Video Transcript – Unlocking Hidden Worlds through Archaeology and Archives

Maggy Benson: Wow!

Maggy Benson: Hi everyone. Welcome to the Smithsonian Science How. We're so happy to have you here today with us. I'm an educator here at the Smithsonian's National Museum of Natural History, and we have so many objects at the Smithsonian that we can't fit them all into our museum. So today we're behind the scenes and we're going to show you some of these objects. We're going to talk about some research and meet one of our experts that works here at the museum. My name is Maggy Benson and I'm joined by Emmanuel Kyei-Baffour.

Emmanuel Kyei-B: Hello everyone. It is so great to be here with you all today. Be sure to connect with us through our chat room and answer one of our polls that we actually have up right now. And our poll question is, what do you collect? So let us know about your collections in our poll and we'll be sure to answer any questions you have during the show in our live chat.

Maggy Benson: Yeah. Even though we can't see you, we can see your questions, so Lincoln, Corin, we can see your questions out there, so keep them coming and we'll do our best to get to as many as we can.

Emmanuel Kyei-B: Awesome.

Maggy Benson: And while you're thinking about that poll question, "What do you collect?" Emmanuel, what do you collect?

Emmanuel Kyei-B: Well, I have an extensive collection of shoes, sneakers to be exact. As you can see here on the screen, this is my sneaker pile. Not quite the way the Smithsonian organizes their collections, but you know.

Maggy Benson: I liked a couple of those pairs.

Emmanuel Kyei-B: Thanks.

Maggy Benson: I saw a pair of zebras in there.

Emmanuel Kyei-B: Oh yeah, those are one of my favorites.

Maggy Benson: And we're sitting here today in the Smithsonian's Museum Support Center and it looks like everything here is a lot more organized than some of the collections I had when I was a kid.

Emmanuel Kyei-B: Yeah. And we're here in Suitland, Maryland with our expert.

Maggy Benson: Yeah. So hello, let's go to Molly now. We have Molly Kamph here from the Smithsonian to introduce us to our awesome topic today. Molly, thank you so much for having us.

Molly Kamph: Yeah, thanks so much for coming. So my name is Molly, and welcome to the Smithsonian's Museum Support Center. So the Natural History Museum has about 146 million objects, and about half of them are stored here at the Smithsonian.

Maggy Benson: Wow, that's amazing.

Emmanuel Kyei-B: Wow. So looking at our poll right now, we see a lot of collections. I see some of my friends collect coins, rocks, stickers, Pokémon cards, Legos, baseball cards. Great collections, everyone. Super cool.

Maggy Benson: What kind of collections do you have, Molly?

Molly Kamph: Yeah, so my collection growing up was always a rock collection. I loved all the shiny ones you could buy at museum gift shops.

Maggy Benson: Is that the kind of collection we're going to be learning about today?

Molly Kamph: No. So the collection today, so this is one of the Natural History Museum's collections. [00:03:00] And these are the collections of Ralph and Rose Solecki, who were archeologists who are most famous for excavating the site of Shanidar Cave in Northern Iraq.

Maggy Benson: And this is just a tiny piece of the collection here at the Smithsonian, right?

Molly Kamph: Right, right. This is just one collection amongst many, and the objects we have out today are just a few amongst thousands of objects within just this one collection.

Emmanuel Kyei-B: Wow.

Maggy Benson: How big is this miss onions collection?

Molly Kamph: Yeah, so it's 146 million objects and half of them are here at MSC.

Maggy Benson: Wow.

Emmanuel Kyei-B: Goodness. 146 million objects?

Molly Kamph: Yep, yep.

Emmanuel Kyei-B: Wow. So what are we going to be talking about today? What was found in Shanidar Cave?

Molly Kamph: Yeah. So Shanidar Cave is a really exciting archeological site. So Ralph and Rose excavated in the 1950s and '60s, and of course they found lots of specimens in terms of stone tools, but the most exciting thing they found were nine Neanderthal skeletons.

Maggy Benson: Wow. So are we going to see any Neanderthals today?

Molly Kamph: Yep. So we won't see any exactly. We won't see any Neanderthal skeletons, [00:04:00] but we will see lots of photos. We'll see tools that they made. We'll look at some samples that the Soleckis collected to learn more about Neanderthals. So you guys are in for a treat.

Emmanuel Kyei-B: Awesome, okay.

Maggy Benson: So you're kind of like a detective putting together some of these clues. Is that right?

Molly Kamph: Absolutely. So here, I'll start off. Let's look first at a tool made by a Neanderthal. So I'll have you guys put on your gloves.

Maggy Benson: Okay.

Molly Kamph: So this is a-

Maggy Benson: These ones?

Molly Kamph: Yep. These are a very important step when handling objects. You want to make sure that the oils in your hands don't get onto the objects.

Emmanuel Kyei-B: Awesome.

Molly Kamph: All right. Let's see it.

Emmanuel Kyei-B: Glove on.

Maggy Benson: Gloves on.

Molly Kamph: All right, so if we come in here, we'll get a close up before we handle it.

Maggy Benson: All right.

Molly Kamph: So this is a stone tool that was made by a Neanderthal. It doesn't look like that, right?

Maggy Benson: That right there?

Molly Kamph: Yeah.

Maggy Benson: So how can you tell that that's a tool and not just a rock?

Molly Kamph: Yeah, absolutely. So human ancestors are known for creating stone tools, and so what they would do is take [00:05:00] a piece of rock, kind of like this, and with a harder piece of rock, or maybe even an antler or something, they would hit it and flake off little pieces of rock to then create a tool for whatever purpose they might need it for.

Emmanuel Kyei-B: Can I touch that?

Molly Kamph: Yeah, you absolutely can.

Maggy Benson: Yeah, me too.

Molly Kamph: So here. Let me grab it.

Maggy Benson: So how old is this?

Molly Kamph: Yeah, so Neanderthals lived from about 400,000 years to about 45,000 years ago. And we think that the Shanidar Neanderthals were around that 50 to 45 thousand years. So that's how old we think this tool might be.

Maggy Benson: So Emmanuel right now is holding the same tool made by somebody that lived thousands of years ago.

Emmanuel Kyei-B: Wow. Did the Neanderthals write these tiny little numbers on this tool?

Molly Kamph: Yeah, that's a great question. So no, they didn't. This was actually written by Ralph and Rose Solecki, and it's a way that archeologists keep track of artifacts that they find in the field. Because these numbers, as we'll learn, actually correspond to a lot of the photos [00:06:00] and other archival materials that we have here in the collection.

Emmanuel Kyei-B: Neat, neat.

Maggy Benson: So does the number damage the tool in any way?

Molly Kamph: No, it doesn't actually. So often you'll write on the artifacts in archival ink. So it's relatively safe for the artifact and it's a great way to keep track of what artifact and where it goes and all that.

Emmanuel Kyei-B: So today we're going to have our detective hats on and be some archeologists information sleuths.

Molly Kamph: Yeah, absolutely. That's a great way to put it.

Maggy Benson: Awesome. So you invited us to the Museum Support Center, where we are here today, last week to show us how you match up some of these object numbers to other things in the collection. We have a little video of it. Can you walk us through it?

Molly Kamph: Yeah, absolutely. So this is the archaeobiology lab, where I work every day to try to catalog the artifacts. And so as you can see, it's a lot of stone tools. And what I look for when I'm looking at an artifact are the numbers on it. So you'll see that I'm kind of looking for the object number. [00:07:00] And I usually am able to find at least one or two. So what I found here is the red number, that 86. And so then I consult a catalog that Ralph and Rose Solecki created to see what they said about it. Where it's from, what the artifact might be, as well as sometimes you'll get an illustration that Ralph and Rose made of the artifact.

Maggy Benson: Wow. So that number is really important for stringing all of those different pieces of information together.

Molly Kamph: Exactly. The numbers are often that first clue.

Emmanuel Kyei-B: Okay. So we have a couple of student questions that I'd like to get answered before we move on. Corin would like to know, how do archeologists use artifacts to learn about the ice age? Were Neanderthals around in the ice age?

Molly Kamph: Yeah, that's a great question, Corin. So the Neanderthals, so the ice age just kind of came and went over time in the past and Neanderthals absolutely, especially Neanderthals in Europe, were definitely around during the ice age. And so what these artifacts can tell us is how they ate, [00:08:00] maybe what clothing they might've worn. All sorts of stuff. And especially even their skeletons can tell us what the climate was like during the time that they lived. So you can learn a lot about the ice age by looking at artifacts.

Emmanuel Kyei-B: And Matt from Missouri would like to know, how long did it take to find the Neanderthals in Shanidar?

Molly Kamph: Oh, that's a great question, Matt. So Ralph and Rose Solecki spent four field seasons, as they call it. And usually the field season lasts a few months when you go out into the field. So Ralph and Rose, again, had four, and it spanned from 1951 to 1960. So it took them almost 10 years to find a lot of these Neanderthals. And most of them were actually found either in the 1956 slash 1957 field season, or in the 1960 season. So sort of later on is when they found most of them. So that's Ralph and Rose, that was a photo of them looking at some artifacts, much like we're going to do today.

Emmanuel Kyei-B: Wow. That's super cool.

Maggy Benson: So you actually prepared an online activity that we can do with our students in the classroom, didn't you? [00:09:00]

Molly Kamph: I did.

Maggy Benson: So we can all kind of be information detectives together.

Emmanuel Kyei-B: I hope you all kept your detective hats on.

Maggy Benson: All right, so where do we start?

Molly Kamph: Yeah, absolutely. So here's our first clue. So we'll get a closeup on this guy, and then we also have a photo that'll make it a little bit easier for you guys to see. But the first clue is a soil sample that Ralph and Rose Solecki collected. And as you can see, there's a number written on it, and it's that 271, with the Roman numeral four after it. So that's clue number one. So what does this number mean? What does this soil mean? So ...

Maggy Benson: So yeah. We want to ask you students where to go next. So we have three options. We have a map, we have a catalog, and we have a photo, and we want to know where we should look next to get our next piece of information to put together this bigger story.

Emmanuel Kyei-B: Should we go to the map, the catalog or the photo? [00:10:00] All right. I think we should head on over to the map.

Molly Kamph: Excellent choice. All right, so this map, and we'll get a little close up and we also have an image of it to make it a little bit easier to see. But as you'll see from the map, it's kind of an odd map. It's not necessarily one that you would see that would tell you roads or anything like that. Archeologists call this type of map a stratigraphic map. And so the stratigraphy of the site, or the different layers, that you can look at to show you what time period it might be. So with this map we have A, layer A, B, C, and D. And all of the Neanderthals were actually found in layer D. So that's sort of the earliest layer of the cave. So-

Maggy Benson: How deep was layer D?

Molly Kamph: Yeah, so the Soleckis dug all the way down. They dug 45 feet. So you'll notice layer D is that blue section on the map.

Maggy Benson: Okay.

Molly Kamph: And so they dug 45 feet deep. They dug so deep down because they wanted to find the Neanderthals and knew that they would be down really far in the earth, because that's where earlier things will be. [00:11:00]

Maggy Benson: And what was that red thing circled?

Molly Kamph: So the red thing is basically this map. What's also really interesting is that Ralph and Rose Solecki mapped out where they found each of the nine Neanderthals.

And so the one that was circled was Shanidar 4, which is a really interesting Neanderthal that we'll get into once we go further in the activity.

Maggy Benson: Okay. So now we have soil and a map. Where should we go next?

Emmanuel Kyei-B: I think we should go to the catalog.

Molly Kamph: Excellent. My favorite choice, that's my favorite of the clues. So it doesn't look like much at first, but the catalog will tell you basically what they found and where they found it. And so as you'll see on this, it says field number, and it goes from 223 all the way down to 280. And if you remember, our number was 271. So I think we're on to something, right? So if we go down to 271, as you can see, you'll go over and it says,let me see, Square B7. So that was the excavation square that they found it. [00:12:00] But they say Shanidar 4. And so if you recall, Shanidar 4 is one of the Neanderthals that they located, and it's a Shanidar 4 soil sample.

Maggy Benson: Now you said that there was a Roman numeral four on this soil sample.

Molly Kamph: Yeah. So that's actually just a coincidence. Basically, the four on this means fourth field season, and then it happens to correspond with Shanidar 4.

Maggy Benson: Oh.

Emmanuel Kyei-B: Awesome.

Maggy Benson: Good to remember.

Molly Kamph: Yeah. Right, right. You've got to keep track of all of your Roman numerals when you're an archeologist. So ...

Emmanuel Kyei-B: What's our next clue?

Molly Kamph: So our next and final clue is a photo. So here we have a photo of Shanidar 4, the fourth Neanderthal that Ralph and Rose Solecki excavated. And so, as you can see, it's a really interesting photo of the skeleton. And beyond just its little flexed position, which archeologists, it's a term they use to say they're kind of crouched a little bit. But as you can see, it's an interesting position and it leads us to maybe think, and the soil sample lends to this, that perhaps there's something more going on with this Neanderthal skeleton. [00:13:00] We think that perhaps it was ceremonially buried.

Emmanuel Kyei-B: Huh.

Maggy Benson: Wow.

Emmanuel Kyei-B: What does that mean?

Molly Kamph: Yeah, so the reason the soil sample can tell us about that is that within the soil we actually have found pollen. So I know that many people are familiar with pollen in terms of allergy season. It's often the bane of people's existence in the spring.

(Laughter)

Maggy Benson: Is that the culprit of my spring sneezing?

Molly Kamph: Exactly. That's what pollen looks like. And so when you find pollen and soil, especially soil like this where it comes deep in a cave, it's sort of odd. You don't expect it to sort of blow in through the wind because the skeleton was actually found pretty deep in the cave. And so because there's such a high concentration of pollen within this soil sample, we actually think that perhaps there were flowers laid on and around the burial of this Neanderthal.

Emmanuel Kyei-B: Wow. So like a funeral.

Molly Kamph: Yeah. It's very similar perhaps to a funeral. And so we have a really great image. This is from our Human Origins website of an artist rendering of what that could have looked like with Neanderthals on this burial. [00:14:00]

Maggy Benson: Wow. So that's incredible. So what looks like just some dirt, and if you are Ralph and Rose Solecki in a cave, you would never know that there was pollen in there. And this bigger story really comes together when you start putting all of these other clues next to each other.

Molly Kamph: Yeah, absolutely. And that's what's so great about this work, is it's often piecing together the clues that Ralph and Rose Solecki are sort of laying for me. What makes it really great is by being able to piece these things together, I'm able to make the collection publicly accessible so that researchers can look at it and even the public.

Emmanuel Kyei-B: So if our students wanted to check out some of the Solecki collection, how could they?

Molly Kamph: Yeah, so the anthropology department has a really great online collections database that students can go in and type in Shanidar Cave, and they'll be able to look at artifacts from the cave itself.

Maggy Benson: Wow. That's so awesome. Very cool. We actually have some video questions from some students that were in the Hall of Human Origins earlier this week, if we want to take a look at one of those.

Speaker 6: How do you know it's the same pollen from back then than it is today? [00:15:00]

Molly Kamph: That's a great question. So with the pollen, you guys saw the picture of the pollen. It's very similar with plants who give off pollen to humans, right? Where we've evolved over time, plants have also evolved over time. And so scientists who are experts in pollen, AND unfortunately I'm not an expert in pollen. I wish. It's really cool. But with experts in pollen, they're able to tell ancient pollen from modern pollen by looking at the evolution of plants.

Maggy Benson: That's very cool.

Emmanuel Kyei-B: Awesome.

Molly Kamph: And it's another great example about why this archive is so important for all different kinds of scientists. All right, so ...

Emmanuel Kyei-B: You mentioned something about Shanidar 3. I'm kind of interested. We talked a lot about Shanidar 4. What's so special about Shanidar 3?

Molly Kamph: Yeah. So as I mentioned, Ralph and Rose Solecki excavated nine Neanderthals, and they ended up numbering each of them as they found them. So Shanidar 1 through 9.

Maggy Benson: So those are their names? They're named for the place that they were found.

Molly Kamph: Exactly. So they named them after Shanidar Cave. So they're all called Shanidar Neanderthal 1 through 9. [00:16:00]

Maggy Benson: And this is the cave?

Molly Kamph: Yeah. So this is the cave itself. And so Shanidar is actually located in northern Iraq in the Middle East, and it's in the mountainous northern region of Iraq. So as you saw from that photo, there's actually a lot of mountains. They're called the Bradost mountains and it's actually along a river as well, called the Greater Zab River. So it's a really great location. You're sort of protected in the mountains. There's also a water source, so you're able to live via the river a little bit. So it's a really interesting site itself. And so as I mentioned, he found nine Neanderthals within the cave. And so Shanidar 3 is the third Neanderthal that Ralph and Rose Solecki found.

Maggy Benson: So let's go back to this discovery and this mystery with the skeleton that was found. Can you tell us again, I mean, what exactly was found there? And maybe a little bit more about Neanderthals? [00:17:00]

Molly Kamph: Yeah, absolutely. So Neanderthals, we'll start there. Neanderthals lived from about 400,000 years ago to about 45, 35 thousand years ago. The date's always changing. Scientists are always updating their technology, so we're always kind of figuring out new things about Neanderthals. And they're basically a relative of modern humans. We actually think that we lived around the same time, but the

difference is is that modern humans were sort of all over the globe, especially modern humans we think came out of Africa, whereas Neanderthals were only in Europe and Asia.

Molly Kamph: So again, finding nine of them in this cave, Ralph was very excited, and the one, Shanidar 3, which we kind of hinted at earlier, is a really interesting one. And again, we think that perhaps he was injured at some point before dying in the cave. That's the mystery, is how did this Neanderthal die? So maybe we could pull up a photo of the wound sustained from Shanidar 3. So basically what it is is that it has an injury on its rib. Yeah, there's the photo right there, and you can see it looks like it hurts, right?

Maggy Benson: [00:18:00] Yeah.

Molly Kamph: And so scientists think that perhaps the Neanderthal could have died from this wound, because you know, your ribs are really close to your lungs. There's a lot of vital organs around there that you don't necessarily want to be hit with this tool, or whatever it was hurt with. And so some scientists think that maybe that's how it died. But it's interesting, because scientists are able to study the wound and determine that actually that wound was in the process of healing.

Maggy Benson: I was going to ask, seeing some of these pictures of how these skeletons are found, they're stuck in this rock and they've been buried 45 feet under the earth for thousands of years. So scientists can actually tell that that was healing?

Molly Kamph: Yeah, they're able to just look at it in the way that the bone grows back. You're able to tell approximately when the injury occurred by how much healing has happened. It's really interesting stuff. So there's one theory that perhaps this is what killed him, but the healing is weird. Why would it be healing if that's the injury that killed the Neanderthal? So Ralph and Rose actually uncovered some more evidence from this photo. [00:19:00] And we actually have a digital image of this one too that's a little bit easier to see. But for now, what this shows is this third Neanderthal, Shanidar 3, placed right here which is A.

Maggy Benson: So a tiny little A above the measuring.

Molly Kamph: Yeah, that tiny little A there, my finger's right there. Yep. Right above the measuring tape. And then there's also B, which Ralph and Rose determined was a hearth. So if you've ever been camping, it's kind of like a campfire, right? So the reason that this is interesting is that we think that perhaps, and again we talked about relative dating, the hearth and Shanidar 3 were kind of in a similar place in the cave. So they think that maybe they were around at the same time.

Molly Kamph: So Ralph and Rose Solecki decided that maybe this Neanderthal was actually in the process of healing in the cave next to this fire. Maybe, you know, roasting marshmallows. They didn't have marshmallows, I promise they didn't. But you know, just relaxing like we do today when we're camping and stuff, but just

trying to relax, stay away from the elements in the cave. So what they think is that actually, [00:20:00] also around this hearth and Neanderthal, are a bunch of big rocks. And so what they think is that actually the rock fall ... There may have been a rock fall within the cave that could have killed Shanidar 3.

Maggy Benson: Wow. That's really tragic.

Molly Kamph: Yeah, it is. It's quite sad, right? Right. He's in the process of healing. Yeah. So here's a great image of where the bones were found and then where the fireplace is. And then you can see just in that image, the big rocks around there too.

Maggy Benson: So that's the injured rib and where the hearth is.

Molly Kamph: Yeah. So some scientists argue that perhaps this Neanderthal was actually, you know, trying to hide, kind of relax a little bit, but perhaps a rockfall was what did it. So we don't actually know. There's still debate as to what killed Shanidar 3. It's still a little bit of a murder mystery.

Maggy Benson: Yeah. I mean, an injury like that, would it have been another Neanderthal stone tool? Kind of like the one that we saw earlier?

Molly Kamph: Yeah. So there's a lot of debate as to whether humans and Neanderthals coexisted. There's some evidence for it, but at Shanidar Cave, we're not totally sure. Probably not. [00:21:00] So what we think is that maybe this injury was actually caused by another Neanderthal, because maybe it was a stone tool. Maybe a spear or something of that nature was used to injure this Neanderthal.

Emmanuel Kyei-B: So Shannon W. has a very great question that I also have myself. Do we know what Neanderthals looked like?

Molly Kamph: That's a really great question, Shannon. So yeah, so it's all a little bit of guesswork, but there are experts who are able to reconstruct, as we call it, what Neanderthals looked like based on skulls. So we actually have a really great photo of a reconstruction of Shanidar 1, which we saw that illustration of in the notebook. So artist John Gurche for the Human Origins Hall downtown. So there he is. Isn't that cool?

Emmanuel Kyei-B: Wow.

Maggy Benson: Wow.

Molly Kamph: So he created this as a way to kind of show what the Shanidar Neanderthal, Shanidar 1 Neanderthal may have looked like.

Maggy Benson: Now he looks so much like us, but I see what you're saying about that brow ridge. [00:22:00] His eyebrows are a little more pronounced than ours are.

Molly Kamph: Exactly. So yeah, if you look at the skulls, and we even have some skulls here on the table that show it off really well. See that big bone, sort of bony growth right above their eyes? we call that the brow ridge. That's something that's really diagnostic of early humans, and especially in Neanderthals too.

Emmanuel Kyei-B: Awesome, awesome. So I have some other student questions and I'd like to get answered. Jenny wants to know, are we part Neanderthal?

Molly Kamph: That's a great question, Jenny. So there's been so much study on this by scientists, and it's a really interesting thing that they keep finding new things. So what we can determine. So because Neanderthals are from Europe and Asia, there's actually some evidence that anybody who can trace their ancestry to Europe and Asia might have a very small percentage of Neanderthal. It's usually less than 1% Neanderthal, but that might indicate, as I mentioned, that maybe Neanderthals and humans, modern humans like us, kind of crossed paths at certain points.

Emmanuel Kyei-B: Awesome. [00:23:00] And Marquise and Will would like to know, how do you know that that rock was used as a tool?

Molly Kamph: Marquise and Will, that's a really great question. So we actually don't totally don't totally know whether, but what we can say is that Neanderthals, the way that we can say, "Oh, this is a Neanderthal tool," is that Neanderthals have what we call a tool industry. And what that means is that they made tools that actually looked similar to each other, and we think that maybe their methodologies were similar. So they almost had a culture of stone tools in a way that was similar. So the Neanderthals of Shanidar may have had stone tools that looked really similar to Neanderthals found elsewhere.

Maggy Benson: Well, and we have this huge box of stuff in here. Are these all tools?

Molly Kamph: Yeah. So this is actually all what we call flakes and shatter. And what that means is so when you're ... It's a catch all term that basically just means it's debris from when you're hitting the stone tool and making it, what flies off. So often sometimes these little flakes will turn into small tools that would use maybe in processing animal hides or something like that. [00:24:00] But other times it was just sort of trash, right? You're making the tool, maybe going along, and you're like, "I don't need that anymore." And you just go on with your day.

Maggy Benson: But they all kind of look similar, so I can see how archeologists all put it into the same kind of category.

Molly Kamph: Exactly.

Emmanuel Kyei-B: Yeah. Bella F. would like to know, can you tell what a Neanderthal ate from its skeleton before died?

Molly Kamph: Bella, great question. That's also something that scientists are studying now. You can tell. There's all sorts of different types of analysis. One of the ones that I know a little bit about is called isotope analysis, and that's where you take a little piece of bone ... Or again, like carbon, nitrogen that you can find in your bones and stuff can be used, and they analyze that to see what types of food you were eating. So there's been so much current research on that with Neanderthals, and it's always kind of going back and forth as to what Neanderthals ate. But it looks like they actually ate a lot of similar things to what we ate. So meat, fish, plants. [00:25:00] But again, the debate is often how much of everything did they eat? So the Shanidar 3 skeleton for example, it looks like they ate mostly plants based on the scientists analysis of it.

Emmanuel Kyei-B: Wow. So it looks like your job is super important to categorize all of these things and catalog and archive all of these artifacts. Can you tell us a little bit more about how your archives and catalogs are used by scholars all over the world for their research?

Molly Kamph: Yeah, absolutely.

Maggy Benson: And where do they end up here at the MSC?

Molly Kamph: Oh, yeah. So those are both really great questions. So all of this stuff, once it's up for research, there's all sorts of people who are interested. There's actually a team working at Shanidar Cave right now from Cambridge University under Dr. Graeme Barker, and they went back in 2016 and actually ended up finding more Neanderthals within the cave.

Emmanuel Kyei-B: Wow.

Maggy Benson: So we have a ton of questions. So I think, Emmanuel, we should get through as many as we can.

Emmanuel Kyei-B: Okay. Nick A. would like to know, has anyone ever broken an artifact before? [00:26:00]

Molly Kamph: No. Oh no. That's my worst nightmare. No. So it happens, you know. We don't want it to happen and that's why, with me, I've been trained through school just on object handling. There's actually a lot of resources online about object handling if you're interested in how I was trained in handling the artifacts so that I don't accidentally break them. But again, accidents happen, you know, it happens. Usually we have some really great people in our conservation team who are able to then fix things if they've been broken.

Maggy Benson: Special glue?

Molly Kamph: Yeah, exactly. Special glue, yeah, special glue. We try not to break them, but it does happen. Accidents happen.

Emmanuel Kyei-B: And Damari would like to know, was the skull on the table, or so I assume these skulls, were they found. in the same place in Iraq and Shanidar?

Molly Kamph: Yeah, so that's a great question. So unfortunately we weren't able to get any replicas of the Shanidar Neanderthal. So these ones are actually from France, which also has a lot of Neanderthals. So the darker one I believe is from La Ferrassie, and then the lighter one is from La Chappelle-aux-Saints, which are both very fascinating sites. [00:27:00] I would highly recommend looking them up. But you can actually research them on our Human Origins website if you're more interested in learning about Neanderthals.

Emmanuel Kyei-B: So when did the Neanderthals die out?

Molly Kamph: Yeah, so that's a really great question. And again, it's something that scientists are always kind of debating, is when did the Neanderthals officially die out? It's a little unclear, but we think again, it's around that sort of maybe 45, 40, 30 thousand years ago. And again, over that whole Europe and Asia, it's a huge mega continent really. So it depends on where you're at as to when Neanderthals started disappearing. But around around 30,000 years ago, I say would be safe.

Emmanuel Kyei-B: And on the same note, Ian would like to know how long the life expectancy for an average Neanderthal was?

Molly Kamph: That's a great question, Ian. So what's really interesting is actually Shanidar 4, which we learned about a little bit, tells us a little bit about that. So we actually think that Shanidar 4 was about 40 years old, which was considered elderly amongst the Neanderthals. If you think about it, [00:28:00] it's kind of a hard life they had to live, and so getting to be only 40 years old, which today for us is middle age ...

Maggy Benson: They didn't have medicine, right?

Molly Kamph: Exactly. And so yeah, we're not quite sure what they may have even used if they had medicine, anything like that. But what's interesting about Shanidar 4 is it looks like he was maybe taken care of by his community based on, again, the burial. But he also was missing teeth, which made it hard for him to eat, and then there were other problems with his skeleton that made it hard for him to get around. So we think again that maybe 40 was pretty old for a Neanderthal.

Maggy Benson: Wow, wow.

Emmanuel Kyei-B: Awesome.

Maggy Benson: So awesome. Thank you Molly. Thank you Emmanuel. Thank you students. This was so awesome to be here today, learning about the Soleckis and the collections. If you want to learn more, you can visit the same page that you're

watching this program on, has a great learning lab collection with an archeology activity that Molly developed along with some of the objects that you saw today in that same collection that you can search yourself. And if you have any questions, email us at **sciencehow@si.edu**. See you next time.

Emmanuel Kyei-B: Bye bye. [00:29:00]

Molly Kamph: Bye.

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