Breaking Down Walls

In five days, there will be an election in the United States with immigration as a signature issue. We ask scientists their experiences as immigrants.

Think Outside the Cultural Box

Luciano A. Marraffini
Rockefeller University, New York

Science, now more than ever, is a team effort. Multiple people, moved by a spark of curiosity about how nature works or by the will to engineer technologies that will improve how we live, come together to work on a problem, think hard about it, design experiments to test hypotheses, perform and analyze the results of these experiments, and hopefully solve the problem. Experts agree that diversity in gender, race, social strata, and culture of the research team greatly improves each of these aspects of the scientific process. Our culture, an ensemble of common knowledge, beliefs, and behavior that undoubtedly influences the way we think, can have important implications on the way we approach research.

I grew up and took my first steps in science in Argentina. One aspect of my culture is that, for better or worse, messages are delivered in a very direct way. We get to the point very quickly. I believe that this cultural background has helped my own approach to science, which requires focus and concentration in the specific problem that one is studying, without being distracted by all the interesting but tangential data that are often obtained. Unfortunately, it is very difficult to precisely quantify how much cultural diversity affects scientific productivity, but in an era in which science and engineering teams are promoting much of our world's growth, this cannot be overlooked.

Restless Curiosity

Angela Hay
Max Planck Institute, Germany

In my group, no two researchers come from the same country. We take this cultural diversity for granted in science. I come from New Zealand, the most beautiful country in the world, but I now live in Germany. Why?! Because New Zealand is a small country, and I looked abroad for a critical mass of scientists doing world class research. I have enjoyed almost 20 years working abroad in places of great science: as a Fulbright Ph.D. Scholar at UC Berkeley, as a postdoc and Royal Society University Research Fellow at Oxford, and now as a Minerva Fellow, leading a group at the Max Planck Institute of Plant Breeding Research in Köln.

I am part of the large kiwi diaspora. Restless curiosity sends us abroad and also drives a passion for research. The New Zealand physicist and Nobel prize winner Ernest Rutherford said, "We haven't the money, so we've got to think." This attitude drives creative, innovative science, making the best use of resources and opportunities available in well-funded laboratories. Science works best in collaboration rather than in isolation. It benefits from the free flow of scientists and ideas across borders. I lead my own research in this way and appreciate the freedom to do so. In "Walls," the Greek poet Cavafy describes the loss of this freedom: "They have built walls around me…and now I sit here feeling hopeless…because I had so much to do outside."

Scientists: A Nomadic Tribe

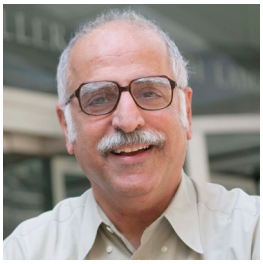
Sergio Grinstein
University of Toronto, Canada

My parents left Europe in the first half of the 20th century, as it was becoming increasingly hostile to Jews. They landed in Mexico because other North American countries were not as welcoming (when asked how many Jews Canada was willing to accept, a government official famously stated, "None is too many").

I grew up and acquired my patchy education in Mexico City at a time when the volcanoes were visible. Next, I crossed both the Rio Grande and lake Ontario in search of post-doctoral training. Thankfully, that occurred in the pre-Trumpian era; having to swim and climb walls would have required a triathlete. A changing Canada opened its doors, its heart, and even its wallet for me and my beloved wife, enabling us to settle and work as scientists in Toronto, possibly the most cosmopolitan city on Earth, where my Spanglish seems perfectly acceptable. We consider ourselves infinitely lucky.

I am not a dreamy globalist, and I fully appreciate the yearning for national identity and the comfort of belonging, but I would not be alive were it not for Mexico's openness, and I would not have survived as a scientist were it not for Canada's welcoming generosity. Surely, an intelligent balance can be found whereby doors are opened to deserving newcomers, while indigenous culture and tradition are preserved. Science percolates borders, and scientists—a nomadic tribe ex officio—should be allowed to do the same.

From Asia to the US and Back



Dinshaw J. Patel
Memorial Sloan Kettering Cancer Center, New York

I grew up in Mumbai, India, in the Zoroastrian community, was educated by Jesuits in a highly multi-cultural environment, and was drawn to America's culture and optimistic can-do attitude at an early age. I embarked on a voyage at 19 with my early graduate training in chemistry at Caltech, fostering a 24/7 work ethic and commitment to science within an inspirational multinational research community. I was drawn to the life sciences upon graduation and have spent my career as a structural biologist at Bell Laboratories (17 years), Columbia University (8 years), and Memorial Sloan Kettering Cancer Center (25 years). My scientific experience in the United States has been extremely positive, with my ethnic background and country of origin playing no role in an investigator-driven and merit-based environment.

Indeed, I am much indebted to my early mentors who fostered in me an innate curiosity coupled with a passion for evidence-based science, who gave me independence and support to tackle emerging challenges, and who shepherded my career progression. My current research has been fostered by extensive collaborations, with the emphasis solely on originality, creativity, innovation, and timely achievement of goals, irrespective of religious and national boundaries. Overall, it has been a magical journey over the last five decades of US-based, curiosity-driven scientific discovery. Given the mainly Chinese composition of my current research team, my interests are shifting toward witnessing, seeding, and facilitating the dramatic upward trajectory in Chinese life sciences.

海纳百川

Lu Chen
Stanford University, California

The meaning of the title is "the ocean accepts water from hundreds of rivers." Water in Chinese culture is an element that is soft and flexible, yet contains enduring strength. Ever since I was a child, this notion was repeated to me by my teachers at many occasions. It echoed inside me once more when I first set foot in the United States, surrounded by many new different faces.

In the beginning of the 1990s, I was an undergraduate student in China, studying biology, dreaming about understanding the brain. After graduation, "The Decade of the Brain" initiative (1990–1999) inspired me to study neuroscience in the United States. Like many immigrants, I arrived full of anticipation mixed with apprehension. Over the past 20-plus years, I had the good fortune to work with many talented colleagues from all over the world, a cultural hodgepodge that is united by curiosity for the unknown and by shared idealism toward understanding the truth. It has been a humbling experience to realize the potential, as well as the limitations, of my own heritage and to learn from the heritage of others, but it has also been an empowering experience to accept my own heritage and the differences among people and cultures, akin to embracing the spirit of the ocean while maintaining my own identity. I hope that, in the years ahead, I can continue to meld the diverse cultures I experience into a scientific practice that emphasizes lasting insights, resembling the enduring strength of the ocean, without being distracted by the transience of lulls or storms.

Please Vote!

Ibrahim I. Cissé
MIT, Massachusetts

This is a very special election for scientists in the United States. What we wake up to after election night will surely determine the composition and future of our scientific community. We are fortunate in science, constantly interacting with a diverse pool of colleagues. This subconsciously reminds us that talent comes from a variety of backgrounds and in people with different walks of life. This may desensitize us to dangerous, growing forces at play: the wave of anti-trade and anti-immigrant movements that have been sweeping across the Atlantic.

While I was a post-doc fellow in France, I saw the rapid rise of the far right political party, unapologetically against anything not "franco-français." Success of that movement in the French elections seemed to correlate with protest votes against the ruling party, and the low turnout in the pro-immigration voters. One result was that many foreign scientists in France, myself included, felt increasingly uneasy, and many of us sought opportunities elsewhere and migrated. The movement in the United Kingdom to exit the European Union was galvanized by immigration crises—in particular, opposition to hosting Syrian refugees. Now, a score of non-British scientists, including preeminent young investigators with prestigious award like European Research Council's, woke up after election night unclear whether they could keep their funding.

The United States, I fear, might be next. The de-facto melting pot for the very best and brightest can vaporize in protest votes and unfavorable turnouts.