GRADUATE JOURNAL

One of those days

Computers crashing for no apparent reason. Broken software. Code not compiling. Videoconferences. Phone conferences. Deadlines.

A PhD can be stressful. The science is challenging; we push ourselves to the limit. There are times when everything works and it's great. At other times, nothing seems to work — when I can't track down that annoying bug in my code, for example — and that is really frustrating. The key is not to give up. Be persistent. Sometimes I take a step back and remind myself of why I'm doing what I'm doing.

I've realized you must set your own standards. I'm my own boss; no one else is going to push me to get the job done. But this freedom can increase the stress level. I see many high-achievers around me who impose very high expectations on themselves. This can spill over onto others, making the environment both collaborative and competitive.

No one is immune to pressure, but it's important to maintain a sensible attitude. Why do I do this research? Because ultimately, it's rewarding. If it was easy I would get bored. As you progress, you learn how to stay sane and keep up with the pace. Well, I'm still sane and I'm still here, so I guess I'd better get back to that code. ■

Amber Jenkins is a graduate student in particle physics at Imperial College, London, doing thesis research at Fermilab in Batavia, Illinois.

SCIENTISTS & SOCIETIES

The Polish biotech gap

Like several other universities across the country, the Technical University of Lodz in Poland is actively training students to work in the biotechnology sector. But there is a problem: so far, Poland has very few biotech companies and there is scant venture capital available to start more.

So what should the graduate students do? They could bide their time doing a PhD in the hope that in the meantime things will improve, but funding is scarce, and even if they qualify, they would get only €180 (US$232) per month. Poland's cost of living is lower than the European Union average, but it's still not low enough to live on that amount.

Rather than waiting and hoping, a group of professionals engaged in the life sciences are helping to develop the Polish Federation of Biotechnology. We, as the young generation of biotechnologists, are looking forward to proposed initiatives such as establishing incubators and more academic–industry interaction.

We need to garner public support for biotechnology now, if incubators and funding are to follow later. To get that support, the Academic Students' Society of Biotechnology and the Young European Biotech Network hope to raise awareness through events in various European cities next year, starting in Lodz, Poland. The goal is to get people involved in a dialogue with life-sciences students and early-stage researchers.

Both politicians and the public must be made aware of how important biotechnology is to the future of Poland's economy. It is vital to show that it is the technology of the future and, consequently, that Poland will lose out if it does not join the biotech race. If it continues to lag behind, it will end up importing all of the crucial technologies from abroad.

At present, biotechnology in Poland is a niche that is crying out for investment. The government is spending plenty of money on education, but if it were to invest in setting up biotech companies, it should readily see a return on its cash.

Hopefully, the situation will soon change. Once Poland becomes a full member of the European Union, more international companies will be interested in setting up laboratories in the country, and in investing in small biotech companies there. Graduate students will finally have the chance to develop their ideas and work in the field of their education. ■

Sylwia Gorlach and Mikolaj Slabicki are studying for an MSc in biotechnology at the Technical University of Lodz, Poland.

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MOVERS

Louise Johnson, director of life sciences, Diamond Light Source, Chilton, UK

When Louise Johnson was a student at University College London, physics was confined to either the very large or the very small. She was hesitant to choose either, as they seemed to require huge teams to advance the field. "I didn't see how I could make a contribution," she says.

But then she recalled some X-ray crystallography work she had done as a student at the Royal Institution in London. She was aware that the technique was catching on — the 1962 chemistry Nobel was awarded to Max Perutz and John Kendrew for their determination of the structure of the proteins myoglobin and haemoglobin using X-rays.

Three years later Johnson was part of a team that used the same technique to solve the structure of the enzyme lysozyme. Although Johnson wasn't on the main structure paper, she was co-author of a companion piece that showed how the enzyme's structure helped it to carry out its task of attacking bacterial invaders. "That's really what opened people's eyes to this method — that we could understand biology by understanding structure," she says.

From that moment on, Johnson knew that her career would be in structural biology. And that meant she needed to keep up with the latest technology to solve the structures of bigger and more complicated proteins and complexes. Her first use of a synchrotron light source, LURE, near Paris, provided "a breath-taking moment" when she realized that its greater power could cut down a molecule's exposure to X-rays by two orders of magnitude. That development allowed her to help solve the structure of the enzyme glycogen phosphorylase.

Since then, she's pushed for stronger, more powerful facilities — and more facilities devoted to biology. In the early years, she jokes, researchers tackling biological problems were considered 'parasites' by scientists studying purely physical phenomena.

Now, the tables are turned. As life-sciences director of the Diamond synchrotron near Oxford, UK, Johnson's remit is to ensure that the new light source, when it comes online in 2007, devotes a significant amount of time to biology. ■

CV

1967– : University of Oxford — demonstrator, zoology department (1967–73); lecturer in molecular biophysics (1973–90); professor in molecular biophysics (1990); professorial fellow Corpus Christi College (1990)
1967: Somerville College, Oxford — lecturer in biophysics (1967–73); additional fellow and lecturer (1973–90); honorary fellow (1990)
1966–67: Yale University, postdoc, biophysics department
1962–66: The Royal Institution, London (1965); PhD, University of London
1959–62: University College London, BSc physics