Schlingman Talks Skeptics, the...s Sphere, and the 2024 Eclipse

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SPEAKERS

Eva Dale, Wayne Schlingman, David Staley

W **Wayne Schlingman** 00:03

Some people you're never going to really convince, but you can tell them that what they have seen is real, because it is real, they got a picture of it. And it's not up to me to change their mind on whether it was actually just a drone over a public park or whether aliens were flying above the neighbor's house. Like, that's not, I'm not going to change their mind on that one. But, I can teach them about space. I can teach them about what else is out there, how they can participate in investigating what's going on.

E **Eva Dale** 00:31

From the heart of the Ohio State University on the Oval, this is Voices of Excellence from the College of Arts and Sciences, with your host, David Staley. Voices focuses on the innovative work being done by faculty and staff in the College of Arts and Sciences at The Ohio State University. From departments as wide ranging as art, astronomy, chemistry and biochemistry, physics, emergent materials, mathematics and languages among many others, the college always has something great happening. Join us to find out what's new now.

D **David Staley** 01:04

I'm pleased to be joined today in the ASC Tech Studios by Wayne Schlingman, Director of the Arne Slettebak Planetarium, the Ohio State University College of the Arts and Sciences. He is the recipient of the 2023 Community Engaged Practitioner Award. Welcome to Voices, Dr. Schlingman.

W **Wayne Schlingman** 01:23

Thank you.

D David Staley 01:24

First of all, I don't know if people realize we have a planetarium on campus. Tell us about the planetarium.

W Wayne Schlingman 01:30

So, this planetarium has actually been on campus for a long time, longer than most of us - there are a few people that are around that have been here since before the planetarium, but it was 1968 when it opened. So, it's been here for a little while. It fell into a little bit of disrepair and had some live weather effects - basically, there was a small hole where there was ventilation and whenever it rained or snowed, then you would experience that inside too. But in 2013, we renovated, and we now have a state of the art digital planetarium with comfy seats, they're squishy instead of those really hard fiberglass seats. So, now we've been located in Smith Lab for just about a decade, since I arrived at Ohio State.

D David Staley 02:06

So, what is it that a visitor might experience in the in the Slettebak Planetarium?

W Wayne Schlingman 02:11

So, depending on the visitor, they might get a really good nap in - some of my students, those chairs are a little too comfortable, it's dark, and there, there are a few that will saw some logs in there. But, when they come in, you're going to be greeted by one of my planetarium staff or myself, and we hope to spark a sense of wonder and engagement. while we're in there. It's not just a received show, the whole point of us is that we're not here to give you information so much. In the age of the Internet and Wikipedia and YouTube, you can find all the information you want. You came to the planetarium to meet with us, there's a human aspect to that. And so, you came for us, and we try to make that a big deal, whether it's asking a bunch of questions, even if they're leading questions, to sort of like say, hey, you know what, this looks like a giant spoon in the sky, and we're pointing at the Big Dipper to kind of inspire somebody with an answer. The goal is to have them talk with along with us and engage in feel free to ask questions and learn along the way.

D David Staley 03:04

What sorts of questions do you get from your audiences?

W Wayne Schlingman 03:06

Oh, we get all sorts of questions. Some of the most common ones really are, what's your favorite planet - of course, Pluto.

D David Staley 03:12

But it's not a planet?

W Wayne Schlingman 03:13

But, I will fight people over this. So, being a new Mexican, I can claim that Pluto is a planet for twelve hours of every single day, because it's state law that Pluto is a planet above New Mexico skies. So, it's fantastic that I can still do that. And of course, you know, them's fightin words with young kids, and then some of our older people that remember when Pluto really was a planet. But, that's a common one. Is there life out there, and we get to talk about that a lot, because I do believe that there is life elsewhere in this universe. Whether we will ever talk to it is a totally different question, but knowing that there's life out there, my gut says that we can't be the only planet with bacteria.

D David Staley 03:49

Yeah. I know that you champion the use of active engagement and learner-centered environments. You're a teacher, I'm guessing, in the planetarium - say a little more about that.

W Wayne Schlingman 04:01

Trappist ale is all I can think of.

W Wayne Schlingman 04:01

Yeah, so I don't see the planetarium is any different than a classroom. So, if I'm going into a classroom, my job is not to just disseminate information. I need to teach them enough, but then we have to get that information into their brains, whether that is asking them questions, leading them through conceptual frameworks in order to understand what they are trying to do, but they are an active part of that learning. And just as we were saying before, we ask a lot of questions. I ask people for what they know, and sometimes this is because maybe I don't know what they're talking about. When I first got a question about the TRAPPIST-1 system, someone just said, what's TRAPPIST, and I was like, I have no idea what you are talking about.

W Wayne Schlingman 04:02

See, there you go. And I don't... no, no, the system is named after the ale.

D David Staley 04:19

Oh, okay.

W Wayne Schlingman 04:20

But, I had to ask him, so like, what is your question or tell me what you know about it, right? So, this is empowering an audience member to share what they know. You can correct a couple misconceptions if they happen to crop up, but then they can teach everybody else in the room through peer instruction at some level what they know about, and then I can answer their actual question, which was, how did we detect the planets around it. And that was through a transit technique, which means a planet passes in front of the star and causes a little dip of light, and so we were able to measure those systems. And it's sort of a near-ish by solar system analog. It's a tiny version of our solar system, but it does have multiple planets, and it's kind of cool.

D David Staley 05:21

How far away?

W Wayne Schlingman 05:23

I don't know off the top of my head, we can look that up.

D David Staley 05:26

You say you ask questions of the audience - what sorts of questions do you ask audiences?

W Wayne Schlingman 05:31

So, I ask them, really, like what am I looking at or what am I pointing at? But sometimes, especially with younger, younger kids... one of the shows that sticks in my mind was, we were talking about the moon with a group of preschoolers, and it turned out that one of the kids wanted to share when they saw the moon, and it turned into a twenty minute, I was holding the microphone for all of them, and I would ask each one of them, when did you get to see the moon and who was it with? And they were like, with a friend, a family member, or something like that, and they got to see the moon and they were describing it. And it was this really cool sharing experience with four year olds, about what we were talking about, but it was just really neat to share that experience with them. Otherwise, you know, asking them, how big do you really think telescopes are, like, what conceptions do they have what astronomers do and what we look at and how far away things are, in order to blow their minds when everything is much farther away and much bigger than they realize.

W Wayne Schlingman 06:15

Do your visitors sort of understand the work of astronomers?

W Wayne Schlingman 06:26

Yes and no. I think that they know that it's fascinating, they know a little bit about what we do in the sense that we take pictures and we try to understand the universe. But beyond that - and I wouldn't expect them to know significantly more than that - they don't know how we can take light and learn something about the universe, that takes us years of school in order to learn about those pieces. But being able to say like, hey, when we take a spectrograph, which is a camera that breaks light into all of its different colors, we can then measure how much of each color of light there is. And then, that can tell us something about what is going on, whether it is the composition or the temperature or how far away it is - we can learn a lot from breaking light into its individual colors.

D David Staley 07:07

You gave us a sense of this a minute ago, but who tends to visit the planetarium? Who are the visitors?

W Wayne Schlingman 07:14

We get all sorts of people, anywhere from preschool - I think the youngest I've ever had in there is one year old, but they were asleep, so it's fine - but preschool all the way up through senior centers. We get everybody inbetween, a lot of youth groups, Scouts and Girl Scouts, and YMCA groups, and Boys and Girls Club, those sorts of things, as well as a lot of middle schools, because that's when it's in the science curriculum, we get a lot of middle school visits. And then, we also do a lot of groups on campus, whether it is student organizations, or... one of my favorites, because I'm a STEP mentor, the Second Year Transformational Experience Program is the STEP program. It's made for our second years at Ohio State, and part of that is to go out and do adventures on campus, whether that's a tour of the Shoe, or maybe even going down to North Market to grab some food. But, a lot of groups come through the planetarium, and it serves as, one, a pivotal moment for them learning about cool things that they could do using our immersive technology and interacting with either me or my graduate students. When the STEP groups come in, oftentimes their goal is to have an experience, and therefore I can use that as a training ground for a lot of my new presenters, because a successful program is interacting with those students. It's not just giving them some cool information about the sky and other things like that, but it's that how did you go from being a second year in college to a graduate student? And, while some of my presenters are like, I don't know if I can present yet, I don't have enough practice, I'm like, you have practice being a human. You have years on the students that are in the STEP program, so you can talk about all of that and lead them on to how they can be successful too.

D David Staley 08:42

Is it used in any of our astronomy classes?

W Wayne Schlingman 08:44

It is used in some of our classes. It started out, when I first arrived at Ohio State in 2014, as a primary location for our astronomy labs. Now, post-COVID, our class ballooned and we weren't able to squeeze everybody into the planetarium anymore. So, now, it is sort of an optional part that we're trying to work back in. But, there are other classes that we offer where they're taught solely in the planetarium. So, Jennifer Johnson has been championing trying to teach our, our new Themes courses in the planetarium

D David Staley 09:11

Ballooned. What explains that?

W Wayne Schlingman 09:13

So, what made our classes really large was the fact that it was interesting. The GE was still in its older form, and we had done a lot of work on making that engaging, where students come into class and when they take our labs, they get one on one conversations with their TA every single week. And I think that that made it more engaging for our TAs, but also made it really engaging for students and they felt that they were learning something and getting value out of it. And so, we grew up to about 320. But then, with the decrease in the number of GE classes that people have to take, that number has come back down to about our normal numbers that we had pre-COVID, and so we'll look at seeing whether or not the planetarium squeezes back in or not.

D David Staley 09:50

So, there's a big event. There's a big astronomical event coming up, April 8th, 2024: the solar eclipse.

W Wayne Schlingman 09:56

Yeah, I don't know what you're talking about.

D David Staley 09:59

I assume you're going to be, or the planetarium is going to be doing something around the eclipse.

W Wayne Schlingman 10:05

So, we will not be open near the eclipse, because all of my presenters including myself will be out going and enjoying it. But, leading up to it, basically the month of March, is going to be incredibly busy with a lot of planetarium shows, working with the Alumni Association and Parent Family Relations for Sibs and Kids Weekend, and some other talks at some of our regional

campuses that are directly in the line of totality. So, we're gonna have a big lead up, and then the day, the days around it, I want people to go out there, travel, and just enjoy it, they deserve that much.

D David Staley 10:35

And line of totality means...?

W Wayne Schlingman 10:38

When the sun disappears.

D David Staley 10:39

And, are we going to experience that here in Columbus?

W Wayne Schlingman 10:42

So, in Columbus, we will not. Unless you live up toward the Dublin area, you're not going to experience totality, which means that you cannot take off your eclipse glasses anytime during the solar eclipse here in Columbus, because the sun will not be completely blocked. But, it won't take you to travel very far in order to reach totality. So basically, Dublin is on the very edge of it, but I would recommend getting a little bit farther in if you want the full experience. Even if it's snowing on April 8th, because you know how Ohio is -

D David Staley 11:11

Who knows?

W Wayne Schlingman 11:12

The wall of darkness will still come, and so it'll still be a really cool experiene regardless.

D David Staley 11:17

So what could - if I'm here on campus that day, let's, let's say, what, what might I experience, then?

W Wayne Schlingman 11:22

So, it'll still get dark.

D David Staley 11:23

Dark.

W Wayne Schlingman 11:24

And it will still get eerie in the minutes leading up to the eclipse, and I think we're close enough that we'll still experience what we call shadow bands, or it looks like snake slithering on the ground. It's the atmosphere causing the limb of the Sun, which is a full arc, kind of like the length of a snake, and it will be doing a twinkling effect the same way, that reason that stars twinkle in the sky, but we'll see that as shadows on the ground. But, we're not going to reach totality. So, the way I try to describe it as that imagine that you have a ticket to the game in November, and you decided to stand outside the gate and listen.

D David Staley 11:55

Oh, boy.

W Wayne Schlingman 11:56

Right? It's not the same experience.

D David Staley 11:58

No.

W Wayne Schlingman 11:58

It's still cool, but it's not even remotely the same experience, not when we're this close. And the next eclipse that will come through Ohio is 2099, so if you don't want to travel to go see an eclipse, this is our best bet.

D David Staley 12:12

So, I introduced you as the recipient of the Community Engaged Practitioner Award. Congratulations.

W Wayne Schlingman 12:18

Thank you.

D David Staley 12:19

You obviously are a practitioner of the public communication of science, and I'd like to hear more about - well, maybe give us a definition of that, and maybe tell us about the significance and importance of the public communication of science.

W Wayne Schlingman 12:32

So, a definition - that one's a hard one. But, I guess the way that I see it is that it isn't just telling the public about science, there's a lot of stuff that's about me, and part of this is the training that I had as a graduate student and learning how to teach effectively. There's only so much that I should tell people what they need to know, a lot of it becomes the conversation, and if we want to really make an impact, especially in this day and age where people are skeptical of science and skeptical of what professionals are telling us, right, we need to have that conversation and meet people where they are, not just in their level of understanding, because that's very important when we're talking with the public - I can't talk to you, as a member of the public, in the same way that maybe I would talk to one of my colleagues about specific topics - but I also need to meet you where your thinking is and where your reasoning is, right? If you have a mistrust, then I shouldn't try to just tell you what you need to think; I should be explaining how I know what I know, and having that conversation with you as a person and why I think this way, and understand why you think your way. And that makes us more effective, and that's where a lot of like, the questioning comes from, right? Like I could just talk at an audience, but if they already know everything, then let's go deeper. Let's do something else, let's follow their interests, and I will meet my goals along the way.

D David Staley 13:47

You were just talking about the distinction between speaking to the public and maybe to your colleagues, to your colleagues in astronomy. What's the difference? I mean, does this just come down to specialized or, or specialized language or jargon, or is there something else that's different about how you communicate?

W Wayne Schlingman 14:03

So, I tend not to use as much jargon as some of my colleagues might. But, even so, astronomers are different than a lot of fields, we do have specialized jargon, there will be stuff that we'll throw out, because we already know the history behind it. But, a lot of it is just taking the time to explain the concept. If I say that the universe is expanding and there's dark energy and dark matter, I could give you a quick definition of those, but it doesn't really describe what we understand about it. So, I would just take a little bit longer and say like, okay, so dark matter is this stuff that doesn't interact with light that seems to hold the universe together, and dark energy is the stuff that seems to be pushing it apart, and also doesn't interact with light. And we don't know much about either of them, so they're dark. But they cause a lot of problems in astronomy, so a lot of people hear about them. So, maybe, I won't just throw some numbers at you and then move on, but I would just take the time to just describe what it is we're talking about. And I even got a really amazing question last night related to both of

those. There was a middle school group that came to the planetarium and one of these kids asked me, what is dark matter, and what happens when we discover what it is? And we got to talk about how...

D David Staley 15:07

What a great question.

W Wayne Schlingman 15:07

It's a fantastic question, because we got to talk about a hundred years ago, the universe was small, it was just our galaxy, the spiral nebulae weren't outside of the Milky Way yet. We did not know what computers were, we did not have semiconductors in the way that we have them today, the electric light was still a new technology, airplanes were new technology. And if you look at what we have today, all of that's happened within the last hundred years. So, when we discover what dark matter is, or what dark energy is, then we get to finally understand what the rest of the 96% of the universe is. And that's a really cool thing, because I can't predict what's going to come of that because we don't know what they can do yet.

D David Staley 15:47

A moment ago, you described... well, you described the planetarium as a kind of immersive technology, and I wanted to explore that in some detail. First of all, what do you mean by immersive technology and is a planetarium the only, the only sort of example of this or...?

W Wayne Schlingman 16:02

So, immersive technology is any form of technology that brings us into an environment. This could be a specially built environment - I mean, Disney specializes this, right? We go to Disney World, Disneyland: these are places that have been built specifically to put us in the mindset and the locations that movies and other things have been shot. So, like going and seeing Star Wars or Harry Potter - I know it's not Disney - or, you know, future land and all these other things, these are themes that we can go after. Other ways that people have experienced these sort of immersive environments is IMAX, the enormous screens that fill your vision all the way out to the periphery; that becomes immersive because the screen is much larger than the TV that you have at home. Planetariums do that because, again, they feel your periphery, but it's domed and it feels three-dimensional, because you're inside of that world. And another way that we can experience that same thing is with virtual reality, or augmented reality, VR.

D David Staley 16:55

Say a little more - I was thinking about VR. And, you know, VR is always the promise of the future. It's always the next big thing.

W Wayne Schlingman 17:03

It has been for most of my life.

D David Staley 17:05

For the longest time. And so, maybe this begs the question - so, VR doesn't necessarily pose a challenge to the planetarium? In other words, if I can put on VR glasses, couldn't I experience the stars in a way that I couldn't even in a planetarium?

W Wayne Schlingman 17:19

Correct. So, you could totally sit at home with a VR set, and you can even run planetarium software at home.

D David Staley 17:25

I'm sure that's already a thing, yes.

W Wayne Schlingman 17:25

There's a great program called OpenSpace project run by the American Museum of Natural History, so that's the Hayden Planetarium. And I finally got it installed on the computer: it's gorgeous, it's beautiful, it's fun. So, I encourage anybody who has a reasonable computer and the space to do it, like, go play with it, it can be a lot of fun. But, doing stuff in virtual reality is limiting, not because you're limited by cords, but it's just you. That's it.

W Wayne Schlingman 17:28

It's a very alone experience. Whereas when you are in a planetarium, it is a very group experience. And so, that kind of goes back, like, they're coming for... to learn, yes, but they're also coming for us, the presenters, they want to have that human connection, because we can learn anything on the internet, so why did you need to come to the planetarium to learn about constellations, or learn about space? Because I can answer your questions, I can understand the context in which you're answering them. And so, going into a planetarium space versus virtual reality means we can experience these things as a group together, we can have that "aha" moment sitting next to each other as if we were underneath the stars outside.

D David Staley 17:28

Alone.

D David Staley 18:30

David Staley 18:30

So, before we started recording, we were - well, talking about immersive technology. You brought up the Las Vegas Sphere; you want to turn this into a planetarium, don't you?

W Wayne Schlingman 18:40

Yes, I do, straight up, yes, I do.

D David Staley 18:42

We should probably describe what the Sphere is first.

W Wayne Schlingman 18:44

The Las Vegas Sphere is a sphere, or at least looks like it's the top side of a sphere, sitting in the middle of Vegas. And on the outside of it, they have over a million hockey puck-sized pixels that they can light up and do all these cool things, which is very reminiscent to something that has been around in the planetarium and museum field called "science on a sphere", where we use for different projectors to project on a sphere and show, like, the Earth and other really neat things. They can just do this natively, and so like the outside of this, this music venue is a teaching tool where they, yes, they put up the moon, and sometimes it's creepier stuff, but like...

D David Staley 19:17

The eyeball was the one that was very creepy to me.

W Wayne Schlingman 19:20

But you could teach with that, like we could actually show how seasons change, how the moon phases happen, all around the sphere and explain these things just by using their screen on the outside. Inside, it's basically a three quarter tilted dome. So, the planetarium we have on campus is above our heads, and there are some planetariums that are on a slope that have the dome tilted, and that's what the Sphere is like, because it's a music venue, you're gonna have a stage in the front, and it's meant to have visualizations and other things like that. But, it's 16,000 pixels wide and 16,000 pixels tall, and it's bigger than any other IMAX screen on Earth, which is really really awesome. So, being able to see video or use that as a planetarium and display some of these JWST images - that's the James Webb Space Telescope, the new infrared telescope that NASA launched a few years ago - we could just display them at native resolution. I really want to have one of the astronomy meetings there, where it's like, hey, this is the image that came down last night, we're just going to look at it. And we're not going to see it shrunk, we're not going to see it anything, we're just see it as it is up on that screen. It would be absolutely incredible.

D David Staley 20:21

How likely is that to happen? Are you going to make that happen, or...?

W Wayne Schlingman 20:24

I want to. I have no idea how much it would cost, but I do think that that would be the type of thing that they would have, especially before a Pink Floyd show. That's the thing: the Sphere needs to do Pink Floyd, because there's a whole audience for that, and they'd love to learn because they're used to go into planetariums first and then enjoying Pink Floyd.

D David Staley 20:41

Yeah. You're the first person I've heard to sort of think of or dream of the sphere as a sort of an educational tool.

W Wayne Schlingman 20:51

Well, they do have a recorded video, it is in an IMAX style video, where... it's called "Postcard from Earth". I have not seen it, I've just seen clips from it, but it's stunning. But they had to develop a whole new technology to even record it. We are just getting used to 4k on our TVs and our newscasts, and 4k has been around for over a decade, but it's taken a long time for that to permeate the market and make it so that it's affordable for everybody to be able to have, both in the recording equipment and in the viewing equipment. 8k is the next step up for that, and the Japanese have definitely been recording a lot of things like that, and they've developed a lot of technology around that. Well, in order to record for 16k, they had to build another new type of camera. And so, they have a prototype that is able to record in 16k, and it takes up about a terabyte every 15 seconds.

D David Staley 21:37

Oh goodness.

W Wayne Schlingman 21:38

So, like, we're starting to use astronomical storage, literally the same type of storage that we would be using to record video and make that experience state of the art. But, as we push that, that's exactly where I wanted to see it, like this should be a, you know, all day long, you're educating audiences in a way that they would never experience this anywhere else on Earth. And then at night, you know, you go at it with with concerts in ways that you cannot duplicate in any stadium ever.

D David Staley 22:02

I'm curious to know how you ended up in astronomy. Did you know when you were a kid that

I'm curious to know how you ended up in astronomy. Did you know when you were a kid that you were going to train to be an astronomer?

W Wayne Schlingman 22:11

So, this is an interesting story. I loved to read about space, I loved science as a kid; I got to do science camps, and I did a lot of stuff about astronomy. I remember going to a star party, I don't remember much else about that, when Halley's comet was coming around in 1986. I was little, and I remember something about Dagwood and Blondie, because I was like, it's a comic party - I didn't know what was going on. But beyond that, I just read books, and then, because I loved the ocean, I wanted to be an oceanographer. I loved volcanoes, I loved dinosaurs, right? I loved all the things whenever I was reading about it, so I could have been anything. In high school, when I took biology, my second year of high school, I was gonna be a biologist. And then, I took chemistry the year after and I was gonna be a chemist. And then the year after that, I took physics and then no one... there were no other classes to stop me or change my mind, so I did physics in college. And not really knowing what I wanted to do, some of my physics professors had encouraged me like, well, if you don't know what you want to do, physics is the root of all the sciences, it's how we understand the physical world. So, until you figure it out, you can study physics, and then take it anywhere you want. And that is probably been the best advice for me, because I never really knew what I wanted. I took astronomy classes, I thought they were fascinating. I do remember - and this is some advice I give to students, and I see how true it is only now, but I did not fully understand it when I was in undergraduate - but I asked my physics professor, specifically, what physics class can I take to be a better physicist? And his answers were, communications. And I was like, that's not a physics class.

D David Staley 23:45

Wow.

W Wayne Schlingman 23:46

But I will say, I took business communications that year, and it's the class that I use every single day in my life, every single day of my life, because it was about email, cover letters, selling yourself, working with other people, it was all the skills that you need to kind of survive, and I was like, okay, I understand this. Because what he was telling me was that you can be the smartest person in the world, but if you can't express your ideas, you might as well be the dumbest, because you'll never get that idea out there. So, you might as well learn how to speak now and communicate with other people, because that's how you're going to be successful in life.

D David Staley 24:17

What was your dissertation on? What was the research about?

W

Wayne Schlingman 24:19

So, my research once I got to graduate school, because... so this takes me, a small tangent, is that I graduated and said, I never wanted to work with non-majors. I never wanted to study the solar system, and I never wanted to do quantum mechanics again, because I didn't like how I, how I thought about it. So, I got to grad school, and my first project was solar system analogs, so the asteroid belts around other stars, and then I started studying how non-majors learn astronomy and exclusively working with GE type students and the public. And then, I did radio astronomy, which is molecular quantum mechanics for transitions. So, my thesis in graduate school was about how the public, general education students, learn astrophysics when we're teaching it to them, and, like, what concepts do they get? What do they struggle with, what is challenging in that regard? And then, we also did a census of gas clouds in the Milky Way and how stars form. So, I got to kind of do those two thing. And then I was planning on taking a year off, and I never wanted to be an academic. So, six days into my year off, I was offered a job at the University of Colorado Boulder to fill in for someone else's postdoc that they had left, it was a fellowship for a Science Teaching Fellow. So, I went and I was working with their intro labs and studying how we were teaching and what the students were learning and these sorts of things. Fiske Planetarium at that time, also renovated same year as the Slettebak here at Ohio State, and I got some experience during opening about, how does this work, and I worked a lot with the students because they were also my learning assistants in labs. So, I got a lot of astronomy experience in the classroom, and in the planetarium, and then the rest of it was a friend that just twisted my arm really hard to apply for this Ohio State job. And I kind of fell in love with Ohio State once I got here. So, that's... that is how I made it from a kid loving all sciences, to somebody who never wanted to be a professor who didn't really ever see themselves at the university, because they don't fit in in the same mindset as a lot of faculty, to where now, I know I belong here.

D David Staley 26:17

You had mentioned earlier, the public today seems to be exhibiting a greater skepticism towards science. Is that... does that pose a challenge for you and your work, and do you see it, do you... I guess part of my question is, do you experience that?

W Wayne Schlingman 26:32

So, I have not experienced it in the same way that other fields might have experienced it, because I just show somebody a space photo and I have already won the whole day. So, it's a little unfair, because everybody's fascinated. They may want to... they may not want to believe me when I say that we have not been visited by aliens, because we don't have evidence that we have been visited by aliens. A lot of the pictures that we do get from people who are like, I saw something in the sky, oftentimes is either the planet Venus or the star Sirius, because there are the two really, really bright objects that you can see down close to the horizon. And they will blink, because they will flash due to the atmosphere. So, you get a lot of interesting images, and some people you're never going to really convince. But, you can tell them that what they have seen is real, because it is real, they got a picture of it. And it's not up to me to change their mind on whether it was actually just a drone over a public park, or whether aliens were flying above the neighbor's house. Like, that's not, I'm not going to change their mind on that one, but I can teach them about space. I can teach them about what else is out there, how they can participate in investigating what's going on, because in the age of astronomy and all

these digital equipments becoming cheaper and cheaper, people, for a moderate price, could go out in their backyard with a camera and a telescope and help follow up exoplanet transits. They can follow up supernova light curves and study how stars that have exploded are evolving with time and help out astronomers, like, they can actively contribute through citizen science. And so, there's a lot of empowering... I don't know, it's just, it's just empowering to have that out there for everybody to both participate and learn.

D David Staley 28:04

Speculate or think ahead, I don't know, a decade or so or two decades - what do you see as the future of the planetarium?

W Wayne Schlingman 28:11

So, the first stage to that future is probably going to be eliminating the projectors that we have at the center of the planetarium. When we started getting digital projectors, we went from coffee cans with holes in them in the cheapest planetariums where you could make, like, here's your constellations - star projectors were much more complicated than that, but the simplest ones really were just coffee cans with holes in them.

D David Staley 28:31

And a flashlight.

W Wayne Schlingman 28:32

And a flashlight. And then, we were able to go from there to a digital projection system, where everything is computer- based. And computer-based means that we no longer are stuck to the Earth. So, that means we can fly through the universe, we can bring that universe to anywhere we want to be, whether that is inside of a cell, filming a bunch of stuff that's live, whether it's the stars, visiting planets, they can go anywhere now. So, that was a huge revolution. And then, I think the next one is going to be removing our digital projectors and taking us up to, just like the Sphere, the next generation will be LED domes, which will create a... probably a richer experience, because the room can be darker, because you'll have the pinpoints of light back, rather than a digital screen. So, I think that'll be really cool. And then, where I really think that this is going to go is - or what I'm hoping for, is sort of a renaissance in what we think of the planetarium as. A lot of people think of it as a place where we go experience space, that's it, and I want to break out of that. At least on this campus, I have a mission to incorporate as much art and other sciences and storytelling, because that is the only thing that we do in the planetarium, is storytelling. I may be telling you about space, but it's just us having that conversation. So, I want to push beyond that and use it really just as an immersive environment to explore ideas. And if we think about the movie industry and how most of the movies are kind of lackluster anymore, we've already had the big transition to like, okay, we've seen everything big, so there's nothing really new anymore. So, we have to get back to what we do that's unique. And in the uniqueness of the planetarium, you have that immersive

environment, you have 3D like nothing else. So, what can we do to take that a step further and reach the audiences where they have a truly awesome experience that is different, that they can't get anywhere else?

D David Staley 30:17

Wayne Schlingman. Thank you.

W Wayne Schlingman 30:19

You're welcome, thank you.

E Eva Dale 30:22

Voices of Excellence is produced and recorded at The Ohio State University College of Arts and Sciences Technology Services Studio. More information about guests on Voices of Excellence can be found at go.osu.edu/voices. Produced by Doug Dangler. I'm Eva Dale.