

Viewpoint Interviews...

Kersten Hall, Author and Visiting Fellow in the Centre for History and Philosophy of Science, University of Leeds.

In a special edition of our interview series, we chat with Kersten Hall about his career path in the history of science, the importance of taking research beyond academia, and some top tips on how we can do this ourselves.

Who or what first turned you to the history of science?

I don't think that there was a single Damascene moment. But I do remember that during my years as a molecular biologist, I took a break from running DNA gels one afternoon to attend a workshop on ethics in science, by historian Professor Graeme Gooday. When he introduced himself as being from the Centre for History and Philosophy of Science, I remember some of the scientists present rolling their eyes and muttering under their breath about how philosophy was just a load of rubbish (the actual words used were somewhat stronger, I seem to recall). But the effect on me couldn't have been more different. The idea that somewhere out there, while I was busy chopping and changing DNA molecules, there were scholars scrutinising the history behind the materials and methods that I was using left me entranced and so I set sail in search of this promised land.

How did your career as a molecular biologist shape your approach to historical research?

Moving from the lab to the archive involved a pretty steep learning curve. As a molecular biologist, I had basically been an engineer on the sub-cellular scale. But when I started my Masters in HPS, I had to learn an entirely new language – what was instrumentalism? Who was Foucault and what was he saying? But Thomas Kuhn also said that learning the history of science from a science textbook gives about as much insight as learning about a foreign country and its culture from a travel brochure. As a scientist, my only exposure to the history of science had been the triumphalist narratives found in

textbooks – you know the kind of thing; Mendel was a lone genius 'ahead of his time', Watson and Crick were able to solve the DNA structure because... they were 'geniuses' etc. As a result, I came to HPS wearing Whig-shaped spectacles with very thick lenses which sat very heavily on my head. It's taken an awful lot of time and effort to hoist them off, and sometimes I'm still not entirely sure how successful I've been in this endeavour.

Some may think that the research comes first, then public engagement. What's your take on that?

I think the relationship is symbiotic. After I'd written a piece for the BSHS blog a few years ago about Florence Bell's work on DNA, I was contacted out of the blue through social media by one of her sons who lives in the US. Our correspondence shed new light on his mother's work.

I also gave a talk in a local church hall and got chatting with a member of the audience who had been a textile scientist, and he told me about an intriguing exchange between Astbury and the biochemist Archer Martin at a conference in 1946. Intrigued, I started to dig further into this story and it quickly became clear that, far from being the usual academic spat of two bald men fighting over a comb, this was instead a proper David vs Goliath intellectual punch up over protein structure which went on to form the backbone of a whole chapter in my new book about insulin.

Why do you think it's so important to take HSTM to public audiences?

A year before he was jointly awarded the 1968 Nobel Prize in Physiology or



Medicine, US scientist Marshal Nirenberg articulated the answer to this question far more eloquently than I could. Having helped to decipher the genetic code, Nirenberg reflected on the decisions that we would soon face regarding the power of genetic technology. Recognising that such decisions must be made not only by scientists, but by the wider society of which they were a part, he cautioned that 'only an informed society can make such decisions wisely'.

It's also important to recognise that a significant part of that wider target public audience are scientists themselves. Yet, I suspect many scientists would argue that knowing the history of their subject is hardly top of the priority list. But as a molecular biologist, I can now look back and say I think history does matter. One of the most common questions that wider audiences want to know is – 'But how did we find that out in the first place?' Being able to offer a more honest account of the history of science is an essential part of public engagement

and cultivating Nirenberg's 'informed society.' And as a postscript to this, I should add that Greg Radick here at Leeds is currently running a series of really engaging seminars in which he's bringing together molecular biologists, geneticists, cell biologists with historians and philosophers of biology to help do just this.

How have you worked with public audiences in your own career?

Since giving my first talk to a public audience at the Thackray Medical Museum back in 2010, I've been invited to speak to a pretty eclectic mix of groups from the University of the Third Age, to amateur naturalists, small local museums, a local support group for people with diabetes, and Probus – an organisation for retired professionals.

I've also given interviews about the story of insulin to places such as BBC *Naked Scientists* podcast, *BBC History Magazine* and the BBC World Service. While the science behind this story is certainly fascinating, I think it's the human story that really engages people – both that of the scientists involved, such as Fred Banting who at one point became so depressed at the thought of having his glory stolen that he took to drinking alcohol stolen from the lab – and also the fact that insulin has a direct relevance to a lot of people's lives today. Giving these interviews has really helped me to keep my thinking fresh.

Do you have any top tips for anyone looking to take their research to wider audiences?

I've only just reached three digits for my Twitter followers, so I certainly can't claim to have mastered the use of social media, but I do recognise that it can be invaluable in reaching out to a wider audience. Also I strongly recommend identifying some contacts in the Press Office of your institution and get to know them! The Press Office here at the University of Leeds have been very supportive in drafting press releases and generating media interest. I think that the key is to develop a 'hook' to catch the interest of media outlets. You can focus on a single character or scene that will grab the imagination.

For example, for my new book *The Crooked Timber*, I focused on Canadian scientist Fred Banting picking up the phone to hear that he'd just won the 1923 Nobel Prize in Physiology or Medicine for his discovery of insulin – an accolade that should have left him delighted, but instead left him seething with fury.

Finally, see whether there are groups like Café Scientifique, or a local Phil and Lit Society – these were founded in many big provincial cities in the early 19th century to promote the arts and sciences, and several still survive today. The one here in Leeds is still going strong after 200 years and moving to online public lectures as a result of the pandemic has actually helped to broaden our audience.

What role does the history of science have today and in the future?

When I was busy at the lab bench working with PCR and mRNA on a daily basis, I never thought the day would come when these terms were part of everyday vocabulary and TV evening news reports. As a result of the Covid pandemic, that's all changed and we've all become acutely aware of the importance of science and its impact on our lives. I think this underlines the importance of having a more honest, authentic account of scientific discovery and once again provides another powerful example of the need to nurture Nirenberg's 'informed society.' So maybe, as a result of SARS-CoV2, the history of science as an academic discipline is more important than ever.

What advice would you give to people just starting in the history of science?

Learn a foreign language! As I'm half-German, I was brought up to speak the language and this has proved to be invaluable for historical research. It can really open your eyes to new sources, while offering fresh perspectives on some not-so-new ones. Whilst researching the discovery of insulin, I've been able to read the research papers and letters of Georg Zuelzer, a German clinician who protested at the decision to award the 1923 Nobel Prize in Physiology or Medicine to Banting, arguing that he had already discovered it 15

years earlier. I'm currently brushing up on my French to translate a 1924 paper by Zuelzer's collaborator, Camille Reuter that should by rights have earned him and a Nobel Prize for the discovery of insulin.

What are you working on just now?

A few years ago, after a hard day in the archives, I retired to The Eagle pub where, according to the apocryphal tale, James Watson and Francis Crick went bursting in to make the first public announcement of their double-helical structure for DNA. And I found myself wondering what poor Swiss physiologist Friedrich Miescher would feel had he been able to see all the tourists eagerly snapping photos of the plaque on the wall that commemorated Watson and Crick's first public announcement 'of the discovery of DNA'. Because it had been Miescher who, nearly 100 years earlier, whilst washing pus from discarded surgical bandages in a freezing cold lab in Tübingen Castle, had actually first discovered a previously unknown material localised in the cell nucleus that he christened 'nuclein' and which we today know to be DNA. I'm delighted therefore that Dr. Ralf Dahm who is an expert on Miescher has invited me to help him put this right by co-authoring a new book about Miescher.

And Miescher's nuclein also crops up in a steampunk adventure novel which I'm about halfway through writing. It's aimed at a young adult audience and is set in an alternative 19th century in which a number of characters from history of science such as Francis Galton and Gregor Mendel have walk on parts.

A new, revised edition of Kersten's *The Man in the Monkeynut Coat: William Astbury and How Wool Wove a Forgotten Road to the Double-Helix*, will be released by Oxford University Press later this year.

If you enjoyed this interview, look out for Kersten's article in our next issue!