Reading up: advice for any stage of a scientific career.

To my considerable surprise, I was recently invited to take part in a careers event aimed at PhD students. The format was to have an 'official' talk from a careers person about applying for post-doc positions, and then several people from academia and industry explaining how they select which candidate to appoint, and then a question and answer free-for-all. The 'How do I select postdocs?' talk was a little awkward, as it was pretty much diametrically opposed to what the careers professional had told them about what people look for, and I tried to smooth over the cracks by saying how much the session emphasized that there are many different opinions and practices and there is room for a lot of diversity and for all sorts of people to succeed. The Q&A featured an odd question directed to me – if I had just two pieces of advice to give, what would they be? I thought for a moment, then suggested two, One was about how to avoid impostor syndrome (I may return to that in another blog), and the other was to read about the job 'above' the one you have, almost as soon as you are in position.

For PhD students, I recommend an excellent book from Cold Spring Harbor Press called *At The Bench*, which is written to help post-docs to transition into their role and to understand it. For post-docs, I recommend *At the Helm*, a similar work to help people just appointed to group leader positions ('faculty'). On my own shelves are books about running universities (although that is not a job that I want: I like research too much and am really not a natural administrator). Why do I recommend people to read works ar the 'wrong' level? There are two reasons:

The first reason is that, at each level, the person will work closely with someone at the level above. PhD students rely on post-docs for everyday help at the bench,: they will also get help from their formal supervisor (lab head), but post-docs are 100% lab researchers whereas their supervisor will have other academic duties such as teaching, reviewing, grant-writing, examining and so on so will not be there all the time. Post-docs, though pretty independent, will need to work closely with their lab head. One of the best ways of avoiding frustration about different ways of seeing things, and about priorities, is to understand as much as possible about the professional life of the person who is advising you. When you understand the demands of their role, and the range of skills they are developing, it is much easier to see how you fit in to their lab life (they will have held the more junior position already, so of course they know how they fit into yours).

The second reason for reading 'up' – that is reading advice for the level 'above' yours – is that it

helps you decide whether you want that job when yours current phase of development is over, or whether you may prefer something else. For this reason, it can be helpful to see *many* levels above. Here, functional advice books are not that helpful, because without experience of intermediate levels it is difficult truly to understand what is being described for higher ones. But there is always the option of turning to fiction.

There is not much realistic fiction set in labs, but some of what there is is excellent. If I had to recommend just one book, it would be *Cat Zero* by Jennifer L Rohn. I had come across the author some years ago as the founder of the *Lab Lit* website, devoted to this genre. Much more recently , I have been involved in a scientific collaboration with her but it took a few months for me to realize that my new collaborator Jenny, and Jennifer L Rohn, were the same person! *Cat Zero* is set in a UK academic research institute that bears some resemblance to various real ones, without being a clone of any specific one. Its lead characters are a young group leader, a post-doc and a technician, with various collaborators inside and outside the institution. The book will not be a general 'best-seller' because Rohn does not patronize her readers by explaining things to outsiders: if you are a cell or molecular biologist, you will understand everything and, if you are not, you may well get lost in many places, especially when trying to follow conversations within the lab and the conclusions drawn from data. In my view, this decision is entirely correct: other people's novels that are set in London do not break off to explain what a tube train is, so this novel set in a lab does not break off to explain what a Southern blot is. But the important universals of a novel – such as creating interesting and believable characters and a plot with suspense and unexpected twists and turns – are all there. So are some big questions, about meanings, and loyalties and values and how to live, tangled in the plot so that they emerge from it slowly and stay in the mind.

But beyond being a good read, it is a superb way of taking the reader into the head of the group leader, to a lesser but significant extent into those of her post-doc and technician, and in a way also into the heads of those who run the institution. I would not support all of the values expressed, particularly various characters' obsessions about publishing in specific journals or about achieving great personal recognition, but that's fine, and other characters act as a balance. It also seems to me that in the real world as well as in the novel, there are people for whom personal recognition ('trending') is more of a drive than finding out how the world works, and part of embracing diversity in science is to accept diverse drives and ambitions and values. The point is that reading books like this is a great way to understand more about the other people in your lab, and in your future labs,

and to work out what kind of scientist you want to be.

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