

says. “You can still say what you think, but you have to learn where and when.”

Even if a researcher doesn't move to another country, learning a new language can be helpful for collaborating with colleagues abroad and understanding the research in their field. While studying auklets as a PhD student in Newfoundland, Canada, Alex Bond found that several crucial papers and reports, as well as older publications about the small seabirds from the North Pacific Ocean, were in Russian. He could neither read nor speak it.

He converted his laptop keyboard to Cyrillic and turned to Google Translate, Wikipedia and a Russian-to-English dictionary for help. Soon, he could recognize names of places and species. When he started a postdoc at the University of

**“If you learn the key words, it's easier for you to speak about issues in the lab.”**

Saskatchewan in Canada, he arranged for tutoring in Russian and, after two years, his reading skills had improved. He felt that he was more of an asset to the Russian researchers with whom he was collaborating — he could understand papers that they wanted him to read, and incorporate studies in English into their co-authored papers. “Just because something's not in English doesn't mean you should ignore it,” says Bond, now a senior conservation scientist at the Royal Society for the Protection of Birds in Sandy, UK.

Fluency in the tongue of one's adopted nation also has advantages that may not directly affect research, but can boost life satisfaction. Heathcote spoke little Spanish for the first 3 years after he arrived in Chile more than 30 years ago. Then he met a Chilean woman. In three months, he went from having almost no Spanish to great eloquence — albeit with terrible grammar, he says. As for his new Spanish-speaking friend? He married her. ■

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#### CORRECTIONS

The caption for the main image accompanying the Careers Feature ‘Change is in the air’ (*Nature* **532**, 403–404; 2016) named the wrong silver-spotted skipper. The picture is actually of *Epagyreus clarus*, not *Hesperia comma*. The Careers Feature ‘Take my advice’ (*Nature* **532**, 531–533; 2016) erroneously called Michael Lang a co-founder of mLEAD. He was one of the first consultants, but did not help to found the company.

## TURNING POINT

# Aerial archaeologist

*Sarah Parcak helped to establish the use of satellite imagery to identify potential archaeological sites. Last year, she was awarded US\$1 million from TED, the non-profit organization devoted to spreading ideas. Parcak, a remote-sensing expert at the University of Alabama at Birmingham, plans to use the money to fulfil her dream of creating an online portal for citizen scientists to help discover archaeological treasures.*



#### How did you get the idea to apply satellite imaging to archaeology?

My grandfather, Harold Young, a forestry professor at the University of Maine in Orono, was a pioneer in the use of aerial photography to look at forests. He would measure tree heights and look at the health of forests that were going to be used in paper manufacturing. I wondered how to apply that technology. He had passed away by the time I was an undergraduate. I was surprised to find that aerial imaging hadn't been applied to archaeology before.

#### Were you the first to use this technology?

There was a cohort of about six of us working mainly in the Middle East — in Turkey, Syria, Iraq and Egypt — to explore how to use satellite data, which has now helped practitioners move beyond their traditional focus on one site for an entire career. To understand sites in a broader context, it's not efficient to do work on the ground. You have to think big, look from above and follow old river courses.

#### How is your work changing archaeology?

I hope that I've encouraged colleagues to think of the scale of sites differently. Most recently, we discovered what may be a Viking settlement in Newfoundland, Canada. It was the first time that the technology had been used in the search for potential Norse sites. Using high-resolution satellite imagery, we found two potential sites that, when ground-truthed, yielded one likely Viking site. These techniques give you robust data that can be used to focus field efforts.

#### What about its use in previously studied areas?

Using high-resolution imagery, colleagues and I recently found what appeared to be a massive rectangular platform in one of the most well-surveyed archaeological zones in Petra, Jordan. Chris Tuttle, the executive director of the non-profit Council of American Overseas Research Centers in Washington DC, used drones to survey the object, and confirmed that it's massive — 80 metres by 40 metres — and dates to

2,000 years ago. Despite the site having been studied for 150 years, we missed what was probably a large ritual structure. Imagine what else we haven't found.

#### How did TED impact your work?

I gave a short TED talk in 2012 that aired on National Public Radio, and I was made a senior TED fellow two years later. The TED prize was very unexpected, to put it mildly. I got a message last summer saying that I'd been nominated. I filled out a ‘what would your wish be’ questionnaire. Then I had 18 minutes in February to make a public case for Global Xplorer, which is an online citizen-science platform to train an army of global explorers. I celebrated the work of colleagues but also gave the sense of real urgency that our field faces with so much destruction — from conflict to climate change — around the world. The prize completely changed my life. It's both an opportunity and major responsibility.

#### What do you expect Global Xplorer to accomplish?

Our team has scientific training and expertise; the bottleneck is the time spent searching through images. We have been scouring images to detect looting in the wake of the 2011 Arab Spring, and it has been one of the most depressing things ever. I believe to my core that the only chance we have to save cultural heritage sites around the world is to turn everyone into explorers. By turning people into what I call ‘space archaeologists’, they will develop a sense of pride and ownership in preserving our cultural heritage. I think it's one of the only chances to save the past. ■

#### INTERVIEW BY VIRGINIA GEWIN

This interview has been edited for length and clarity.