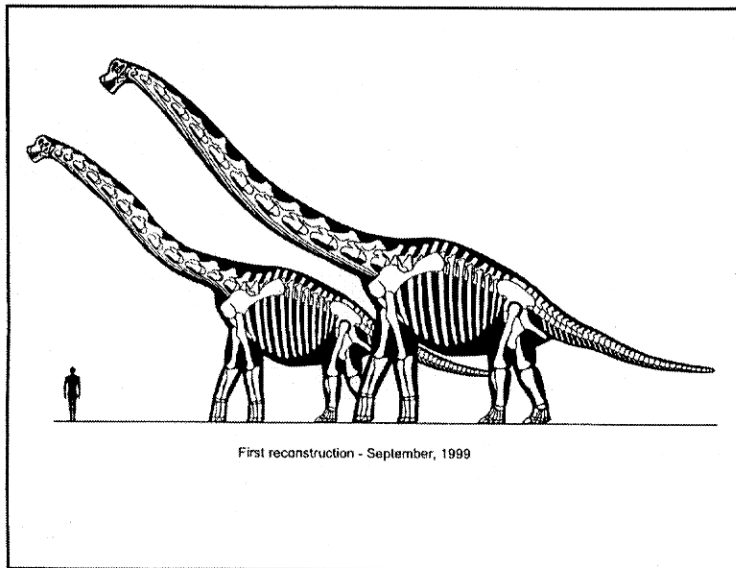


RECONSTRUCTING BRACHIOSAURUS

by Matt Wedel

I first became interested in creating a skeletal reconstruction of **Brachiosaurus** while working on **Sauroposeidon**, the new brachiosaurid from the Early Cretaceous of Oklahoma. **Sauroposeidon** appears to have been a larger, more specialized relative of **Brachiosaurus**, but unfortunately all we have are four vertebrae from the middle of its neck. To do even a tentative reconstruction of **Sauroposeidon**, I had to reconstruct **Brachiosaurus** first.

The two essential references that I used were Janensch (1950) and

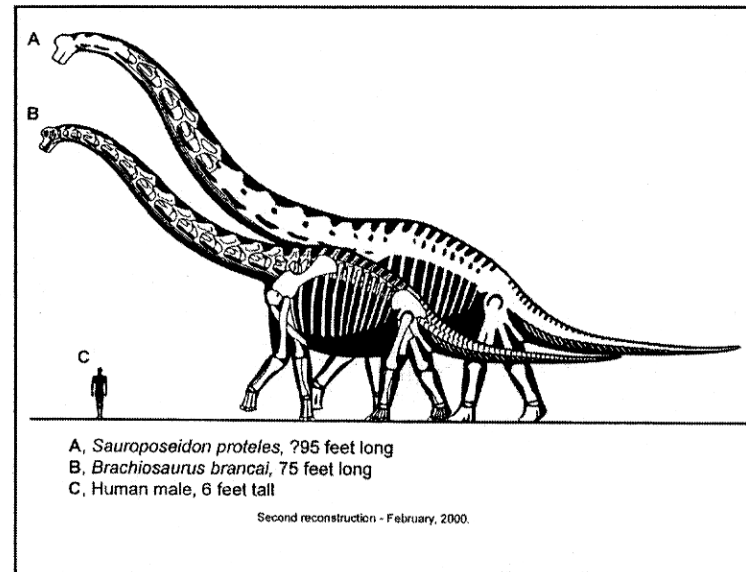


Gunga and others (1995). Janensch presents the classic description of the mounted skeleton of **Brachiosaurus** in the Humbolt Museum in Berlin. Gunga and others used a photogrammetric method to provide a very accurate illustration of the Humbolt **Brachiosaurus**, with exact measurements of some dimensions of the skeleton. One of the problems with that skeleton, from the standpoint of someone who is trying to reconstruct **Brachiosaurus**, is that it is a composite of several individuals. While it is generally a pretty accurate picture of what **Brachiosaurus** looked like, some of the proportions aren't quite right. In addition, the vertebrae in the back of the neck and the front part of the torso were missing, and the replacements that were sculpted for the mounted skeleton are a little off in terms of size and anatomical details. The inaccuracies in the Humbolt **Brachiosaurus** skeleton are discussed by Paul (1988) and Gunga and others (1995).

I was aware of some of the problems with the Berlin skeleton when I attempted my first reconstruction of **Brachiosaurus** last summer. This is the illustration that was included with our press release on **Sauroposeidon** last fall, and it turned up all over the place. It was the first time I had ever tried to do a skeletal reconstruction of any dinosaur, and, frankly, it wasn't that great. Every time I sat down and took a good look at it, I found another error: the forelimbs were all wrong, the ribs in both the neck and the body were too wide, the neck and tail had some weird kinks, and worst of all, the proportions were way off. The neck was too small for the body, and the whole animal was too small compared to the human, which I had included for

scale. Finally I was so disgusted with it that I decided to do it all over again.

I drew the second reconstruction this February, and this time I was obsessive about getting the scale and proportions correct. I drew the skeleton at 1/50 scale on 18x24 sketch paper. I laid out a 1 meter grid before I got started. Matt Bonnan gave me some pointers on getting the limbs articulated correctly, and while I can't claim that the final version is an accurate representation of his ideas, it is at least better than my first attempt. After I had the bones and the outline of the body drawn, I scanned the drawing into Adobe Photoshop 5.0 and used that program to clean up the illustration and color it. This was very useful, as it gave me a chance to correct any minor errors in the drawing. I also produced the reconstruction of **Sauroposeidon** in Photoshop, by scaling up the body of **Brachiosaurus** and pasting on the neck of **Sauroposeidon**. **Sauroposeidon's** neck was longer and more slender than that of **Brachiosaurus**, so I had drawn it separately. Once I had the neck scanned into Photoshop, it was a cinch to attach it to the enlarged body. You can read more about why I



reconstructed **Sauroposeidon** the way that I did in PT #40, pages 6-7.

Although I am very happy with the new illustration right now, my ideas about sauropods are constantly evolving. Who knows--in another year, I may have to draw it all over again.

References

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Matt Wedel is a graduate student at the University of Oklahoma, and is working on his Master's thesis under noted paleontologist Richard Cifelli. Since 1996, Matt has been working on Sauroposeidon, a new giant brachiosaur from southeastern Oklahoma. With its 39-foot neck, Sauroposeidon is the tallest dinosaur ever discovered. Matt is first author of the paper describing Sauroposeidon, which appeared in the March, 2000 issue of the Journal of Vertebrate Paleontology. For his Master's research, Matt is working on the evolution of pneumatic vertebrae and air sac systems in sauropods.