because we drilled ten ice cores.'"

To encourage science funders to support ice-core storage, the group is working on a report that outlines the importance of preserving records of climate history. Brook expects to have it ready for a major geosciences meeting in 2016. It is important to start the effort soon, he says, because the ice, and the information it contains, is disappearing now. "You're getting rid of the part where we actually have instrumental records to compare and calibrate with," he says. "We don't have that much time."

Still, veteran palaeoclimatologists say that the rapidly changing conditions could prove a boon to the field. Much work needs to be done to understand both the rate of change in ice melt and deposition, and how current climate processes differ from those in the past, when the atmosphere contained much lower concentrations of carbon.

Younger scientists are uncertain how the changes will affect their work. "It definitely makes it harder," says Aron Buffen, a palaeoclimatology doctoral student at Brown University in Providence, Rhode Island, who has worked with Thompson on Quelccaya. If all the ice that formed in years when instruments were measuring weather data disappears, scientists will lose a point of comparison for validating future measurement techniques, he says. A dearth of ice might also discourage custodians of the few remaining samples from sacrificing them to test unproven techniques.

Still, Buffen says that the melting will lead to more questions for research. These include determining which chemical traces will remain behind in sediment and which will return to the atmosphere when the ice melts, as well as distinguishing between melting caused by warmer conditions and sublimation caused by lower humidity. "I wouldn't dissuade anyone from working on tropical glaciers," Buffen says. Future researchers, for instance, could help society to adapt to the changes taking place, if they can provide clues to how shrinking glaciers might affect local ecosystems. And ice at the world's highest spots, as well as in Antarctica and Greenland, will endure for many years to come. Thompson, too, is optimistic about the future, so much so that he offers an online palaeoclimatology course through the Chinese Academy of Sciences. Already, 26 students have enrolled and Thompson hopes that they will go on to study glaciers in the Himalayas.

"It's a bit of a gloomy situation to see these beautiful glaciers going away," says Hardy. "But from the standpoint of careers and science, it presents some interesting opportunities." ■

Neil Savage *is a freelance writer in Lowell, Massachusetts.*

SARAH IQBAL

TURNING POINT
Arun Shukla

Structural biologist Arun Shukla left his native India for graduate training, as have many other researchers. Unlike most, he worked with three Nobel laureates on two distant continents before returning home. Shukla describes why now is a good time to repatriate to India.

How did you meet your PhD adviser?
While I was in a master's programme in biotechnology at Jawaharlal Nehru University in New Delhi, I was learning about G-protein-coupled receptors (GPCRs), which are involved in almost every physiological process and make up the largest class of potential drug targets. I knew that I wanted to pursue research in this area and attended a fascinating talk by Hartmut Michel, a biochemist at the Max Planck Institute of Biophysics in Frankfurt, Germany, who won the chemistry Nobel in 1988. I spoke with him afterwards and sent him my CV, and he offered me a PhD position.

What was it like at the Max Planck Institute?
It was fun. I was working on expressing GPCRs in different cell types. The goal was to crystallize enough protein to use X-ray diffraction to determine the atomic-level structure, so that we could learn how different drugs bind to these receptors. I realized that this was an area that I could work on for the rest of my life.

Did your PhD work make a mark on the field?
I think so. Crystallizing GPCRs was thought to be impossible at the time. GPCRs are highly mobile proteins that sit in the cell membrane, but for crystallography to be successful you need a stable protein. As a result, their structures were not known. Using nuclear magnetic resonance spectroscopy, we were able to determine the structure of a ligand, a hormone bound to a GPCR. Understanding how a ligand bound to a receptor was a big deal, and the work was published in 2008 as a cover article in *Angewandte Chemie* (J. J. Lopez *et al. Angew. Chem. Int. Edn Engl.* **47,** 1668–1671; 2008). Even today, there are only two such studies in the field. I knew that gaining any insights into GPCR structure would be a landmark and mean a lot to my career.

How did you connect with your next Nobel-laureate mentor?
I was finishing my PhD and knew that I wanted to continue working on GPCRs. Robert Lefkowitz, a biochemist at Duke University in Durham, North Carolina, and future winner of the 2012 chemistry Nobel, is the godfather of GPCRs. I sent him my CV and asked if I could join his lab. Without a formal interview, he wrote back that I was welcome.

Describe your work in such a competitive field.
The goal — to gain insights into GPCR signalling — was pioneering, and there was a risk of getting scooped. In 2013, Lefkowitz, his Nobel co-recipient Brian Kobilka, and I published the structure of β-arrestin, a GPCR-regulating protein (A. K. Shukla *et al. Nature* **497**, 137–141; 2013). Our paper was in the same issue as one from a group that crystallized a different arrestin.

What prompted you to return to India?
I had watched infrastructure and funding prospects improve in the past decade and thought I could run a better group here given the tight US funding situation, so I started applying for positions. I had several offers, and accepted one at the Indian Institute of Technology in Kanpur.

How is it going?
I have the academic freedom to establish GPCR crystallography as a new line of research in this country, with funding from the Indian Department of Science and Technology and a five-year grant from the Wellcome Trust/Department of Biotechnology India Alliance.

Have there been any roadblocks?
It can take weeks to get reagents and consumables from the United States or Europe. We also lose our top PhD graduates overseas so it can be hard to find a good postdoc. My hope is that if we do good work in India, students will realize that they can stay and have high-impact papers.

What was the best piece of advice you received from the Nobel laureates?
Focus on big questions — do things that are cutting edge and will help to shape the direction of the field. We have to make discoveries, not just publish papers. ■

INTERVIEW BY VIRGINIA GEWIN