KESSLER FOUNDATION Podcast Transcript

Touch the Stars - Accessible Astronomy with Noreen Grice

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JOAN BANKS-SMITH: 00:11	[music] Did you ever stop to think, "I wonder what the surface of the Moon or Saturn's rings feels like? What it feels like to touch the stars or the planets"? Join our host, Jessica Ganga, communications and digital media coordinator, on a journey with Noreen Grice, astronomer, author of Making Astronomy and Space Science Accessible for All and founder of youcandoastronomy.com. Get ready to touch the stars.
JESSICA GANGA: 00:47	Welcome, Noreen. We're very excited to have you on the podcast.
NOREEN GRICE: 00:50	Thank you for inviting me.
GANGA: 00:52	How did you get your start in the field of astronomy?
GRICE: 00:56	I have been interested in astronomy since Star Trek came out when I was very little. That got me interested in space. And then I think what really got me interested was, in third grade, my teacher, Mrs. Doucette - I remember her - she put a box on her desk, and she said, "This is going to be a little classroom library box so people can come and borrow books." And one of the books was called the Golden Guide to Stars, a little paperback. And I remember opening that book and looking at the pictures of the constellation, and I was like, "Wow. This is great." And I kept borrowing that book, so I'm not sure anybody else from the class got to borrow that book. But I thought astronomy was really cool, and especially when we took field trips to the planetarium at the Boston Museum of Science, that was amazing. I could not believe the stars surrounding us in the room. And then I couldn't believe, one day, I was conducting those shows there because I thought only very important people could work in a planetarium. I never thought that a regular person like me could do that. And I became a planetarium presenter and operations coordinator of that planetarium.
GANGA: 02:11	And now how did you take your experience from working in astronomy, working at the planetarium to journey into the world of accessibility? So essentially, what led you to write this book?
GRICE: 02:25	I had just started working at the Museum of Science, and just a few weeks on the job, one day, I was taking tickets, and a group of blind students came to the planetarium program. And I didn't know anyone who was blind at that time, but I was a little nervous. And I asked the manager what to do, and he told me I should just help them to their seats. And that's all I had to do. And I did that, and I started the preprogrammed planetarium program. And so I sat at the console during the show, and I kind of wondered what those folks thought of the show. So at the end, as they approached the control booth, I came around, and I asked them, "How'd you like the show?" And I figured they'd say, "Yeah, that was all right." That's not what they said. They said, "This stunk," and walked away, and that was like someone throwing a brick at me. I was floored. I was like, "Oh my gosh, something just went terrible," and I really wanted to understand it. The next day or so, I hopped on the bus to [Water, Mass?] to the Perkins School for the Blind, and I wanted to understand why blind

people weren't interested in astronomy. But the answer was at the library. The librarian directed me to bookshelves of Isaac Asimov astronomy books, all in braille with no pictures. And then I realized it was the pictures. They had no access to the images projected on the dome overhead. And I didn't know how to fix that, but I was going to try, and that started me on a journey to making astronomy more accessible to people with visual impairment.

GANGA: 04:03 So how did you approach creating your first book, and what materials did you use to create the pop-up effects that we see in You Can Do Astronomy?

GRICE: 04:15 I didn't really know what I was doing at first. So at first, I thought, "Well, I'm going to write a little brochure about astronomy, and that'll be available in the planetarium." It ended up to be a directed study at Boston University because it was my senior year when this happened. I was a work-study student at the Museum of Science while going to Boston University, but I needed to figure out how to make pictures. At that time, back in 1984, I was told by an elderly woman who was making tactile pictures you had to glue string to cardboard. I thought there had to be a better way, but there wasn't in 1984. But when I finished my graduate degree in astronomy and came back to Boston, I was able to get a braille printer. So I had originally started hand etching on plastic sheets raised up pictures of the planets and the rings of Saturn and the phases of the Moon. And once I got this braille printer, I was able to print out multiple copies, and that actually became the first set of pictures for the first edition of Touch the Stars.

GANGA: 05:28 We have a copy of the book, and it was really interesting to flip through it and to feel, for example, what Saturn's rings felt like. Well, how did you use your background in astronomy to translate what the Moon or what Saturn's rings felt like? Because I'm assuming you haven't been there. [laughter]

GRICE: 05:50 That's right. I have not been to Saturn or checked on Saturn's rings, but I knew what astronomical objects look like visually, and I spoke to visually impaired people. And what I needed to do was to translate what I saw into their mind's eye. So it was basically a lot of iteration. I'd make some pictures. I'd show it to some visually impaired people, get their response, find out what they were seeing by touching it, what they were seeing in their mind's eye, and finally, getting to the point for each picture where what I wanted to be displayed was displayed in their mind's eye.

GANGA: 06:29 I think you touched upon this. You consulted with people with disabilities while creating the book.

GRICE: 06:37 So I didn't really know anyone who was visually impaired, although I had gone over to the Massachusetts Association for the Blind to talk to them and the Perkins School for the Blind. So I was able to find a special education teacher and his student who is visually impaired in Boston, and they were the first people to give feedback on the pictures. But then I started noticing at the museum, every once in a while, there would be someone who was visually impaired or blind, would come with a group, and usually, they'd be sitting on a bench. And I feel like at that time, some of the staff

were sort of walking away because they didn't know what to do. But whenever somebody came in with a visual impairment, I was actually like, "Where are they?" And then I'd go over and say, "Could you help me?" And every time, people would say, "Yes, I'd be very happy to help you." And so I was able to get feedback from lots of different people, from adults, from children, from students. And it was that feedback that really helped me better understand how to design tactile pictures.

GANGA: 07:43 It's great that you were able to get the opinions of essentially your audience. What were the types of materials used in the book? I noticed that there were, I guess, different types. And was there a reason why you chose the materials that you did to create the book?

GRICE: 08:02 In the materials, do you mean the physical material of the pages or the topics?

GANGA: 08:08 The physical materials, yes.

GRICE: 08:10 Right. So I started out-- well, I started out hand etching plastic pages, which took a long time. And it was one copy, and it might take a month to do one picture. Then I was able to get this braille embosser at the museum and start really mass producing copies. And it was because of that that I-- and I had been working on text for Touch the Stars. So we were able to combine that and print that with National Braille Press. And so for the first three editions of Touch the Stars, the pictures were made with this braille embosser. And then starting on the fourth edition of the book, I was contacted by a person at National Braille Press who was in charge of the Braille Book Club for kids and said, "I have a little company in New York who would like to work with you to redo those pictures on thermoformed plastic. Then they can have high quality tactile pictures, and we can also mass produce copies." And so starting with the fourth edition - and the fifth edition just came out this year - it is on that material. So that is called thermoformed material.

GANGA: 09:24 You mentioned other books. I think the one we have in-house is Touch the Stars. How many publications do you have that people can purchase?

GRICE: 09:34 My company is You Can Do Astronomy. The first book is-- yeah. The first book is Touch the Stars, which is now in its fifth edition. That is directly available through National Braille Press. I have another book that is also available called Everyone's Universe: A Guide to Accessible Astronomy Places. That is available through Amazon. I've worked with NASA on some books. Unfortunately, those books are now out of print, but sometimes you can find those copies in public library or for resale through eBay-- not through resale by me, but through other people. But let me tell you those titles in case people are interested. The first NASA book is Touch the Universe: A NASA Braille Book of Astronomy. It's about the Hubble Space Telescope and images that Hubble has seen because those images from the Hubble Space Telescope were not accessible prior to that. The next NASA book was Touch the Sun: A NASA Braille Book about the Sun, different aspects about the Sun. And the third NASA book is Touch the Invisible Sky: A NASA Braille Book with Multivariant Tactile Images. And so those are images that are not seen with the human eyes. So these three NASA books

have been very popular, unfortunately, currently, out of print but probably available in a local library because they did go across the country.

GANGA: 11:06 You've worked with NASA. Can you tell us what that was like and exactly how you assisted them in terms of accessibility?

GRICE: 11:15 Yeah. I love working with-- NASA scientists are great, very excited about their research and about sharing that with the community. So I worked with NASA scientists on those three books, Touch the Universe, Touch the Sun, Touch the Invisible Sky. But I also worked on some exhibits. I worked for the scientists at Goddard Space Flight Center on the Solar System Radio Explorer Kiosk. It's a big name for a kiosk, which is actually at the Goddard Visitor Center. So people can learn about Jupiter and the planets by listening to different sounds and touching tactile panels. And then NASA had a series of traveling exhibits, which I designed the tactile images for - and they still may be traveling around - called From the Earth to the Solar System, Here, There and Everywhere, and Light: Beyond the Bulb. So that was a kind of really different experience designing not just images for books but for displays that people would be feeling around the country.

GANGA: 12:23 From talking to you, I can already sense your own passion with this and with the books. For you, what is it like knowing that people that are unable to see the stars get a chance to experience them, for example, being able to feel what the Big Dipper looks like?

GRICE: 12:42 Well, I think that any teacher or any educator can relate the joy of connecting information with students. For me, the joy is reducing barriers to learning so people can have their own journey of discovery. And there's one moment in time that this brings back to me. When I was testing the pictures for Touch the Invisible Sky, was testing them with a group of blind students with the National Federation of the Blind, and the pictures are in color, and they have a tactile overlay to them. And I was passing out the pictures and asking people's opinions. And some of the students had low vision, so they could see but very close-up. And some students were completely blind. And I remember one student said, "I really like the colors. The contrast is really helpful for me." And then another student said, "Wait a minute. Are you saying that sighted people can use our book?" I thought that was really profound because my goal has always been to reduce barriers so people can use the same materials and it's not like, "This book, for you, and this book, for me," but it's, "The book that is our book." That's always been my goal.

GANGA: 13:57 I agree with that completely. When I was going through the book and I wanted to experience what I would be talking to you about and I was feeling the photos, it was interesting because I don't have a background with astronomy. And as you mentioned too, I have not been to the Moon, so I don't know what it would feel like. So it was another level of understanding, which is really interesting. With this experience, what have you learned about the importance of accessibility in different industries?

GRICE: 14:34 Well, companies that make their services and goods accessible, I think, are the most successful because there's really a large population of underserved customers. And just thinking about the aging population or people with different abilities, when something is universally designed and accessible for all, it's really a success. So I think that companies should really think about not so much a targeted market but really a broader market for bringing in more people and being able to enjoy those goods and services.

GANGA: 15:15 What future projects do you have in the works that you would like to share with us today?

GRICE: 15:20 Well, I'm currently working on an educational project that I can't talk about until 2022, but I will say it's been an interesting year because in addition to my consulting work, although I'm not working in a planetarium now, I have remained closely connected with the planetarium community. And this year, I was selected as the new president elect of the Middle Atlantic Planetarium Society. So I think that's going to give me great opportunity to connect with more people, more educators, and be able to bring a mindset of making science more accessible to a larger population.

GANGA: 16:03 Well, a big congratulations to you, Noreen. That's exciting to hear. We'll definitely be looking out for your future projects in the year to come, and we'd like to also thank you for taking the time out of today to speak with us about your book and the phenomenal work that you do. [music] Thank you.

GRICE: 16:24 [inaudible]. Thank you for inviting me, and I'm very happy to speak to you about this. If people are interested in learning more about accessible astronomy, they can go to my website, www.youcandoastronomy - it's all spelled out - to learn about some of the products, services, and projects I've been working on.

BANKS-SMITH: 16:46 This link along with others will be in the program notes. This is John Banks- Smith, the show's engineer and producer. Stay tuned for a couple of bonus questions I got to ask Noreen. Tuned into our podcast series lately? Join our listeners in 90 countries who enjoy learning about the work of Kessler Foundation. Be sure and subscribe to our SoundCloud channel, Kessler Foundation, for more research updates. Follow us on Facebook, Twitter, and Instagram. Listen to us on Apple Podcasts, Spotify, SoundCloud, or wherever you get your podcasts. This podcast was recorded on September 28th, 2021 remotely and was edited and produced by me, John Bank Smith, creative producer for Kessler Foundation. Here's my bonus cut. Noreen, you'd mentioned travel exhibits. Do you happen to know if any of them are in the planetariums right now?

GRICE: 17:45 The information about the exhibits, they're run to the Chandra X-ray Observatory site. The other thing, I think it would be great to encourage people to visit their local planetarium because the educators there are so passionate about astronomy and they really want to help people in every way learn about the night sky. So I can't say enough about, "Visit your local planetarium."

BANKS-SMITH: 18:11 During the lockdown, of course, everyone realized, "Oh my gosh, we can actually see things in the sky that we couldn't see before."

GRICE: 18:20 Being locked down, people were looking for things to do online, things to do in the [house?] - so they were getting a little stir crazy - and things to do outside. And it seems I read that telescopes are a big seller last year, so people [inaudible] slowed down and taken the time to look up and to learn about things happening in the sky. Last year, there was a comet visible. I remember I kept trying to find the comet. [But I was?] surrounded by trees in my neighborhood, so I had to actually drive down the street, and I found it, yeah, next to a Kohl's store. In fact, that comet was lined up with the K. It was really strange. Yeah. And then we had, let's see, a partial solar eclipse that was visible. There's been some conjunctions with planets. Things are always happening in the sky, but people are always so busy and rushing around. And I think it provided the opportunity for people to slow down and see what's going on. And I think people are-- I think more people are interested in astronomy now because it's sort of in tune with nature and in tune with the night sky and their place within the universe.

BANKS-SMITH: 19:38 The eclipse that happened a couple of years ago, I got to go out to Tennessee. It was just an amazing event. We drove for 24 straight hours trying to coordinate to find just the right location. We ended up going to this truck stop, and we got a prime spot. My husband set up his telescope, and then we waited. And then the eclipse started. Everybody was silent, and then it came over us, and everybody was just like, "Oh, my gosh." It was different, not something you would experience in everyday life. I don't know how long it lasted, but then as quietly as it came, it left, and it was just an incredible experience.

GRICE: 20:18 Well, I have actually a similar experience. So my husband and I were with the group from the Amateur Telescope Makers of Boston, and we flew down to Missouri because we were going to watch the August 2017 eclipse from Missouri. And the night before, weather showed the storm clouds were coming in. So it was very doubtful that we could watch the eclipse from where they had set up. So they hired some buses, and at 2:00 in the morning, these buses pulled up to the hotel, and they said, "Listen, everybody, make your own decision. If you want to stay here and see if you can see the eclipse, okay. If you don't, get on the bus." So we got on the bus with no destination. It was basically, "Drive east." We drove east. We drove into Illinois. We didn't know were the bus-- we had three buses, didn't know where we were going. And then we pulled into a truck stop - it was a little one, much smaller than on a highway - to use the bathroom, get something to eat, and then simply noticed across the street was this church, and a couple of people had a telescope set up on the lawn. So we ran over to the church and said, "Could we come on the lawn?" And the church said, "Yes, come on over." And suddenly, we were all spread out on the church lawn, and that's where we saw it.

BANKS-SMITH: 21:40 Sit back. Close your eyes, and enjoy our space music as this journey ends. [music]