Words with a recent Rice graduate:

Tierra Moore on where she was, what she's doing now, and why she cares

Tierra, you graduated from Rice last year and now I hear that you're doing a Ph.D at U.Penn. What are you going to study?

I'm studying biogeochemistry as an extension of the work I did with Dr. Masiello at Rice. In particular, I'm doing a project on carbon storage and cycling as it relates to anthropogenic dark earths.

What's an anthropogenic dark earth?

I like to think of it as a dynamic metric. Essentially it's charred waste products that ancient people used and buried, which accumulated in the soil over time. It's fundamentally an artifact of human development recorded in the soil. Burned food, waste, housing—after sitting in the Earth for a time they create soils with unique properties.

What properties?

These soils are very fertile and labile, meaning there are a lot of available nutrients for plants. This has impact on the carbon cycle. They are very stable too – carbon doesn't break down in these soils (e.g. they are highly recalcitrant), and store carbon. People usually think of soils as either labile or recalcitrant. Usually they aren't both. But dark earths exhibit enhanced carbon cycling and carbon storage. In my lab we want to understand how both properties exist in the soil mechanistically.

You've got four very full years ahead of you in Philly. What do you hope to have at the end of your studies?

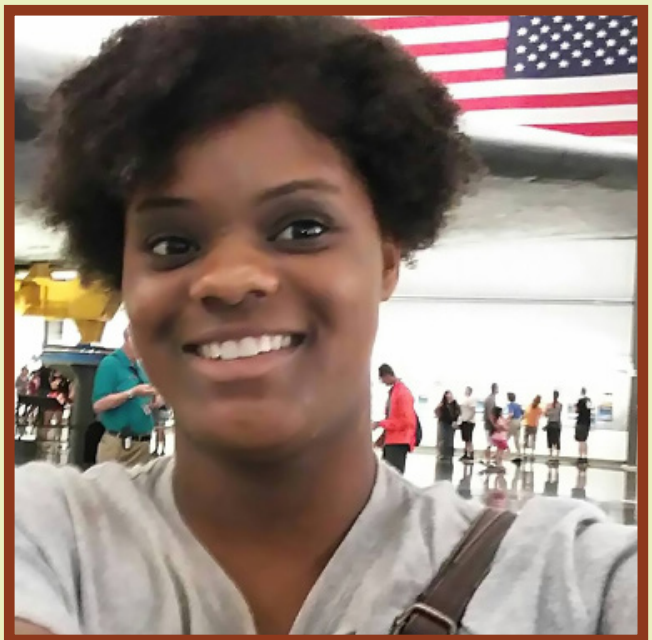
I hope to have a deeper understanding of biogeochemistry and especially the mechanisms driving carbon storage and cycling in soil. I ultimately want to apply that knowledge to build sustainable agricultural systems. I also want to integrate my research into policy issues. I want to become an expert on soil carbon flux, but I also want to use my research to do something that is tangible to me. This will entail me pursuing policy-related extracurricular opportunities throughout my time in grad school. I plan on joining the Science Diplomacy Club, and am applying to be an Intercultural Fellow at U. Penn. I would love an opportunity to work at an environmental think tank after I graduate. This will allow me to blend my research and policy experiences.

You've talked a lot about wanting to apply your science. So, what's your opinion about the current state of connection between scientists and the public?

There's a disconnect between common needs and scientific research – scientists need to make a bridge so that their science is useful. This is where I see policy coming in. Scientists and policy makers need to come together to talk about resource regulation and restoration. The two fields need to communicate more, in my opinion, and I intend to lead endeavors to do so.

As a recent (very successful) graduate, I must ask: If you had one piece of advice for undergraduates what would it be?

Always aspire to challenge yourself. You're worth that challenge, and it will help you grow. Also remember that no matter how much you enjoy science and your major, there will always be frustrations and you may want to give up…if only for a moment. Remember that it's supposed to be hard. Adversity is normal and overcoming it makes you stronger. Just keep pushing that rock up that hill. You'll get there one day, and you'll be proud of all the work that you put forth.



Tierra Moore is a second year Ph.D student at the University of Pennsylvania. She graduated with a B.S. Earth Science from Rice in 2015.

Interview by Larisa LaMere