Look to the future

A new year and a new millennium provides many an opportunity for assessing the past and pondering the future. It is traditional to ask the great and the good what they value from the past or expect in the future. But what about those who, in contrast, are starting out on careers in astronomy and geophysics? I wondered how the people who will be working in the future see the state of the science, so I asked some postgraduate students and postdocs. This is by no means a representative survey – many of the people I contacted did not want to be involved – but it does highlight some common themes among young scientists.

The first is that scientists are still drawn into the subject by their own fascination with the natural world and the intricacies of physics, as well as by the enthusiasm of gifted teachers and lecturers. Both astronomy and geophysics are benefiting from a revolution in data-gathering and analytical techniques – and there is nothing like the chance of real understanding and discovery to draw the very best students into research.

There is also general satisfaction with the way in which research students are involved in their departments. It seems that departments and institutions are preparing students well to take their place on the national and international stage. The international flavour of research is important, as is the opportunity to travel to collect data and present work at conferences. Students are generally happy with their level of involvement within departments. Opinions varied with subject and institution, of course: some relished the friendliness of small groups, others the buzz of a big department. For many, the strength of the British community in their field made for easy contacts and fulfilling national and local meetings, including RAS meetings. Others – for example in space science – felt the need to swim in a bigger pool. And that is also an attraction of research careers in these fields: it is expected that you will work in different countries and work with the best.

But not everything in the future is bright. Some expressed dissatisfaction with the lack of challenge offered by their undergraduate courses. The competing pressures to fill courses and even to expand in order to secure funding will do more damage than good if they result in courses that do not stretch the brightest students.

Money is also a problem, both in the short-term and over a lifetime. The changes to undergraduate funding of recent years mean that today’s students are much more aware of the cost of their courses and are encouraged, if not obliged, to incur debt. Four-year degrees are not necessarily a good thing in this context, especially, perhaps for bright students who resent spending four years on something they feel that they could have achieved in three. This pressure eases for postgraduates, of course, but the debts remain.

But it is the long-term feelings about money that I, feel, are the greatest cause for concern. It is a positive feature of degrees in astronomy and geophysics that research students can take the skills they have learnt into other fields such as the oil or IT industry and do well. The contrast in lifestyles between those who take this path and those who remain in research is, however, striking. The rewards of research and academic careers are not solely monetary, but the money tips the balance away from research for some. Even within research, there is a perception that funding is tight in Britain. Young scientists are increasingly looking abroad for permanent careers, for that is where they see the greatest opportunities. In the light of this concern, the government decision to move towards membership of the European Southern Observatory seems especially important. Today’s research students are acutely aware of the need to be involved in world-class science and ESO will make that possible for the next generation of observational astronomers.

So the message is: keep up the enthusiasm, involvement and networking, but no duming down, please.

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