

## PLANNING YOUR CAREER – A WORK IN PROGRESS

Most Triple Point columns have been written by senior scientists, but there are some issues where it is more appropriate to draw on the views of those directly involved. For the topic of planning and developing a career in geochemistry in the broadest sense, I have sought contributions from two young scientists. Bastian Joachim is a graduate student close to completing his PhD, while Steeve Bonneville has just begun an academic career after a period as a postdoctoral student. Here are their thoughts about what should matter as you develop your career.

**Bruce Yardley**, University of Leeds



Bastian Joachim

During the last few months, as submission of my PhD thesis approaches, I have often discussed with other young researchers the importance of publishing during PhD studies. Many of us get the impression that by far the most important aspect of a PhD is the publication of papers, preferably a large number of them. Well, it is important for a young scientist to publish, and one of the main goals during the PhD period should be to learn how to write a paper. This ability is rightly one of the basic requirements for a future scientific career. But does the number of publications really show the competence of a scientist? If this were the case, young researchers should

work only at very well-equipped research centers or universities with lots of different experimental and analytical facilities that are perfectly maintained and run by experienced operators. This guarantees the best preconditions for very efficient data production and consequently a high number of publications, especially if the results are published in several parts (the “least publishable unit”). But in my opinion, a PhD should include many more aspects than the publication of scientific results, and PhD students who work at smaller institutes with fewer facilities also have great opportunities and even some advantages. They often have to operate complex equipment, e.g. the microprobe, without the benefit of a supervisor or technician who is always available. This makes the start more difficult, but it pushes one to really understand the functioning of an analytical instrument. In contrast, if help and guidance are always available, PhD students have to take care that they do not use an analytical apparatus as if it were a “black box.” Likewise, being involved in teaching or planning field trips is time consuming, but it also gives one the opportunity to enhance personal skills, which may be important for a future scientific career.

A PhD position offers the possibility to attend conferences and to learn how to present results in posters and talks. Conferences allow one to talk to scientists from other institutes and discuss collaborations, which may lead to access to new equipment and to new knowledge. Conferences also provide the opportunity to get informed about the work of the learned societies that run them, including many in the *Elements* family. I strongly advise young scientists: if you are attending a conference, don't be too shy to talk to people whom you do not know. Poster sessions especially are a good opportunity for networking. Other valuable experiences that I have had during my PhD have been to participate in raising funds and to be involved in a first review process.

All this may take a lot of time, and that's why it is really important to think early about the balance of what you will do. To get publications is important, but not the only important goal. Be aware of the advantages and potential disadvantages of your PhD position, and think carefully about the available options and your own goals.

**Bastian Joachim**



Steeve Bonneville

This is it. My postdoc time will end soon and I am going to start a new position as an academic staff member. After a (brief!) feeling of achievement and the excitement of getting the job offer, my mood became more introspective as I asked myself: what made my postdoctoral experience successful enough to obtain that job? My perseverance to achieve played a role. OK, is that all? No... success as a postdoc also has something to do with your own drive and your choice of the host institution. At the end of the PhD, what made me choose my postdoc position?

The new freedom and congratulations earned with the PhD come with the big question: what are you going to do now? For some people, this question is already answered before the end of the PhD: Never again! Get me out of academia (a very sensible choice, after all!). However, for most, the end of the PhD is a race...to finish! Not a time to step back and think of the next move. “We'll see at the end what comes up!” is a common motto, and was also mine back then. Here are some thoughts about how I should have approached the problem, written with the benefit of hindsight.

First of all, motivation. An honest assessment of your own *grinta* to do a postdoc and by extension to engage in a scientific career is absolutely necessary. Curiosity towards a specific question is often what motivates scientists, and therefore it is often a question of defining a research area that fits you. Another point which may blur the perception of the new PhD towards doing a postdoc is that the latter is by no means a repetition of the PhD on a different subject. On the contrary, this period should be about the freedom to do the research you want, in the way you want, without tight supervision. Sometimes, even, little “extras” may spice up your postdoc life in the form of unexpected yet fruitful collaborations. Monotony, as in real life, is the postdoc's worst enemy.

This brings me to my second point: the person and the institution to choose. In my opinion, a postdoc should be synonymous with rupture... in term of research theme, scientific approach, and working environment. Everyone is free to place the cursor of change where he wants; personally I pushed it to the point where it brought me to explore another country. Whether or not the PhD/postdoc transition marks a big shift in your career direction, in my mind it is essential to preserve a good relationship with your former advisor(s). In many ways, the choice of a specific postdoc position is the first act of a young, yet independent, scientist. This should be bold, daring and reflect *une certaine idée de la science*.

**Steeve Bonneville**

BASTIAN JOACHIM studied Earth sciences at the Free University of Hanover and received his diploma in January 2008. The diploma thesis, in which he performed experiments about convective crystal dissolution, was a collaboration between the University of Hanover and the University of Michigan. He has been a PhD student at the German Research Center for Geosciences (GFZ), also affiliated with the Technical University Berlin, since February 2008, and he aims to finish his PhD thesis in May 2011. It concerns the experimental growth of complex, polycrystalline, metamorphic reaction rims.

STEEVE BONNEVILLE is a lecturer in the Biogeochemistry–Earth System group at the Free University of Brussels (ULB). After studying biology in France, he obtained a PhD in 2005 in geomicrobiology at the University of Utrecht (the Netherlands). In 2006, he moved on to a postdoctoral position at the University of Leeds in the Weathering Sciences Consortium. His research interests range from mineral alteration by root-symbiotic fungi and bacteria to the (bio) geochemistry of iron oxides in soils, sediments and atmospheric dusts.