew something no one else knew, one of science's great thrills. Then he started sharing it. To his surprise, people cared. "It is fantastic that the world was interested in sauropods for a little while," he says.



**This rough estimate** of the size and shape of *Xenoposeidon* shows where the vertebra Taylor studied would have been positioned.

When Taylor's dad sketched those dinosaurs, he was just enjoying himself. He had little knowledge of their actual form or behaviour. But Taylor provides his own sons--Danny, 9; Matthew, 7; and Jonno, 5--with more expert exposure. "I can use them to legitimise my interest," Taylor says. "I have photographs of *Xenoposeidon* hanging around the house. One is in the playroom. [My kids] are a bit persecuted."

Taylor's son Danny even wrote a brief paper on sauropods of the Mesozoic era when he was 7 years old. "He came up with it himself," Taylor says. "I fixed the spelling, but I left the funny language." Taylor submitted the paper to an editor he knows at a palaeontology journal, who passed it on to Wedel and Naish for review. "Matt [Wedel] suggested it should be expanded to a monograph," Taylor says. "It was good for a laugh." Still, Taylor says he tries not to push his sons in a particular direction; it's impossible to know where their interests will lead them.

Taylor, of course, knows where his own interest has led. Yet he has no plans to become a full-time palaeontologist, a profession in which the job market is harsh and his knowledge, he says, is too narrow. Exploring dinosaurs just for pleasure allows him immense freedom. "I am free to study what I am interested in at the time," he says.

Taylor intends to continue dabbling in dinosaurs, finishing his dissertation while paying the bills from his other passion, computer programming. He doesn't claim his two subjects are similar, but he does see parallels. "You can start with nothing and you can create something out of thin air," he says, "whether that is a computer program or scientific paper. ... Instead of talking about doing science, I talk about making science." And, he adds, he proves anyone can do the same.

<p><b>Related links</b></p> <ul style="list-style-type: none"> <li>• Mike Taylor's Web page: <a href="http://www.miketaylor.org.uk/">http://www.miketaylor.org.uk/</a></li> <li>• Sauropod Vertebra Picture of the Week: <a href="http://svpow.wordpress.com/">http://svpow.wordpress.com/</a></li> <li>• Dinosaur Mailing List: <a href="http://www.dinosaurmailinglist.org/">http://www.dinosaurmailinglist.org/</a></li> </ul>	
Elizabeth Quill is the news intern in <i>Science's</i> Cambridge, U.K., office.	Comments, suggestions? Please send your feedback <a href="#">to our editor</a> .
Images. Top: Courtesy, Mike Taylor. Middle: University of Portsmouth. Bottom: Mathew Wedel	DOI: 10.1126/science.caredit.a0800008

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