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Speaker 1 [00:00:04] Hello and welcome to the Talking Geosciences Podcast, brought to you by the School of Geosciences at the University of Aberdeen. Over the course of this series, we will hear staff and students discuss how their teaching and research is helping us understand and address contemporary global challenges, including sustainability and climate change. In this episode, Irmine Roshem, a PhD candidate in the Department of Archaeology, introduces us to different approaches to archaeological research and also tells us about what her study of human remains is revealing about the effects of climate change on people during the medieval period. So hi Irmine, you're very welcome to this episode. For the benefit of our listeners who may not have studied or encountered archaeology before, can you tell me, you know, generally what what is archaeology and what does that entail?

Speaker 2 [00:01:01] Thank you for welcoming me here. I'm very happy to be talking about archaeology today, archaeology is a very large subject. So you might be familiar with media representation of archaeology like Time Team that I've heard a lot about and things like that. But this isn't, archaeology in general is just this study of humans in the past. And it can be about fieldwork that you've seen on Time Teams in a very kind of out of the way way. It is a bit of what you see in Indiana Jones as well. But it can also be lab work like you might have seen in series like Bones or this is kind of more forensic but is exactly what oseoarchaeologists do for example is the same techniques they just working in a lab they don't necessarily go dig up the skeletons themselves but they there's this whole part of archaeology that's kind of behind the scenes and not out in the field getting rained on, particularly in the UK. And then you have a whole side of archaeology that's about archives and pottery and painting and whatever. Whatever you want really can be part of archaeology as long as it is about humans in the past, which by the way, doesn't have to be bronze age or medieval times or whatever, there's even funded projects about the archaeology of COVID, of COVID that's happening. So the past doesn't have to be hundreds of years ago. It can just be just a few years ago. As long as there's humans and material culture, then it can be archaeology.

Speaker 1 [00:02:35] Yeah. And what aspects of human life and human existence could could an archaeologist study? You know? I mean, could it be about like the way people lived or maybe like what they worked as or their diets or health or things like that? Like what kind of things can archaeology tell us about the past?

Speaker 2 [00:02:57] Again, pretty much if you have people and if you have any sort of material culture, then you know, you can go and have fun with it. So I'm a bioarchaeologist myself, so I'm more concerned with things like health of the people, um, population, migration, diets, all of that and that. We have a lot of different tools that we can use to study those different aspects of life. Obviously, all of that ties in with people had certain jobs and they had certain agricultural practices and then it all kind of ties together because obviously you can't just study one aspect of life without taking the others into account. You know, life isn't that nicely divided into boxes. Yeah. You can kind of study whatever you want in it, really. It can be more philosophical of kind of what, what, what people concerned with how they experience the space, how they and then it can be more kind of physical. What did they eat and how did they survive? And it very much depends on the material culture that you have access to. And at the end of the day, what you're interested in.

Speaker 1 [00:04:13] Yeah. And can you tell me then you mentioned there briefly about, you know, some there's different ways of studying the past and on archaeology, you know, you mentioned there about, you know, a lot of people will think, you know, about like how archaeology is represented in the media, particularly around like fieldwork and excavations and things like that. And then you mentioned you were like more on the bioarchaeological side, which I think is probably is that like more lab based or how would that what would an archaeologist actually, how as an archaeologist like how do you actually conduct your your research?

Speaker 2 [00:04:49] Yeah, absolutely. I'm not I'm not going out in the field at the moment, but I do all of my work in my lab and then once I've got all my data on my computer. And so what I particularly do is study human skeletons. So these have been dug up quite a few years ago now. The one that I look at, I think about 15 or 20 years ago, if I remember correctly, depends on the collections. And these were all part of rescue excavations, which is the main way that that all critical remains were excavated in the UK. Nowadays, you might be familiar with the fact that nowadays if a building needs to be built, then all critical assessments need to be done beforehand to make sure that nothing is being destroyed, nothing is being lost. And the collections that I'm looking at in Aberdeen, they were buried in town and obviously town has developed over the years and when will buildings have popped up and they needed some space. And as part of this whole process, then those those remains were rescued and are now being studied so that we can get, you know, all the information that we need out of these people. And in that way, the remains when destroyed, they went on. We see that they were moved, but they weren't significantly affected by the, you know, nowadays kind of developments of the city. And then we as researchers have access to material that we can study.

Speaker 1 [00:06:19] Okay, great. So can you tell me a little bit more specifically then about your own research? Like what kind of things are you looking at?

Speaker 2 [00:06:25] Sure. I'm very passionate about climate change and I kind of find a way to study climate change from an archaeological perspective. And I'm looking at how climate change in the medieval period affected people's respiratory health. So that's a fancy way of saying we went from a period of quite warm, prosperous times in the medieval times. And in the 14th century, the little Ice Age started and it got quite cold and unpredictable. And what I want to know is if that affected people's ability to breathe at the time. And so I'm comparing groups from before and after and looking at their skeletons, looking for evidence of a disease of the respiratory system. And then hopefully at the end of my PhD., then I will have an answer to, you know, did it affect them positively or negatively? It did not affect them at all? And hopefully that could feed into understanding climate change in the future. Do we need to, you know, be concerned about our respiratory health and climate change at all? Or is this one of the things that at least we don't have to worry about? You know, so that's kind of the point of what I'm doing.

Speaker 1 [00:07:37] That's fascinating. So can you tell me a little bit more in detail about how you actually conduct this research? Is it predominantly, you know, using advanced laboratory techniques or how do you actually go about, you know, looking at respiratory health from bone materials?

Speaker 2 [00:07:53] Sure. So, again, I'm trained as an osteoarchaeologist or paleopathologist, which both, you know, words that are too complicated for what they are. I study the human skeleton and I look for evidence of disease on it. And that's what paleopathology is. It's disease in the past, essentially. And because I care about

respiratory health, then I look for areas of the bones now around the the parts of our body that help us breathe. So the ribs, for example, because you might think lungs kind of I need to breathe, my lungs need to be fine. And so I look at any sort of disease that I can see on the ribs, but I also look at the maxillary sinuses, which are the basically it's a big part of your nose. And what allows you to breathe in the cavity, though, right under your eyes. And that's, you know, that's called the respiratory system. And then we get is as well because the nose and he is all connected. If I'm sure you've had a cold in your life and you know, you felt a bit like, you know, your nose was a bit congested and then you had ear pains that, you know, that shows you how how related they are. So I'm looking at all of these areas to it for any sign of disease. So that can be new bones that isn't quite surprised to be there that is present on the ribs or in the sinuses or a large porosity. So lots of little holes in your bones that again, aren't really supposed to be there if you're healthy. And so I look for signs like this and and kind of I'm looking at them on very large populations of hundreds of skeletons so that then I can do paleo demography, which again is demography of the past and kind of looking at populations in the past and kind of trends of respiratory health and then compare that to to trends in climate changes. And again, hopefully finding anything that, you know, would suggest that there's a relation between the two.

Speaker 1 [00:09:50] Right. So in terms of our present day study of climate and climate change, then what do you thinl, you know, your research or archaeological research, generally, can contribute to our understanding of climate change today.

Speaker 2 [00:10:06] As I as I said before, my research aims to kind of answer the question of do we need to be worried about this at all? And if so, how did it effect people in the past? Because at the end of the day, I'm obviously I'm an archeologist so I'm very biased here, but I think if we want to know how people adapted to things in the past to be able to, you know, figure out what to do now, then maybe we should ask the people first and they might not be able to tell us everything. But they've kept records of thing, they've written things down. And there is so much in your skeleton that you're not realising is kind of being recorded about your life. So obviously my approach because of what I do is let's see what the people can tell us first and then based on that information, does that help us now? So what what my research is doing is do we need to be concerned about climate change and respiratory health, and especially with COVID happening a few years ago and I guess still can happening. And it has it is something that we've talked about a lot, the respiratory system being affected by disease and all the kind of chronic crises that we're going through today. So it's particularly relevant. But for archaeology in general, it can be it particularly for agriculture. Actually, it's being used more and more to determine how sustainable something really is, because sustainability is and isn't about a quick fix. It's not about it's not even about being resilient. You don't want to be able to just power through. You need to make sure that something can can be sustained through time. And time is in 20 years. It's not 50 years. It's we want to know if something can work hundreds of years down the line. Because again, we're not talking about a quick fix and archaeology has access to data that can, you know, go back to millennia, not just centuries. And it might not be as precise as recorded data or measured data like, you know, measured temperatures and things like that. But that sort of data has only existed for the past, I'm going to be generous about 50 years. I think it's more somewhere like 30, but we will it's not a very long time. And so archaeology has access to data that dates back to the medieval times. And even as far as the bronze age, you can probably pass that if you look at landscape archaeology. So being able to see how something is from a sustainability perspective comes with having to be able to look very far back, to be able to look very far ahead. Not sure that made a lot of sense, but archaeology very much feeds into those climate models

and things like that, because the more data you have, the more precise you can be in the future.

Speaker 1 [00:12:46] Great. Okay. So you mentioned the collections that you work with here at Aberdeen. Is that what attracted you to come to study archaeology? Because I know here in Scotland, because obviously I know you're you're from France originally. You study I think you said in England you did your undergraduate studies there. So what attracted you to to come and study this subject for your PhD in Scotland or in Aberdeen specifically?

Speaker 2 [00:13:11] So for my PhD I'm looking at both Scotland and Ireland and collections from both Scotland and Ireland. And the collections I'm looking at in Scotland are mostly from Aberdeen specifically. And Aberdeen historically is a very interesting place because we're so close to the sea, we're so close to a lot of countries in Northern Europe as well, and it used to be a very important harbour and they used to be a lot of trades happening. So the complexities of it makes it very interesting and exciting to work on because it means that the people that lived in Aberdeen were exposed to a lot of things, which because I'm interested in disease and it's that they were, you know, exposed to a lot of interesting diseases and died in very interesting ways. But it also means that in terms of material culture, you have things coming from all over the world, you have people coming from all over the world. And so you end up with a very culturally diverse place in northeast Scotland, which you wouldn't necessarily expect. You know, when you when you first think of Aberdeen, you wouldn't think, oh, yes, culturally incredibly diverse and with goods coming from all over the world. So that that really appealed to me, kind of having that complexity in it and all the things that all the stories of the people at the end of today's what I'm interested in, Yes, there's the climate, there's the respiratory health, all of that is how did people conduct their lives. And if they have interesting lives, then it's even more interesting for me as an archaeologist. And on top of the collections themselves, which have also been quite understudied so far because we haven't had them for that long. So there's a lot of opportunities for research there. There's also the fact that at Aberdeen, the Department of Archaeology is part of the Geoscience School, which is incredibly rare because there's obviously there's a very good argument for archaeology being a humanities discipline. And we very much are, but we are also becoming more of a scientific discipline. So there's also an argument for it to be with all the sciences like it is in Aberdeen, and as I said, very passionate about climate change. So that means that being part of the school, I can, you know, wander around the corridor and like make friends with researchers that I'm going to work with that work on a pananalogy to the study of pollens and glaciers and so on, chemistry and all of these things that were very relevant to me. And I'm being exposed to that just by, you know, going to like grab a coffee down the corridor. So that's the main reason why I chose archaeology really, is being able to become a researcher that would work with other disciplines and that would have an understanding of all of these, all the things that I'm interested in. Um, but from my kind of perspective of being an archaeologist as well.

Speaker 1 [00:15:56] Yeah. Is there anything in the, in the climate record or archaeological record? You mentioned your study, your focus is on Scotland and Ireland. Is there anything distinctive about the climate record in Scotland versus other parts of Europe at that time? You mentioned the little Ice Age. I think you said it was in the 14th century. Was there anything particularly distinct here compared to how, you know, for example, in England or other parts of Europe?

Speaker 2 [00:16:25] Yes, absolutely. The sort of the climate transition that I'm looking at, as I mentioned, happened the 14th century went from the medieval warm period to the little ice Age. These things were very, very convenient, very, very descriptive. Um, and in more kind of the south of Europe, they didn't feel it quite as much there as records of things being found in France and seeing that there was a bit of a of a wobble though, around the 14th century, that there was a bit of a struggle, but it wasn't as big of an issue, kind of more south. And even in England and in most of the country, I'm not saying it wasn't an issue at all, but it wasn't an issue to the extent that it was in Northern Europe. And so there were people working on this climate transitions in Scandinavian countries, for example, because they have quite a lot can have that happen and they were a lot more affected. And in Scotland and Ireland, Scotland particularly was also quite significantly affected by it. And because it is a lot farther farther north than England and the south of Europe is then felt it to a much greater extent, which overseas Britain for me, because archaeology is, you know, sparse enough as it is in terms of what you have to work with to begin with. So at least having kind of clear marked differences that we know of is you know, it makes life a lot easier to, you know, get started with the research.

Speaker 1 [00:17:53] Great. So as a, you know, for listeners who might have never studied archaeology before, might be looking at, you know, interested in studying archaeology when they when they come to University. If you were to maybe think back to when you were first deciding, you know, what to study at university, what is it essentially that attracted you to to archaeology?

Speaker 2 [00:18:18] I wouldn't, I wouldn't say that my choosing archaeeology started at a University level. I kind of decided when I was three that I wanted to be an archaeologist because I thought that Egyptology was really cool and kind of decided that, like, this is what I'm going to do. I had very limited understanding of of what an archaeologist actually was, but I knew that they were looking at cool things. And I stand by that statement. I still think it's true. But then when I kind of started university, I just knew I wanted to be an archaeologist. I didn't quite understand the range of archaeology that exists because you can pick any time period, any aspect of human life and you have a speciality. So there's there's just so much that you can do, really, the sky's the limit. You just need to be able to, you know, be creative enough to find something you're particularly interested in, and that can be part of archaeology. So I just kind of started with a very broad archaeology degree and you kind of just need to start that kind of get an understanding of how wide of the subject is. And Aberdeen very much has a similar course as part of their undergrad degrees that people that might be interested in archaeology can take, it can have the kind of early levels of the course, like here's the range of what you can do from fieldwork, lab work, archives, all of it. And then you can you have opportunities to kind of see a bit more of whatever side you're more interested in. So I chose osteoarchaeology because I've always been, you know, very interested in human skeletons. That sounds like a very weird sentence, but it's just being able to tell people stories without them being there to tell it to us. And this, I think there's something very poetic about being able to give people their, you know, the whole life back in a way and then gaining something from it. And so I was very passionate about that quite early on and then decided to specialise in osteoarchaeology, then had a bit of a crisis when I realised how bad the environment was doing and kind of considered stopping archaeology because I thought if I'm if I'm going to be as educated as I am, then I should have to, you know, be trained to like, make a difference. Like, yes, archaeology is amazing, but I want to be able to make a difference in this world to some extent. And then on my research to matter and to help. And luckily I found out that archaeology is also a way to do that and a pretty essential one if you if you want to, you know, really understand where we're going in the future, you kind of need to

understand where we came from and how we've done things beforehand to either repeat what worked and know better with what didn't work. And there's there's a lot of room in Aberdeen to do all of that as well. You you have a lot of kind of modules are available to either specialise in in biomarker or in field archaeology or oseoarchaeology or a plant archaeology. I'm sure there's an actual word for it, but you can study animal bones, human bones, ancient DNA isotopes and all of that is also is also relevant to this sort of studies. It's just all the different tools that we have and and there's opportunities for that as well. If you are very, you know, intrigued by and passionate about it, you can have like lab experience in Aberdeen at an undergrad level, which is actually quite rare in university. So.

Speaker 1 [00:21:47] Right. So I just want to kind of come back to something you touched on there in terms of you're somebody who has an interest in climate and climate change. How do you think your own research informs how you think about climate change today and into the future?

Speaker 2 [00:22:06] That's a very good question. Um, I. I started off my PhD already knowing quite a bit that climate change today. I did my master's dissertation on climate change today from an archaeological perspective. And so I kind of feel I had quite a good understanding of the difficulties of talking about climate change. And what I realised with studying climate in the past is that there's so much more complexities between the climate and the people. So I'm going to try to articulate this in a way that makes sense because the complexities always help to talk about the, you know, you have the climate and we talk about it so much in the media, like the temperatures are rising. There's more more rainfall, less rainfall in some places. And we're very focussed on the actual pure climate of it all. And then we talk about the people, but there's so much in between. And obviously you live your life adjusting to due to the climate that you have. So I don't know if this image is going to speak to a lot of people. But I love theatre and I love musicals, so this is kind of how it is in my head. But it's like you've you've written a play which is a life, for example, in the medieval period, and you have all of your décor and your costumes. But at the end of the day, the play that you can put on and everything that you've had to adjust for the play and to plan for the play is framed by the theatre that you're playing in. And that's how I see climate is, the climate is the theatre. It kind of just provides a framework where the play can exist and then you just have to plan your life, you have to build certain because of that, you know it won't fall off because the theatre is built a certain way and, and the costumes need to be a certain colour because otherwise it doesn't show or whatever. And this is what, what life is like. And, and then you have the actors that all the people so I, I used to only see the theatre and the actors and now I see that there's the theatre, but then there's all of, all of the mise en scene and then there's the actors. And the mise en scene is incredibly hard to deal with in the past and of having to understand why we're even the different elements that were placed on the stage because we in there. So we have to figure it out. And then you have. And today we also can't just be thinking about the climate. And yes, we're trying to get a handle on limiting carbon emission emissions and staying on top of that. But we also need to think about the people. Why do we care about getting a handle on the climate is because the people need to live a certain way. And sometimes I feel like in those conversations we kind of lose everything that's in between. But it doesn't make sense if you don't know what's in between. If you don't know how people live, then you can you can come up with mitigations or policies that will that will help the people and make them live the way that they need to live. So I don't know if that made any sense, in my head it's crystal clear, but hopefully that that was a good image that kind of I didn't understand a lot of the complexities that were between what we talk about in the media and the people that have to live their lives.

Speaker 1 [00:25:26] Yeah, yeah. No, no, that was really well explained. And certainly food for thought, I think probably is something that there's a gap in, in the way we all think about about climate change today. So. Well thanks so much for your time today Irmine. Really fascinating insight into archaeology generally and also specifically your own research. And again, that, you know, the link to to climate change. So, yeah, thanks so much for your time.

Speaker 2 [00:25:52] Thank you very much for the opportunity.

Speaker 1 [00:25:58] You've been listening to the Talking Geosciences Podcast from the School of Geosciences at the University of Aberdeen. For more information about our teaching and research, visit our website at www.abdn.ac.uk/geosciences or follow us on Twitter or Facebook.