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MOVERS

Carl Pilcher, director, NASA Astrobiology Institute, Moffett Field, California

2006: Senior scientist for astrobiology, Astrobiology programme, NASA Headquarters, Washington DC
2001–05: Senior scientist for astrobiology, Universe/Astrophysics Division, NASA Headquarters, Washington DC

Carl Pilcher proves that strategic career moves can help scientists navigate across disciplines to a dream job. Once a chemistry undergraduate, he has delved into astronomy, science policy and eventually into the nascent field of astrobiology during his 30-year career.

Once Pilcher realized his true interests lay in outer space, the first-year chemistry graduate student at the Massachusetts Institute of Technology, Cambridge, began working with a cosmochemist and a planetary astronomer, both interested in the formation of the Solar System. He used his knowledge of spectroscopy to characterize the surfaces of Jupiter's galilean satellites, and his team went on to discover frozen water in Saturn's rings and on three of Jupiter's moons, including Europa.

After 12 years at the University of Hawaii's Mauna Kea observatory, he decided to use science to contribute to public policy, and completed a master's in public affairs at Princeton University, New Jersey. Intent on moving to Washington DC, Pilcher soon became the science director of NASA's Office of Exploration Systems — a programme designed to identify possible human-based missions to the Moon or to Mars. Later he moved to NASA's space-science office where he helped to create the successful unmanned missions to Mars in the 1990s.

After claims were made about biological signatures in a Mars meteorite found in Antarctica, NASA created an astrobiology programme, which piqued Pilcher's interest. He immersed himself in a biology bootcamp including a seven-week intensive microbial-physiology programme. A few years after that he became NASA's senior astrobiologist.

Pilcher is excited to promote the field in his newest role as director of NASA's Astrobiology Institute in Moffett Field, California. The astrobiology programme faces a 50% cut in the proposed budget for this fiscal year — in part because NASA administrators are concerned about its lack of focus. Ralph Pudritz, director of McManus University's Origins Institute in Ontario, Canada, suggests that the international astrobiology scene depends on the continued success of NASA's programme. "A discovery of life on Mars could transform astrobiology from an exciting but tentative field of science into as hard a science as you could imagine," he says.

Pilcher agrees. "One of our greatest accomplishments of the twenty-first century will be understanding the biological potential of the Universe," he says. ■

Virginia Gewin

RECRUITERS & ACADEMIA

Made-to-measure postdocs

Eight months into my postdoc, I am in Berlin, diligently learning German and managing my research schedule at the Berlin Natural History Museum and the Max Delbrück Center for Molecular Medicine. Walking past the museum's collections of pickled frogs, I realize that I'm a long way from the University of Utah, and even farther from the physical-chemistry research I completed as an undergraduate.

In a quest to link my PhD chemical-biology training with my desire to be a research scientist at a natural-history museum, I designed a two-year postdoctoral project. It focused on the investigation of the peptidic toxins of venomous marine cone snails and turrids. My short-term posts include the time in Berlin, two field expeditions to Panama in association with the Smithsonian Tropical Research Institute, and a museum internship at the Paris Natural History Museum. I'm working with a global network of research scientists to expand my training in peptide chemistry and acquire knowledge in neuroscience, taxonomy and systematics.

Together with the Utah Museum of Natural History, I created a series of educational programmes and exhibition pieces to inform high-school students about the biodiversity of cone snails and turrids, as well as the chemical biology of their toxins. I owe my scientific freedom, in part, to the postdoctoral grant funding from the US National Science Foundation's Discovery Corps Fellowship (DCF).

Tantamount to a Peace Corps for scientists, a DCF offers recent PhD candidates and mid-career scientists one- or two-year grants that support both their scientific research and a service-oriented outreach project that demonstrates different aspects of science to a larger lay audience. It allows scientists and engineers to venture beyond the lab. For example, Joseph Fortunak, a chemistry professor at Howard University, Washington, is expanding his research by working with Nigerian scientists and industry to promote 'green chemistry' education and to manufacture microcrystalline cellulose from elephant grass and other biorenewable resources.

In general, DCF awardees attempt to translate laboratory achievements into an expanded set of professional skills and a programme that serves society. Such opportunities help reinvent the humdrum of lab work and construct new routes to success. ■

Mandë Holford is a postdoctoral fellow at the University of Utah.

GRADUATE JOURNAL

How studies can save a life

What's the long-term prognosis for a patient with fibromuscular dysplasia on an anti-platelet regimen? Until this month I wouldn't have understood the question or even been particularly interested. That was before the patient with this rare condition was my uncle and the person asking was my grandmother.

Unfortunately, the kind of research I do — fundamental aspects of yeast-cell division — doesn't provide the answers she's looking for. There are no side effects or case studies, and certainly no patients. Although I work on yeast cells because of their functional similarity to human cells, sheer curiosity is largely motivation enough. That has helped me understand a lot about yeast, but it doesn't do much for people like my uncle. I don't expect patients to run to their doctors saying, "I'm worried about the protein complexes forming at my origins of replication."

Having a person in my family deal with a disease that's scarcely mentioned in the medical literature has changed my perspective. It's not that I want to drop what I'm doing and take up applied research — I realize important contributions to humanity come from both directed and broad research approaches. I do, though, feel a new sense of meaning in what I do. The idea that my work may some day, however indirectly, reach a patient is no longer an abstraction but an aspiration my grandmother and I can share. ■

Milan de Vries is a molecular-biology graduate student at the Massachusetts Institute of Technology, Cambridge.