



Pioneering research director: ‘We’re in a cataclysmic time of change’

Rita Colwell is the former director of the US National Science Foundation (NSF) — the first woman to hold that post — and a leader in cholera research. In her new book, *A Lab of One's Own: One Woman's Personal Journey Through Sexism in Science* (written with Sharon Bertsch McGrayne), she opens up on one topic she hasn't said much about publicly: her battle to improve the situation for women in science. Colwell, a microbiologist at the University of Maryland College Park, spoke to *Nature* about discrimination, and how her experiences as a researcher and agency leader during the 2001 anthrax bioterror attacks can inform the response to the coronavirus pandemic.

You've been a scientist since the 1950s. What's changed, and what hasn't, regarding sexism in science?

When I was an undergraduate, I went to the department chair to ask for a fellowship to allow me to pursue a master's degree. He told me, quite bluntly, that they didn't waste fellowships on women. I don't think any chair, dean or faculty member would say that today. It would probably be nuanced, to the effect of, "We don't have any available." That makes it less obvious, and I'm not so sure less hurtful — because it still deflects the career path.

What do you want early-career female scientists to take away from your book?

That you're not alone. Your experiences that you endure are shared. Like other women, I assumed the problems I have had were some sort of problem of mine. But in fact, it's really the system.

What should institutions do to improve the situation for women?

Agencies, particularly funding agencies, can have a tremendous effect. The NSF has really been a leader, tracing back to when Mary Clutter, who was an assistant director, forcibly mandated [in 1989] that committees and scientific meetings that received funding had to have female representatives on the committee and female speakers at the meeting.

Racism in science is also deeply entrenched. Why is it important to change that?

There's tremendous talent distributed throughout the population, and the country needs all of it. It's really important to draw from 100% of the population — and not 50% or less. The challenges we're facing right now are huge. We're in one of the cataclysmic times of change.

In 2001, you helped to hunt down the source of the US anthrax attacks. What lessons from that could help scientists investigating COVID-19?

The anthrax episode was a fantastic experience showing patriotic cooperation among agencies and among branches of Congress. Because I was director of the NSF, I was able to have a leadership role, and because I was a microbiologist, I was poised to recognize immediately that we had to sequence the bacterium that had been sent out as a bioweapon. The group met every week for an hour in a classified meeting. We had maybe 16 or 17 agencies represented.

The lesson was collaboration and cooperation. No single agency could solve the problem. There was shared trust and shared commitment, and no politics in any of our decisions. If we had been able to have an inter-agency, intergovernmental interaction straight away in January or February, I think we would not have 150,000 COVID-19 deaths — and climbing — in the United States.

How has your laboratory changed its emphasis in response to COVID-19?

I have been working on cholera for my entire career. It is an aquatic bacterium distributed in the environment. Twenty years ago, we developed the use of satellite sensing to monitor environmental parameters that allowed us to track and predict cholera outbreaks. We're modifying that model for COVID. It's very interdisciplinary. That's the power of understanding diversity — human, as well as environmental — and protecting both.

What role should international scientific collaboration have in fighting the pandemic?

Diseases don't carry passports, and they don't behave like tourists clearing the border. It's almost anti-human not to understand that we are a global society, and that the benefit of science — for example, vaccines — needs to be shared. And it needs to be shared empathetically in a way that makes it affordable for the poorest citizens of the world.

Interview by Alexandra Witze

This interview has been edited for length and clarity.



Protests have erupted in the United States over racism and COVID-19 shutdowns.