Traditional paleontology is sort of about going out into the field, and digging up fossils and reconstructing the skeleton. The skeletons of sauropods have been pretty well known. And also skin, and footprints and things like that. It’s really more the way we interpret them. What I’m interested in is how could they get so big. And bigger than anybody else.

This drive towards larger size, that is known as Cope’s Rule. His collection is here at the American Museum. And he had observed that dinosaurs and also horses start out small in evolutionary lineages, and they get larger and larger.

[Martin Sander (to Carl Mehling)]
OK, well that’s a nice fibula here. You think it’s a Cope specimen?

[Carl Mehling (to Martin Sander)]
Ah, we’ll have to check in the catalog. Do you see a number on that piece?
[Martin Sander (to Carl Mehling)]
Well, let’s see. Ah, here’s one, can you read it?

[Carl Mehling (to Martin Sander)]
5758. I’ll write it down – I’ll check it in a minute.
What can you see?

[Martin Sander (to Carl Mehling)]
Yeah, it’s really well preserved. Something I might want to do is take a high-resolution digital image.

[on-screen ID:]
Carl Mehling
Scientific Assistant, Division of Paleontology
American Museum of Natural History

The way we take care of fossil collections is very much the same way you take care of books in a library. They all have a place in the collections where they belong. And they have numbers on them that are attached to, hopefully, a lot of data in our database.

The bone that we were looking at – the fibula, 5758 – was collected by a team that Cope would send out to deposits in the American West.

In 1891 our department was officially begun and we started doing our own digs out West around that time.

The rich sauropod collection we have here at the American Museum of Natural History attracts researchers from all around the world, like Martin Sander.

[on-screen ID:]
Martin Sander
Professor of Vertebrate Paleontology,
University of Bonn, Germany

Well, what we’ve done in the last six years is we’ve brought together a group called, “Biology of the Sauropod Dinosaurs: the Evolution of Gigantism.” But paleontologists are actually in the minority in our project. So we have a lot of people from all kinds of different fields: engineers, animal nutritionists, biomechanics people, paleobotanists.
Just, science has diversified so much that a single field cannot cover it all. But, I think what I manage to do is really get other people excited about it.

[on-screen ID:]  
**Mark A. Norell**  
Curator and Chair, Division of Paleontology  
American Museum of Natural History

There’s nothing living today that even compares with the way that these things looked or their size. One of the big problems in studying sauropod dinosaurs is that we have no modern analogs. Trying to figure out how an animal this big eating things that weren’t high in calories could actually live.

The advent of modern technology and using things like digital imaging and CAT scanning has really allowed us to be able to look at sauropods in a new way. We can peer inside the brain cases of sauropods today and reconstruct what their brains looked like. We can understand things about their diet from chemicals that are preserved on the inside of their bones... to be able to tell all these biological things that we never knew in the past.

What motivates me about being a scientist is that science always changes. That 25 years ago people said they’d found the largest land animal ever. But then *Argentinosaurus* was found, and it was even bigger!

We’ve found things that have basically lawn mower teeth. We’ve also found sauropods that have big spines sticking off their neck that made giant frills down their back.

We’ve also found sauropods dinosaurs that have bones embedded in their skin.

What they used all these things for — because we can’t really make any comparison with living animals — we don’t know. But it’s an exciting world to be able to have all this new data coming in at the same time that we’re getting a much more basic biological understanding of the animals as well.