Entomologist Richard Mankin (right) does work for the US Department of Agriculture in Guam.

AUBREY MOORE

arms, Mankin has conducted field research internationally since the 1970s, walking with crutches or crawling along the ground to study the sounds and vibrations that insects make in various locations. He seldom works in the field alone, and he keeps his trips short. He asks those who accompany him to manage tasks that he cannot perform, such as carrying equipment and climbing trees.

Physical barriers are not the only obstacles: bias can also be an issue. Jae-Hyeon Parq, a postdoctoral researcher at Seoul National University, who has used a wheelchair since sustaining a spinal injury as an undergraduate, worries that his disability will make it hard for him to find a job. Trained as a physicist, Parq now works in the lab of marine geologist Sang-Mook Lee, who has been trying to improve conditions for scientists with disabilities since 2006, when he was paralysed in a car accident.

"Most people, especially in Korea, don't understand the diversity of disabled people," Parq says. "They judge what I can and what I can't do from my appearance." If Parq can't get a permanent job, he says, he will continue to work for Lee.

PUBLIC SECRETS

Those whose disabilities aren't as immediately obvious face a different, yet related problem: whether to tell potential employers. "One of the most common questions I get is, should I say on my CV that I'm deaf?" says biochemist Annemarie Ross of the Rochester Institute of Technology's National Technical Institute for the Deaf in New York. Ross, who is hearing-impaired, tells students that it is their choice — there is no clear advantage for applicants who do or don't reveal a disability.

But it's a challenge that must be resolved, she says. "A big barrier in general for our students are the employers. They think, 'If a worker can't hear a fire alarm, how do we make sure they're safe? If they stay behind in a burning lab, we could be liable.'" Often, job candidates must persuade employers to reframe their assumptions in interviews, Ross says. Those with hearing disorders, for example, can see the strobe lights on many modern fire-alarm systems. By the same token, scientists in a lab don't spend much time doing physical tasks.

"I was always having to persuade people I could do things from a wheelchair," says Karl Booksh, an analytical chemist at the University of Delaware in Newark who experienced a spinal cord injury in university. "The way I convinced most of them was pointing out that the most successful faculty members didn't know where the pipettes were to begin with — that the key to success was writing papers and proposals."

Some scientists with disabilities have reframed their impairment as a positive attribute: they say that coping with the challenges of everyday life has helped them to develop unusual skills and expertise. Wedler, for instance, says that navigating town trained his brain to make spot-on mental maps. A similar sort of spatial thinking helps him with organic chemistry. "I was thinking in terms of feet and miles, but there's no reason you can't shrink that down to ångströms," he says. "In terms of doing the problems, I might have an advantage over my sighted peers."

Mankin is dubious that the stigma against those with disabilities will ever fade completely. He is president of the Foundation for Science and Disability, which sponsors a grant programme that supports the research of graduate students with disabilities. But, he says, he doesn't think of himself as disabled.

He is an enthusiast whose voice crackles with excitement when he talks about his work. He is studying psyllids, insects that cause a tree-damaging disease that threatens Florida's $10-billion citrus industry, and he has been developing systems that use vibrations to lure and trap male psyllids to prevent them from mating with females nearby. The approach could offer an alternative to pesticides, and has attracted the attention of federal legislators.

"Being a scientist has been lots of fun," Mankin says. "I've done things that I hope have benefitted humanity. This is what I always wanted to do." ■

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CHARACTER TRAITS

Scientific virtue

Honesty and curiosity are the most important traits underlying excellent science, according to a survey of around 400 members of elite US scientific societies, such as the National Academy of Sciences. A pilot study led by survey co-organizer Robert Pennock, a philosopher at Michigan State University in East Lansing, had previously identified the ten most widely held values among scientists who have been honoured by their peers for being exemplary. Although honesty and curiosity dominated, these virtues also included perseverance, objectivity and the willingness to abandon a preferred hypothesis in the face of conflicting evidence (see 'Core values').

Little empirical research has been done to learn what traits scientists value most in one another, says Pennock, and this work indicates a high level of consensus among elite US researchers about what is important for the practice of science. He thinks that training programmes that emphasize such shared scientific values are likely to be more effective than are those that focus on compliance with official rules of behaviour; 94% of the scientists surveyed felt that scientific virtues can be learned.

About four in five of those surveyed feel that today's trainees share the scientific values that they themselves held when training, and 88% take candidates' scientific character traits into account when recruiting lab members. The team members presented their preliminary results at a meeting of the American Association for the Advancement of Science in February (see go.nature.com/o4urjl), and they plan to publish full results from a sampling of 500 established scientists, in addition to a similar-sized group of early-career scientists, in upcoming months.

CORE VALUES

Elite scientists were asked which three values they consider to be the most important.

*Willingness to abandon a preferred hypothesis when faced with conflicting results.

SOURCE: AAAS 2016 ANNUAL MEETING