

## **Sarah Reynolds—Professor of Astronomy and History, Podcast Host**

Professor of Astronomy and History at The University of Indianapolis, and podcast host of “The Sun, The Moon, and The Hoosier State”, Dr. Sarah Reynolds uses her expertise to discuss her personal experiences with eclipses, and how her podcast came to be. Continuing the conversation, Dr. Reynolds delves into the role and importance of emotions when talking about historical events. The interview concludes with discussions on the relevancy of eclipses throughout history, and how science developments have changed our way of viewing these phenomena.

Interviewee: Sarah Reynolds (SR)

Interviewers: Alannah Graves (AG), Nico Hartzell (NH), Joe DeSario (JD)

Date: November 11, 2023

Location: Zoom, Bowling Green State University

[Note: Some tangential discussion from the audio file has been omitted]

**AG:** [00:02:18] Okay, well, it's really great to meet you. I'm Alannah Graves. I'm a second-year master student in the Department of history. And then again, Joe and Nico, if you guys wanna introduce yourself?

[Note: Some tangential discussion from the audio file has been omitted]

**NH:** [00:02:47] ...I'm Nico Hartzell, I am an international sales major.

**JD:** [00:02:50] I'm Joe, I'm a 4<sup>th</sup> year undergrad studying history and political science.

**SR:** [00:03:00] Nice to meet you all!

**AG:** [00:03:02] Nice to meet you, too! Would you be willing to tell us your name? And if you'd like us to call you Dr. Reynolds? And your role at the university?

**SR:** [00:03:11] Yeah, I suppose you can call me Dr. Reynolds, or you can call me Sarah. That works, too. So, I'm a professor here at University of Indianapolis in the Department of Physics and Space Science. I have kind of a dual background in both science and history. So we've done a little bit of both. And yeah, it's nice to meet you all

**AG:** [00:03:36] Lovely to meet you. So, for our next question getting into it, why are you interested in doing a podcast about the eclipse?

**SR:** [00:03:45] So it's a little bit new to me. I haven't done a podcast much before. But you know, I'm familiar with the format, and I've seen some great things done with them. And as I was thinking about, you know the eclipse, and what would be interesting to do with it. I just think that there's so much interesting sort of story about the way that different people have experienced the eclipse. And if you ask people, you know, like, have they seen one, and what

they've done with it? People immediately get to start telling stories. In addition to sometimes talking about the science. So I think that there's interesting ways that you can bring that story telling aspect in with the way that we think about science, and also how we experience science. It's not just always, you know, a textbook kind of thing. It's also something that scientific events impact us in a, in a strong way, sometimes. And I think an eclipse is a great way for sort of exploring that and a podcast is a perfect format for discussing that.

**AG:** [00:04:50] Well, yeah, that's lovely. I guess I've never thought about science as like a story telling tool. But now that you're saying it, I guess—I guess, yeah, it makes sense that we would have these strong emotions to any sign, scientific advancement or occurrence. And going off of that. That's a great little bridge into our next question, as a historian of science and a scientist, what is the importance of emotions?

**SR:** [00:05:14] Yeah, this is a... It's such an interesting question. So I think one of the things that when I started learning more about the history of science, specifically one of the things that impressed me was that I just started to realize how much it is a, it's human history, right? Like a lot of times, history of science. We think about the history of the ideas and sort of the concepts themselves, but it's all tied in directly with the people that are doing this, and those are people that have strong emotions... So trying to pick off or upper is saying so science just has this, you know, this, this human history and the people involved in it emotions right? And that's an important part a lot of times of the work they do. I think we get, we get very caught up in this idea of science being objective, and it is but it. We work to make science objective, to get rid of biases and things like that. We have community processes. We have evaluation processes. That's work that we do. But scientists, as individuals, are usually very passionate about the things that they study. Sometimes they have heated conflicts over things that they're studying. So emotions are always a part of that. And I think it's a good thing, right? It takes a lot of work to study something and push through all of the challenges to get to the end. And and at the end, you know, scientists have that breakthrough moment or that 'Aha' moment, and any great scientist. You read what they've written, or you listen to them. Talk about their discoveries. There's a lot of emotion there. So, I think that emotion is something that drives us in science as much as anything else. And I think that's one of the nice things about kind of bringing that human history element in to understanding how that also intersects with the ideas themselves.

**AG:** [00:07:58] Yes, thank you. So I answered—I did the first couple of questions I wanted to give a chance to Joe and Nikko if they wanted to jump in anything.

**NH:** [00:08:09] So I have a quick question. How many eclipses if you've experienced any, have you experienced? And what was your experience?

**SR:** [00:08:19] Yeah. So I've experienced one. Well, the 2017 eclipse, I was in Bloomington, Indiana, at the time, and it was it was a strong partial eclipse there. I think we were over 90% coverage of the sun and that was great. I kind of hoped to be able to go down and, and, you know, get into the path of totality. But I got us to do something on the on campus for other people. And I was like, Oh, well, you know, it's nice to have that kind of community experience

as well. So I stayed and and enjoyed the partial. But I'm really looking forward to getting to do a total with this upcoming one, the other one that I kind of like kind of glancingly experiences. There was one when I was a kid, that came through the area. It was just a partial, and I don't even think it was very much of a partial. But I say I sort of experienced it because I didn't realize until years later that there was a day in which we were sort of told that if we looked outside at a certain time of day, or, if we like, tried to peek out the school windows and look at the sky, our eyes would be burnt out of our head, and as a kid, I guess I just sort of accepted that. And then, years later, I thought, 'wait a minute. What was going on on that day?' And looked back and realized, 'Oh, that was a partial eclipse'. I don't even know if it would have been that noticeable where we were. But I think that this is, you know, the other thing and kind of getting ready for this upcoming eclipse is that we'd really like that, not to be people's experience of oh, yes, that day that you were told to stay inside and shield your eyes, and you know, hide from the sun was an eclipse. We'd like people to be able to go out and see it and have that experience.

**AG:** [00:10:28] Yeah, do you have any specific plans for viewing the clicks in April?

**SR:** [00:10:33] I think I'm going to be UN University of Indianapolis, where I'm at is right on the path of totality. So we're hoping to do things on our campus here and again. It'll be nice to have kind of that community viewing experience. And I was reading something recently where they were talking about how sometimes scientists don't really experience an eclipse, because they're so busy doing science doing it during it. And I thought, Oh, yeah, that could be a good point. So I'm hoping that I will have a lot going on that day before and up to totality, but that during totality I'll have time to just stand and experience and witness it. And not be too busy with other things, or have other things on my mind, and just kind of enjoy the experience.

**AG:** [00:11:29] And this is a question I have that we didn't send you beforehand. So if you don't want to answer. That's okay. But, have you noticed that there's been a shift or a change with the development of science? And then people actually being interested in eclipses and wanting to go outside and experience all that?

**SR:** [00:11:48] You know. It's that's an interesting question... I've been looking a lot at like the 1700s and 1800s, and how people talked about eclipses then, and one of the interesting things is that they—they're very confident that they are, you know, cutting edge scientifically informed. They are in the know, and they are no longer superstitious about eclipses. They know everything they need to know to go out and and view them. And it's going to be, you know, it's just a scientific thing now that they get to enjoy, but not be overwhelmed by, or anything like that. And so I think that that kind of, that kind of comes to mind that, you know. I think we always have this idea like, 'Oh, we're ready', you know, and and it won't be something too overwhelming. And we're up for it. But you know, if you watch YouTube videos of even like recent eclipses and you just watch people's reaction. Even the most, you know, sort of state observer a lot of times when that period of totality hits is just sort of reduced to wow, you know, and they're screaming and stuff like that. So I think that scientifically, there's a lot exciting about it. And again, it brings in those emotions and gets us interested. These kind of events also have a tendency to sort of motivate people to go into science or study science more maybe makes us ask new questions.

But I think you, you also can't. You can't control the fact that sometimes your emotions are overwhelmed by a strong experience. Regardless of how in the know you really are.

**AG:** [00:13:46] Thank you. Yeah, thank you for answering that. That was for my own selfish curiosity. Being able to talk to you, seeing that you're a scientist and a historian. I really wanted your insight on that. But for our last question; how relevant have the eclipses been in history of science? That's a very strangely worded question, but—

**SR:** [00:14:08] They're good. So I think they've been very relevant. There's lots of there's lots of different aspects of eclipses that have sort of been discovered over the years. They've driven various discoveries in our understanding of the sun for a long, long time. The only way that we knew about the solar corona, or could make any observations of the solar corona, which are these sort of very outermost layers of the sun, almost like an atmosphere, but the solar corona actually extends very far into space, and you could even say all the way to where we are. In a way, we all exist inside part of the solar corona and the solar corona is very dynamic. It's a very interesting place, but it's not one that we could really see under normal circumstances. And for so for years, the only time that anyone could see anything about the solar corona was during a solar eclipse. Nowadays we have some satellites and observatories out in space that allow us to make observations. During other periods of the solar corona. But certainly, I think you know. Why do we even have those things? Why do we look at it? What? How? Why, do we think it's important? A lot of that initial discovery came from eclipse observations. The other portion of this that I think is kind of, you know. If you think about eclipses and what they've done. Historically, you can kind of see how they drive, and have maybe driven some of the major elements of science. So when we think about science, we think about observation and making careful observation. And in eclipse you have this, you know, short period of time where all of a sudden there's a need to maybe really look at what's going on. But then you also have it sort of driving a longer term observation. When is this gonna happen right? It drives that whole aspect of prediction. Once you know that this can happen. You can just imagine cultures and societies, you know, seeing this happen in the sky and then going, is that gonna happen again? And when, right? And so you can see how it it prompts right some things about making extended observations, making measurements, making predictions, tracking celestial motions, and trying to know if this is something that can be predicted in the future and then you also have ways in which eclipses and eclipse studies have driven scientific community formation. So one that comes to mind is Steve Ruskin. He has a book where he talks a lot about the the great eclipse of 1878, which was one of the first things that really a lot of the American scientific community, which was still, you know, pretty young at the time. Really mobilize to go out, set up multiple stations and make observations coordinated. Was looking for certain things, trying to see if there might be a planet we couldn't normally see. That was very close to the sun and all of that sort of like network formation that went on around that eclipse and around others is also something that eclipses have kind of driven and then, finally, you have kind of that aspect of education and outreach, right? We don't do science just for our own knowledge, we always do it so that we're contributing knowledge to the sort of everyone as a whole. and we have to find ways of sharing that, and eclipses are one where once, you know, when they're going to happen. Once you've made those

observations and figured it out. The next question is, how are you going to communicate that to others and help everyone be well prepared and well informed for an event like this?

**AG:** [00:18:11] Thank you. Joe. Nico, do you have any? Follow up questions mine were pretty much answered... Excellent. Is there anything else you'd like to touch on before we close out this interview?

**SR:** [00:18:25] I don't have anything in particular. It's nice to talk to you guys, though.

**AG:** [00:18:30] Yeah, it was lovely speaking to you. Thank you so much for answering all of our questions and participating.

[Note: Some tangential discussion from the audio file has been omitted]

[END OF INTERVIEW]