

## AirSpace Season 1, Episode 4

### Remembering Stephen Hawking

Nick:

We're here today to discuss the life and legacy of Professor Stephen Hawking, who passed away this week at the age of 76.

Matt:

If we do discover a complete theory, it should in time be understandable in broad principle by everyone, not just a few sciences. Then we shall all philosophers, scientists, and just ordinary people, be able to take part in the discussion of the question of why it is that we and the universe exist? If we find the answer to that, it would be the ultimate triumph of human reason for then we would know the mind of God.

Nick:

That was Matt at some length spoiling the end of A Brief History Of Time by Professor Stephen Hawking. Confession, I have not read the book.

Matt:

Well, let me give you a little treatment of it, a brief treatment-

Emily:

A brief-

Matt:

A brief history of A Brief History Of Time-

Nick:

A brief of briefing of A Brief History Of Time.

Matt:

It is the executive brief of history of time. So it is a book about the search for a unified theory of the universe, of his quest to unite quantum mechanics with general relativity, which are both incredibly heady and complicated concepts that maybe Emily can describe to us. But-

Emily:

The physics of things that move really, really fast and are really far away and are really big. And the physics that of little tiny particles that are smaller than atoms in most cases. And they, in many ways, have a lot of similarities but have a lot of differences and complexity.

Matt:

It's also a story about humankind's pursuit of the big questions about, what is the world we live in? What is the universe that we live in?

Nick:

What was your first memory of Stephen Hawking, you guys?

Emily:

Stephen Hawking wasn't somebody who was in my general consciousness until I hit college, when I started to contemplate or kind of fall into my physics department and decide to make physics my major. At which point, because I was really focused on physics as a way of understanding astronomy and astrophysics, of course, Stephen Hawking started coming up because he was such an important... I was going to say relevant. Relevant to relativity.

He was such a relevant figure to what I was studying at that moment. Very accomplished in this sort of field of theoretical astrophysics, sort of theoretical cosmology.

Nick:

Matt, your earliest memory of Stephen Hawking?

Matt:

Well, I think I first encountered Hawking when I was in high school, through a documentary that was probably shown to my class either by a physics instructor or a math instructor. I was just struck by this incredible charisma. I mean, even though to communicate, he had to use his computer and he could usually only do about, I've read, six words per minute in composing a sentence, that charm charisma and intellect made you really want to know what it was he had to say.

So even though he's sort of an unlikely communicator of science, he was incredibly effective at it.

Nick:

He was an outsized figure in a number of different ways. And I had read that he did have a really keen sense of humor. My first memory of Stephen Hawking was Star Trek: The Next Generation. He played himself on an episode and he was in a scene where he was playing a poker game with Commander Data, but also a bunch of other iconic scientists from history. And the episode opens with him in the middle of telling a joke. The punchline of which is, in that frame of reference, the perihelion of Mercury would have recessed.

Stephen Hawking:

The perihelion of Mercury would have recessed in the opposite direction.

Nick:

Einstein then attempts to explain the joke to sir Isaac Newton, who gets very upset at being condescended to.

Isaac Newton:

Do not patronize me, sir. I invented physics. The day that apple fell on my head, was the most momentous day in the history of science.

Stephen Hawking:

Not the apple story again.

Nick:

And Hawking playing himself, really does steal that scene. You really do get the sense that he has a seat at the table with Isaac Newton and Albert Einstein.

Matt:

And that kind of appearance in popular culture, wasn't something that he shied away from. He did it many times. I mean, you can think of him appearing on The Simpsons.

Crowd:

Stephen Hawking.

Speaker 9:

The world's smartest man.

Nick0:

What are you doing here?

Stephen Hawking:

I wanted to see your utopia, but now I see it as more of a Fruitopia.

Speaker 9:

I am sure what Dr. Hawking means is-

Stephen Hawking:

Silence. I don't need anyone to talk for me, except this voice box.

Nick:

Most of the time when he shows up, he is telling a joke, he's not there to, sort of, act serious and be the scientist. He's there to be his own winning personality. And also on the Big Bang theory-

Dr. Cooper:

Professor Hawking, how nice of you to call?

Stephen Hawking:

Hello. I really enjoyed our game, Dr. Cooper.

Dr. Cooper:

Me too.

Stephen Hawking:

Or should I say Dr. Loser?

Dr. Cooper:

Yes, congratulations. You won fair and square.

Emily:

I think that's one of those things that, to me, is so engaging about him, I mean, of course it's his personality. It's his sense of humor. But when you think about what he was first known for, right? It's his science. And when you think about a scientist, any scientist, whose work exists in the theoretical realm, it's such a contradiction, your stereotype of a theoretical scientist and somebody like Stephen Hawking, who has an enormous personality and who can, and is willing to communicate about his work and about his field with anybody who he can engage. And it's not about making it all referenced and convoluted and precise. I mean, you look at A Brief History Of Time, you all, this book is like half an inch thick. It is actually a brief book when you think about books.

Matt:

Right? And even though it has multiple diagrams, it only has one equation in the entire book. It's about as accessible as a book about this subject of unifying quantum mechanics and general relativity can be.

Nick:

More on that after the break... Professor Stephen Hawking, threw a party for time travelers, got a banquet hall. He had a banner printed that said, "Welcome, time travelers." He had a pyramid of Champagne. The following day he sent out the invitation.

Emily:

I wonder who he sent the invitations out to-

Nick:

General invitation to everyone. It's a public invitation. You are cordially invited to a reception for time travelers hosted by Professor Stephen Hawking to be held in the past, at the University of Cambridge, Gonville and Caius college, June 28th, 2009, no RSVP requested.

Emily:

Could you imagine if somebody figured out how to show up?

Nick:

What would you wear to a Stephen Hawking's time travel party?

Emily:

The biggest grandest, best thing I could get or rent or borrow.

Matt:

I thought you don't do fancy dress.

Emily:

See fancy dress in the British sense?

Matt:

In the British sense.

Emily:

No.

Matt:

Fancy dress in the American sense? Absolutely.

Nick:

He said nobody showed up but what if they had a good reason to keeping that a secret.

Matt:

What if future him showed up and told him, "Don't tell anybody."-

Nick:

This is what I'm saying. I'm just saying, if the stars align, we all need to know what we're going to wear to that party if somebody shows up and says, we're headed to Cambridge, put on your party hat.

Emily:

If somebody came out with some kind of tell all, where they showed his safety deposit box, and there was some unbelievable secrets stored in that safety deposit box that he had sort of scrolled away for this moment-

Matt:

You're making me think of Al Capone's vault. Do you remember that special?

Emily:

Are we really going to conflate Al Capone with Stephen Hawking? Matt went there. I don't think you could surprise me that he has a safety deposit box somewhere with some pretty serious secrets sitting in it about what we haven't figured out yet, but he figured it out or he figured out most of it. And just didn't have that one little ingredient to kind of make it all come together. I would never be shocked if you said that he had that little secret vault somewhere.

Nick:

Is that a statement of his legacy that it was so big and so far reaching that you are still thinking that there might be more to come?

Emily:

I think that's how big his science is. I think that's how big his influence is. I think that there is going to be something that in 33 years from Pi day 2018, March 14th, three one, four or 3.14, which is a constant, it's a mathematical constant called Pi, we are going to go, "Oh, my God, he figured this out already."

Matt:

Well, what I'm going to predict is that there's going to be a lot of historical attention paid to him over the years from now. That it's going to be very similar to the attention that historians have paid to Einstein, because he's very much like Einstein in a couple of ways, one of which he reached the same sort of level, or maybe even a greater level of celebrity than Einstein was, arguably the first scientific celebrity. I mean, you can see posters of Einstein sticking his tongue out.

You can see baby Einstein in the American Association for the Advancement of Science promo campaign from what was that? 2011 or something like that. So you see Einstein everywhere, whether it's like a little plush toy or a poster or his books that are still available in bookstores. And I think you'll see something similar for Hawking as time goes on. They both, sort of, changed our perception of what the universe is and how it works.

Nick:

Emily, do you think something will be named after Stephen Hawking in the future? Planet? Asteroids? Sun? Black hole? Spacecraft? Telescope?

Emily:

It's hard. We've got the James Webb Space Telescope will be the telescope that follows the Hubble Telescope. Because it takes so long to put these instruments together, scientists are already starting to talk about what's going to happen after the James Webb Space telescope and I believe it's called WFIRST. We're going to just not talk about the politics and the funding of that project. I would venture a guess or a prediction that some instrument or some part of that mission will be in memory of Stephen Hawking and may carry his name.

Matt:

That's really fitting too, because I think as these telescopes are progressing, we're seeing further and further out into the universe. The further you look, the older the lights. So you're basically looking further and further back at baby pictures of the universe.

Emily:

That's a good way of thinking about it, baby pictures.

Matt:

And I think that is something that Hawking is probably would be sad that he's going to miss out on.

Nick:

This has been a special episode of Airspace from the Smithsonian's National Air and Space Museum with help from PRX. This episode was made possible in part by the Alfred P. Sloan Foundation, enhancing public understanding of science, technology, and economic performance. More information on [Sloan@sloan.org](mailto:Sloan@sloan.org).

Nick2:

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