

LOOK UP!

OR LOOK DOWN — NEIL DEGRASSE TYSON WANTS YOU
TO BE SCIENTIFICALLY LITERATE *by Rachael Carnes*

Dr. Neil deGrasse Tyson inspires millions, not with hype and bravado, but with intergalactic levels of cool.

Through Tyson's work as an astrophysicist, author, museum director, television and radio host, even the most novice among us can imagine the birth of stars; we can envision dwarf planets and ponder the very structures that define our home, the Milky Way.

Simply put, he makes science accessible and fun.

And local audiences will have a chance to see Tyson in person, when "Neil deGrasse Tyson: An Astrophysicist Goes To The Movies" lights up the Hult Center 7:30 pm Thursday, June 16.

When I reached Dr. Tyson at the Hayden Planetarium in New York City, we chatted about when I was a really little kid at The Field Museum in Chicago, where my mom was the education director, and how when we came to Eugene in '78, it was so she could become the director of the University of Oregon Museum of Natural and Cultural History here. ("Wow, your mother gets around!")

I told him about Eugene's own bike path solar system, and Tyson had questions: "How big's the Earth? What'd they use for the Sun?"

We talked about the Willamette Meteorite, and I asked him if he could finally explain the Missoula floods, because I've been looking at that darn replica for 30-plus years, and I never really understood how the original got here.

So, Tyson patiently explained deglaciation to me, prefacing it by saying, "Now, this is not my area of expertise, but from what I understand..."

And at the end of our conversation, when I was thanking him, he said, "And thank your mom from me, for her lifetime of dedication to museums."

What can I say? The man really is that awesome.

How do we encourage the next generation to connect with science and inquiry?

Oh, I've been focusing on adults, because they outnumber kids five to one, they're in charge and they vote. They allocate resources, and they sit on school boards. So, this concern for the next generation would be solved overnight if we had a scientifically literate adulthood. We don't. So to say, "Let's make all the kids scientifically literate," which is an important goal — I'm too impatient to wait 30 or 40 years until they're old enough to be leaders. And kids are always curious about the world. They're born scientists, whereas adults have had it beaten out of them over the years. The problems in society are really from scientifically illiterate adults.

We have compulsory public education in this country, but still, according to a January 2014

Gallup poll, "More than four in 10 Americans continue to believe that God created humans in their present form 10,000 years ago." As a scientist, how do you explain this phenomenon?

So, in a free country, people can believe what they want. The problem comes about if what you believe is not founded in objective reality, and you have the power to make legislation based on it. These are the seeds of the undoing of an informed democracy. If 40 percent of people want to believe that God created humans in our present form, and again, we have a free country, they should believe what they want. But no one should confuse that for science. Because it's not science; it's religion. And so your science classroom, that's the place where you teach people science, and then the person can choose what they want to do with their lives. They could lead a life of a religious person — that would be a fundamentalist religious person.

The Catholic Church has no problem with evolution, by the way. There are branches of modern religion that don't have issues with any of this, of science to proceed as it is. But if you create a society where people do not know what science is, or how and why it works, then you are basically bankrupting the future of the country in the 21st century, where literacy in science in STEM [science, technology, engineering math] fields will be the foundation of tomorrow's economy.

If only for a day, what wavelength would you like to add to the human visual spectrum, and why?

Oh, maybe I'm greedy, but I want to add more than one wavelength [laughs]. But if I had to say what band, I would add microwaves. That would be just really cool, because you would see every cell phone light up, you'd see cell phone towers light up on the horizon, and you would just see the world as microwaves would see it. And we have exploited microwaves for our own gains, primarily for communication, but also microwave ovens. You'd see microwaves passing through walls, because that's why you can have a cell phone conversation indoors. It would just be a cool thing to notice.

Tell me about the intersection between science fiction and science.

There's good science fiction, and there's bad science fiction. And the good science fiction knows where science is, at any given moment, takes you there, and then goes beyond it. And if you're good, you can do that, and then the story is stronger for it. If you don't know much science, you really shouldn't be writing science fiction. You should write some other kinds of stories. And the role that science fiction has played has been quite stimulating. It's a force on our imagination.

The worlds of Star Trek and Star Wars require artificial gravity. Where are we with that?

Well, *Star Wars* has no science in it, so just forget that [laughs]. But on *Star Trek*, they have a way to recreate gravity on the ship. And in other science fiction films that are less phantasmagorical, they create gravity by rotating a spaceship. They did that in *2001: A Space Odyssey*, they did that in *Interstellar*. So you rotate this wheel, and you live on the perimeter of that wheel, where there's artificial gravity, and that way, you can travel long distances through space, without the downside of having to live in zero G.

Did your parents and family encourage your interests?

No, none of them encouraged anything. They supported interest after they saw it. It's a subtle distinction, but an important one. There are many parents who have in mind what they want their kids to be interested in. They'll buy them the chemistry set, or the microscope, buy them the