

telescope, or get them the medical equipment to get them to think about becoming doctors. My parents had no such force on me, my brother or my sister. They would take us around to various cultural institutions: the zoo, the natural history museum, the science museum or even other places where adults express highly-honed talents, like on Broadway, or the opera, or the symphony, or even hockey or a baseball game. So we were exposed to what talented adults could do. And then later on, we would reveal in ourselves where our interests would fall. And for me, it was the universe, traceable precisely to a visit to the Hayden Planetarium, my local planetarium here in New York. So, once they saw that, then it was supported. So maybe that's the same term as "nurtured," but they did not try to get me to do anything. It happened completely from natural causes.

***As a kid growing up in the Bronx, how did you spend your summers?***

In the summers growing up, we went away to camp. In the city, you know, you don't have rolling hills or any thing that country folks might take for granted. So we went away to a sleepaway camp. There was a lake, and we lived in a cabin, so it exposed us to things that are not particularly urban, just to broaden our life experience.

***Do you have a hobby?***

I have many hobbies, I would say, and not in the traditional sense. But there are things I like to do when I'm not doing other things: I like going to see Broadway plays and musicals; I like going to see the symphonies and the opera. I like reading very old books, to see how people used to think about things many centuries ago. I like playing with — I have a small collection of fountain pens, I don't know, I just like playing with my fountain pens [laughs].

***My husband has a collection of fountain pens. I get it.***

It's a little fascination, my own private thing [laughs]. And I don't force it on anybody else [laughs again]. Most of the time, I pull out writing paper, it's usually from an art book, that's the kind of paper that works well for this, and then I write. And if I'm invited to give any speech, I always write it with a fountain pen first.

***What is the most unexpected thing you have found in your years of research?***

Well, there's not only stuff that I researched but also what others have researched. And I didn't expect anybody to find dark energy. I thought that was going to be a ghost.

mission to point the telescope, and the data was obtained, and we're still analyzing the data. This was many years ago. It was a very fertile observation, a huge collaboration.

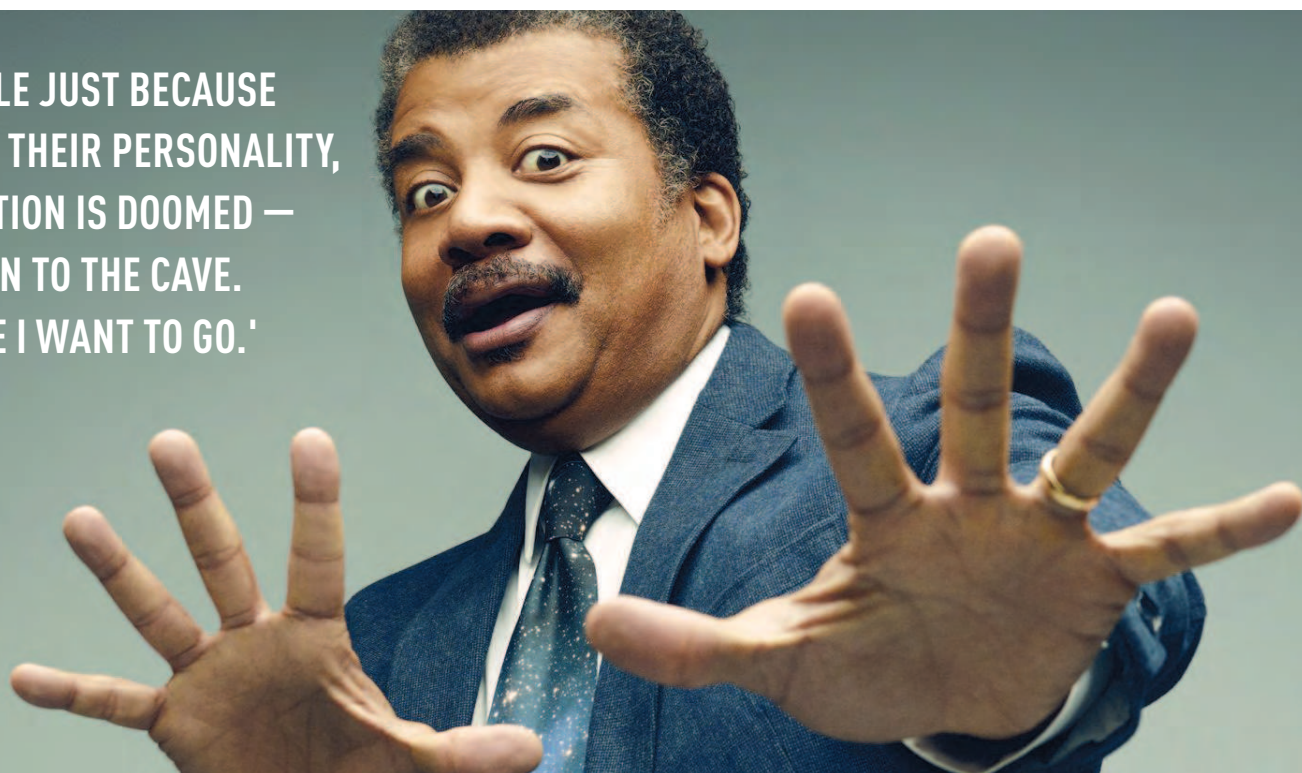
***What might be a step to a brighter future for the human race?***

If we elect scientifically enlightened leaders. Without it, we're doomed. I want them to know what we do when the asteroid comes. I want them to know what we do when we run out of energy. In fact, I want them to know what to do so that we *don't* run out of energy, so that the asteroid *doesn't* come. If we elect people just because we think we like their personality, then the civilization is doomed — doomed to return to the cave. That's not where I want to go.

***Earlier peoples looked to the stars for signs and signals, but now we can just ask Siri where's a good place to get tacos. So, tell me about the relationship between celestial phenomena and values and beliefs.***

We've gained the knowledge that thinking the universe affects our daily lives is false. We've gained the wisdom, from applying the methods and tools of science, to know what the correct answer is to something, rather than having

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***Do you have a hero?***

So, I have people whose talents I admire, and maybe that would count as "hero" by many definitions. However, there is no one person that has all the talents that I seek. I get a *leettle* bit of one person and a *leettle* bit of another, and I cobble them together, and then I make one hybrid role model, if you will. And that way, I'm not beholden to weirdnesses that might exist in one person and not another. "Oh, this athlete is my role model! Oh, they got busted for drugs!" [laughs]. I don't care about the rest of their lives. I don't care about anything else — just their athletics — or their ability to solve equations, or just their capacity to explore. And these aspects of a person's profile and personality are what I've put together. So my role models are ... à la carte.

***Looking back over your career, has your motivation changed?***

Motivation. If you don't have it, it might seem hard to figure out how to get it. But if there's something that compels you to want to learn, then the motivation comes for free. For example, let's say you're demotivated regarding mathematics in school. You can't get up the interest. But then someone says, "Here's something that's going on in the universe. The universe began with a big bang, and it was 10 to the 30th degrees temperature and it expanded rapidly, and out of this came space, time, matter and energy," and you say, "Wow, I wanna know about that." Learn the math. Now you're compelled to learn the math, so that you can achieve this other end.

But we found it in the late 1990s. I didn't find it, but colleagues of mine found it. And dark energy is something that was imagined could be there, but we figured it probably wasn't. It was predicted by Einstein, and then ... there it was. And now we still don't understand what it is, but we've found it. It's a frontier.

***Tell me about the Hubble Space Telescope — 26 years is a long time for any machine, although my stove is from 1953 and still fires up great.***

Except of course machines get repaired, and Hubble was repaired five times. And had it not been repaired five times, it would have been dead in the water after three years — literally, dead in the water. It would have been de-orbited and fallen into the Pacific.

***How do you feel about this scientific instrument? Do you ever get to decide where to point it?***

There are people who have come of age with the images from the Hubble telescope. They've only ever known the Hubble. And we can understand, then, why people in their 20s and 30s feel so emotionally strong for it: They've been seeing pictures from it since they were children. When they learned that we were not going to repair it for the last time, the largest cry to have it preserved was by the public, not even by the scientists.

***Did it work?***

Yeah, finally there was a last repair mission, and Hubble's still going strong. I have been part of a Hubble

a belief system tell us how to run our lives. So to think that the cosmos influenced your life, and somehow controlled it, is a psychologically immature state. It's the same state as a child has, when the child thinks that the person in the television knows them personally. When the child thinks that the whole world is sort of created just for them. I remember thinking this, at my fifth birthday party: There was a candle that was in the shape of the number five, and I asked my mother where she got it. And she got it at the local store. And I remember thinking, "How did they know it was my birthday?" You're not thinking about anybody else, you're thinking that it's all for you. And you outgrow this. As a civilization, we outgrew that.

***Are there any natural places, or slices of the sky, that you have a particular affinity for?***

I feel strongly when I'm on the top of a mountain, and I'm above the cloud layer, and I'm looking up at the night sky, and then I have access to a telescope that's snatching photons of light from their appointed waves, and they land on my detector, and from there I decode the nature of the universe. This is a deep feeling.

***Why should we "keep looking up"?***

I will never tell people what to do. Keep looking down, go ahead. It's a free country [laughs]. If it comes and strikes you in the ass, don't say I didn't warn you.

*Catch "Neil deGrasse Tyson: An Astrophysicist Goes To The Movies" 7:30 pm Thursday, June 16, at the Hult Center \$65-\$93.50, with VIP packages available; hultcenter.org.*