

Sidedoor (S09-special) - People Eating People Transcript

Lizzie Peabody: Hey there Sidedoor listeners, we've got an exciting development from a previous episode. You may have heard that one, it was called "[Did Meat Make Us Human?](#)" It was about the role that meat eating may have played in human evolution.

Lizzie: In that episode, we spoke with Smithsonian paleo-anthropologist Briana Pobiner. She's one of the people in charge of the Smithsonian's National Museum of Natural History's Hall of Human Origins, and she studies ancient human diets for a living. Some people even call her a dietary detective—which just sounds really cool!

Lizzie: Well, she's been getting a lot of attention lately for a new discovery, and it's about the type of meat some early humans might have eaten. Not just any meat—human meat. Kind of. It's complicated. So we figured who better to help uncomplicate things than Briana herself? We caught up with her in Kenya this past week. Here's our conversation. I hope you enjoy.

Lizzie: I want to start with some definitions, because we'll use the term "early human" a lot in this conversation, but really briefly what does that mean?

Briana Pobiner: Great question. So early human, if you think of an evolutionary tree, early humans are species that are extinct, but they're on our branch of the tree. We share a common ancestor with chimpanzees and everything that branched off after that common ancestor that's closer to us, but not Homo sapiens, not our living species today. Those are all early humans.

Lizzie: Okay. So like Homo erectus.

Briana Pobiner: Exactly. That's one of them. Homo erectus. Paranthropus boisei.

Lizzie: Neanderthals?

Briana Pobiner: Neanderthals. Exactly. Any Australopithecus species. All of those.

Lizzie: Okay. So one more definition: you found evidence that an early human butchered another early human about 1.5 million years ago, but you're careful not to call this cannibalism. Everyone else seems to be calling it cannibalism. Why do you stop short of using the C word?

Briana Pobiner: Yeah, I'm glad you asked, because I think we've been very careful not to actually say this is definitive evidence of cannibalism. So cannibalism is when one member of a species eats another member of the same species. So it's within species consuming another of your kind, basically. And the reason that we can't call this cannibalism is the species of the leg bone, the tibia that was butchered, is

not certain, and we also don't know who did the butchering.

Lizzie: Hmm.

Briana Pobiner: So more broadly, it's early humans eating other early humans, but we don't know if it was within the same species or between two different species.

Lizzie: I see. So this could be akin to, like, a human eating a gorilla.

Briana Pobiner: Exactly. Yeah. Something, you know, eating close cousins. That's right.

Lizzie: Gotcha. Okay. So let's jump into your discovery. What exactly did you find?

Briana Pobiner: So what I found was, I was in the National Museums of Kenya in Nairobi in the vault where they keep all of the early human fossils. Very special place.

Lizzie: Oh!

Briana Pobiner: And I was looking at postcranial fossils, so everything from the neck down, pretty much. Not skull fossils. And I was looking for evidence of bite marks or chewing damage on these early human fossils left by predators like big cats or ancient hyenas. And as I'm looking through these fossil bones, I pick up this tibia, and I carefully, with a magnifying lens, look over the surface. I have the light kind of just right so it's brushing across the surface instead of coming straight from above so that I'm more likely to see these marks pop out. And I carefully scan the surface, and I'm turning the bone over, and I see this little patch that is very well preserved. And when I look closer, I was shocked because I was not expecting to find butchery marks on these early human fossils.

Briana Pobiner: I had done some of my dissertation research on animal fossils from the same area in Northern Kenya, and hundreds of them had butchery marks on them so I instantly knew what these were. And I was just floored. That's not what I expected to find.

Lizzie: What do these butchery marks look like? Can you sort of paint a picture for us?

Briana Pobiner: Yeah, they look like—if you think about what it looks like if you've ever been cutting meat, and your knife accidentally slipped and actually cut a bone, they look like very short, straight—it's a whole series that are all kind of parallel. They're not super deep, but they're a little bit deep and they're narrow.

Lizzie: I'm envisioning, you know, when I use a wooden cutting board to cut a vegetable and I'm sort of going, like, chop, chop, chop, chop. And then I scrape the vegetable aside, and below I see this, like, ridge of lines where the knife hit.

Briana Pobiner: That's pretty much what it looks like. That's a great analogy.

Lizzie: Okay, so you were shocked to find this. What tells you that this was butchery for food and not, like, I don't know, some sort of burial ritual or for some other purpose?

Briana Pobiner: Yeah, that's a great question. We can't really rule out any kind of ritual behavior or burial or, you know, some kind of treatment of the dead. The reason that we suggested that this is more likely to be for food is because we have no evidence back at this time period—so the estimate age of this fossil is about 1.45 million years ago, almost one and a half million years. There's no evidence for burial, for ritual, for treatment of the dead, for any kind of symbolic behavior. So while we can't tell with one bone that has butchery marks, you know, what happened to the rest of the body or anything like that, we think it's more likely given also the hundreds of fossil animal bones from the same time and place more broadly, that have these butchery marks that are always interpreted as butchery for food, that this early human was basically treated in the same way.

Lizzie: I see. So if this is evidence for an early human butchering another early human, which other evidence would indicate, yes, this is congruous with that, what sort of scenario might have played out, do you think?

Briana Pobiner: Based on what I've seen in other fossils, based on what we imagine that lives of early humans were like at that time, this could be a person who died of natural causes, which, you know, could have happened on a regular basis. Maybe a predator got there first, even after a natural death. So among the cut marks, we also have two tooth marks that match best to modern-day lions.

Lizzie: Oh!

Briana Pobiner: So maybe an ancestor of a lion, maybe a saber-toothed cat got there first, maybe pulled some of the body apart, and then an early human came along and found this part of a body, looked like food, and they cut some of the meat off.

Lizzie: Hmm.

Briana Pobiner: You know, we don't know who got there first based on those tooth marks and cut marks. You would have to have one on top of the other to know who got there first.

Lizzie: Oh yeah.

Briana Pobiner: So unfortunately we don't have that specific evidence of the order of access, but we do know that butchery happened, and we do know that some predator nibbled on the bone as well.

Lizzie: This bone, as you said, is from nearly one and a half million years ago, 1.45 million. So help me visualize the type of early humans that might have been involved. Are we talking about, like, covered in hair head to toe, ape-like humans, or heavy eyebrow ridge cave person? Like, how weird would the looks they get on the subway be?

Briana Pobiner: [laughs] Yeah, that's a good question. So this bone was found in an area of northern Kenya called Koobi Fora in 1970 by Mary Leakey. And there were three types of early humans that were around at that time, three different species. One is Homo erectus, which is sort of like a great grandparent species of ours, or I should say a grandparent species, actually potentially. So they're maybe on our direct evolutionary lineage. Another is Homo habilis. They were around up until just around this time, and they may have actually been the ancestor of Homo erectus. And then there's a third species, Paranthropus boisei. They were sort of part of this evolutionary side branch, the Paranthropus genus.

Briana Pobiner: And all of them would have definitely gotten second glances on the subway today.

Lizzie: [laughs]

Briana Pobiner: They all would have had some—some level of kind of brow ridges. They would have had—their skulls would have been shaped a bit differently than ours with lower foreheads, shorter, longer arms, a little bit more ape-like looking in their appearance.

Lizzie: Okay, so there is, though, evidence of early humans eating other early humans. I think it's been pretty well documented among Neanderthals. What's different with your finding?

Briana Pobiner: Yeah, so it has been documented among Neanderthals, it's even been documented among an earlier species called Homo antecessor going back almost a million years in Spain. I guess what's different about this, and there have been a couple other potentially earlier signs of this kind of butchery, this is one of the earliest, for sure. Possibly the earliest sign of early humans butchering other humans.

Briana Pobiner: And the one fossil that maybe earlier that has potential butchery marks is a skull from South Africa dated to somewhere between about 2.6 and 1.5 million years ago. And the butchery marks that have been noted on that skull, potential butchering marks, are on the cheekbone, so probably not from taking off meat—there's not a lot of meat to eat there—maybe from detaching the jaw. So this seems to be, at least for now, the earliest evidence of basically cutting meat off of bones in sort of a meaty area potentially to eat the muscle. So defleshing, taking flesh off.

Lizzie: And you said that the cut marks are in the tibia so, like, the lower leg part, and at the fleshiest part. Essentially like the calf muscle, like somebody was ...

Briana Pobiner: Exactly.

Lizzie: Ah-ha.

Briana Pobiner: So that big calf muscle on the back of your tibia. And the interesting thing is that the muscle that—where the cut marks are, is not actually that big calf muscle, it's a smaller one underneath.

Lizzie: Oh!

Briana Pobiner: So the big calf muscle already had to be off in order for those cut marks to be made. So that's another indication that potentially, you know, those—that fleshy part was off already, this was a muscle that kind of wraps around the knee.

Lizzie: I find it particularly interesting how you found this evidence, because when I heard this new discovery had been made, my assumption was you pulled a bone out of the ground. But you found this in a museum, and it's been there since, like, the 1970s, right?

Briana Pobiner: That's right. So it was discovered in 1970, and I like to sort of wonder how many people have actually looked at this bone before me and haven't noticed these marks. So I think a lot of the people that would have studied this bone would have been looking at the morphology of the bone, the size and shape, they wouldn't have been looking really up close on the surface, they might have been taking measurements of it. So—and unless you have an eye for and have training in how to recognize these butchery marks—and these ones are on the smaller side—you could easily pass them over.

Lizzie: Hmm.

Briana Pobiner: So I love doing field work. I—there is nothing like pulling a fossil out of the ground that nobody has seen before. It's a really exciting and wonderful experience. But some of the research that I'm doing these days is sort of excavating new evidence from museum collections, going back and relooking at collections that were excavated or, you know, collected decades ago, looking with new eyes, new technology, new questions. So there are treasures, I think, and discoveries waiting to be found in museum collections.

Lizzie: So what does this say about objects at the Smithsonian right now? Could they hold secrets we don't even know to look for yet?

Briana Pobiner: Absolutely! I think, you know, the really cool thing about Smithsonian collections is we have wonderful collections of bones of living animals, we have tissue samples with DNA. And so there's all kinds of, I think, discoveries waiting to be made in our collections.

Lizzie: Wow! Briana, thanks so much for taking the time to talk with us. It's just so cool to talk to you about this discovery, given how recent it is and how exciting it is.

Briana Pobiner: Well, thanks very much. I enjoyed it.

Lizzie: That was Briana Pobiner, paleoanthropologist with the Smithsonian National Museum of Natural History. This has been a special episode of Sidedoor, a podcast from the Smithsonian with support from PRX.

Lizzie: To learn more about Briana's research or to get a link to her study, check out our newsletter. You can subscribe at SI.edu/sidedoor. And you can see plenty of Briana's handiwork by visiting the Smithsonian's National Museum of Natural History's Hall of Human Origins. They've got great air conditioning. If you're in DC, it is hot, it is summer, go and enjoy your day there.

Lizzie: Our podcast is produced by James Morrison and me, Lizzie Peabody. Our associate producer is Nathalie Boyd. Executive producer is Ann Conanan. Our editorial team is Jess Sadeq and Sharon Bryant.

Lizzie: Tami O'Neill writes our newsletter. Episode artwork is by Dave Leonard. Extra support comes from PRX.

Lizzie: Our show is mixed by Tarek Fouda. Our theme song and episode music are by Breakmaster Cylinder.

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Lizzie: I'm your host, Lizzie Peabody. Thanks for listening.

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