

Commencement Address -- Monmouth University

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Thank you President Dimenna, Trustee Spicer Toto, and the entire Board of Trustees of Monmouth University for this wonderful honor.

Many thanks to Gloria Brown-Simmons in the Chemistry and Physics Department for her nomination of me.

And good afternoon and *Congratulations to the Graduating Class of 2019!* I am delightedl to have the opportunity to speak to you on your special day.

I'm going to begin by telling you something about myself.

When I was a young teenager, I was very much a seeker, asking some very big questions, like, "What is the meaning of my life?" and "What am I doing here?" I was so mystified and depressed about whether my own existence had any significance at all, and I went in search of answers.

I looked first to ancient philosophies like Hinduism and Buddhism, and later to more modern philosophies like Existentialism. And when I found no answers in any of that, I changed course, and my questions turned from "What am I doing here?" to "Well, where is here?".

And I set out to understand the universe itself.

I went to college and graduate school to do just that, and by the time I was done, while the meaning of life still eluded me, I was on my way to a career as a planetary explorer.

Over the course of that career, as you heard, remarkable, life-defining opportunities came my way ...

- . from earning a spot, right out of graduate school, on the best interplanetary mission of them all ... the Voyager mission to outer solar system and beyond,
- . to our 13 years at Saturn with Cassini, taking hundreds of thousands of spectacular images of everything in the Saturn system,
- . to being a consultant on two great movies ... Carl Sagan's "Contact" and the 2009 reboot of "Star Trek".

Looking back on it all, these things I got to do seem like some kind of crazy magic, and I can barely believe they describe the life of me ... a girl from the Bronx, a daughter of immigrants, and born into a lower middle-class family. It hardly seems possible.

I'm just glad that I had the chutzpah to take advantage of all these opportunities, and that I was prepared to do so.

Which brings me to my message to you ...

Back in 1974, when I was, like you, ready to graduate, I had absolutely no way of knowing how far and wide my quest to understand the significance of my own existence would take me.

Well, as you saw, it took me all the way to the outer solar system. And you've got to admit: that's really far!

Likewise, none of us has any idea what's in store for you. But right now, things are looking really good for you. Because you have just accomplished something great, just by doing what you had to do to get to this moment: You proved to yourself and to others that you could set yourself a goal and meet it, and you now have a high quality education to show for it.

And, you probably don't realize it, but in that process, you have learned the most valuable skill there is. That is, you have learned *how* to learn, and knowing how to learn is a skill that will carry you through every unfamiliar situation in your future life, both personal and professional, and into fields and disciplines that haven't even been invented yet.

So, consider yourself prepared ... prepared to meet new challenges, to solve difficult problems, and make the best of any opportunity that comes your way.

And *stay prepared!* Which is to say: Now that you've learned how to learn, *don't stop learning!*

The Universe is big and wide and learning about any of it, from the natural world to the cultures that humans have created, is a joyous, mind-expanding adventure. And I can assure you that the knowledge you gain from it will enrich every moment of your life. Knowledge does that.

Here's something else that knowledge does: Knowledge gives us power ... the power to correctly evaluate, to draw the right conclusions, to make good decisions, and ... ultimately ... to solve problems.

Today, we are facing problems that are unprecedented in scope and severity. I am, of course, referring to our rapidly changing climate, the destruction of the biosphere, the horrific pollution and overfishing of our oceans, overpopulation, and on it goes.

The biggest challenge in solving all these problems is not technological. We either already have the know-how to correct most of these problems, or could readily attain it given adequate resources. That's not the issue.

The biggest challenge by far is that these problems are not local. They are global. They are cross-tribal. They extend across oceans, beyond national boundaries. Yet, their solutions require a coherence and unification of thinking and purpose among *all* the peoples of the world, and *that* is a scale of peaceful, cooperative action that our species has not yet achieved.

To make matters worse, there are very big forces -- both within us and imposed on us externally -- that compete for our attention and our loyalty. We are bombarded all the time with messages to be partisan, to identify with one group and not another, to love our own tribe (whatever that may be) more than another, to be loyal to one brand and not another.

But our respect, our loyalty, our love -- these are the most meaningful gifts we humans have to give. And I want to offer you another way to think about how you might expend those precious gifts, in my belief that it just might be a starting point towards global cooperation.

And it's a perspective on ourselves that we have been shown by 6 decades of interplanetary travel, a perspective that has finally brought me to the end of my 50-year quest, and has shown me what the significance of our existence truly is.

It is the sight of our small, fragile, blue-ocean planet, seen from Saturn, a billion miles away, as a speck of blue light, floating in a sea of stars ... the way it would be seen by others in the skies of other worlds,

It is that uncorrupted, unpoliticized view of all of us together on that one tiny little dot of a planet, alone in the blackness of space.

It is that stark reminder that our planet is the precious jewel in the crown of our star, and because we have evolved from it, it is only place in the universe custom-tailored for us. So there is literally nowhere else for us to go to survive and flourish without extraordinary, and I would submit, unrealizable effort.

Evolutionary biologists tell us that we who have been given life have won the lottery, that the chances of any one of us being alive are infinitesimally small. That life is a gift is not just metaphor.

What's more ... in being alive, we and every other living organism on Earth, as well any aliens out there, are the embodiment of *life* ... the most complex, finely-tuned, adaptive, high-fidelity, self-regulating process in the Universe. Every organism on our planet has, over time, evolved to be as perfectly adapted to its planetary niche as we are to ours. From the smallest microbe to the redwood trees to the blue whales, we are all masters at the task of existence.

And all lifeforms on our world are members of the same tribe. We are all Earthlings ... all different elements of one large, intricate, delicately balanced, interconnected web of life that has developed here and on which all of us completely depend. We are part of it, and it is part of us. If that web fails, we fail too.

And *that* is the significance of our existence: That we exist ... together! That, in simply being alive, we are the improbable manifestation of the most profound creation this magnificent Universe has to offer. And to our species goes the joy and empowerment of being able to know all that ... it's the icing on the cake that comes with an analytical intelligence.

These insights say, in no uncertain terms, that while some of us may be citizens of America, and others are citizens of other nations, we are all first and foremost Citizens of Planet Earth. And it is to all the lifeforms on Planet Earth that we owe our greatest respect, our strongest loyalty, our deepest love. It is Planet Earth and all her offspring -- human and not -- that we must protect, whether they are of any use to us or not, for their sake and for ours.

So, Graduating Class of 2019, ready and eager to begin your new life ... I end with my heartfelt congratulations on your fabulous achievement! You can be assured that your professors and especially your parents are all very proud of you today.

I leave you now with these words:

- . Keep learning and stay prepared for whatever life may throw your way;
- . In every action -- in what you eat, the way you vote --think big, think global. We are even now being called upon to make sacrifices for the health of the planet, the other creatures with whom we share it, and our collective future. Be the leaders in this now. Show us all how's it's done. You will be the heroes of tomorrow.
- . Resist with all your might those messages to be small, to be partisan, to narrow your identity. *You are a Citizen of Planet Earth.* You already belong to the best group there is for light-years around. To paraphrase Michelle Obama: When they go small, we go big.
- . And dare I say it: Live Long and Prosper!