Media Fellow Report 2008

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In March this year, an email I received from Generic Skills (University of Dundee) caught my attention. It highlighted an opportunity to apply for a science Media Fellowship. With only 2 weeks to the deadline, I did not have long to make a decision. My immediate instinct was to go for it – but, having just started a new project, I had to consider if it was a good idea to take a 2 month break from my research. With no previous media experience, I realised that the placement would be a challenge. But it would also provide a valuable opportunity to develop my writing skills, improve my career prospects and, more importantly, become more aware of the 'bigger picture' and how the public (and journalists) perceive scientific research. About a week before I travelled down to London, it was quite a coincidence when the BBC approached my supervisor to provide an expert opinion. I then realised how exciting my placement was going to be - it was going to be me at the end of the phone asking the questions!

Placements
For the first 3 weeks of my Fellowship I worked with Jonathan Amos and other members of the **BBC Science and Nature** desk at Television Centre, White City. On my first day, I was thrown straight in at the deep end: as I sat down at my computer, I was immediately handed a press release. Although I was told that that I could take as long as I needed to write, I quickly realised that I had to be quick off the mark to produce articles. Sure enough, I missed the boat several times during the first week – I had to a devise a strategy! Firstly, I found that I had to read scientific papers in a different way: it was important to step back from the fine details. There was a clear formula – who conducted the research, what's new and what does it all mean? To transform findings into a story that would interest a general audience, it was particularly important to consider the wider implications of the research.

"Hello, Science and Nature"
Initially, I found it quite daunting to carry out telephone interviews. However, I became more confident as I realised that most scientists were only too happy to be given an opportunity to explain the importance of their research. I often found myself with 30 minutes of recorded dialogue, from which to find good quotes. I tried to learn from other people in the office – I could tell that they had ways of obtaining comments to make the story. I had a lot to learn and I had to be careful not to slip into my scientist's shoes and ask questions that were too technical.

Throughout my placement, I gained an appreciation of some of the overlaps between my work and science journalism. Just as it is critical that scientists keep up to date with the latest research papers, journalists have to access news-worthy stories that are emerging. Eurekalert proved an invaluable tool for accessing embargoed press releases. It was exciting to read about the most recent scientific breakthroughs before my colleagues back in the lab. When it came to writing articles a "short and simple" style was the most effective. I was used to this approach, but I had to get used to differences in the structure of articles. For example, one specific requirement of the BBC articles was that, for the purpose of Ceefax, the whole story had to be presented in the first four lines – the rest of the article expanded on the main facts. Furthermore, headlines had to be between 33 and 35 characters – and

had to provide a creative, but accurate summary of the article. I also had to source appropriate images and provide links to other BBC reports that were related to the topic. The template on the BBC CPS system was very user-friendly and helped me to get used to this format - and my productivity increased, accordingly.

I was also encouraged to gain an insight into some of the other aspects involved in working as part of the wider BBC News team. I sat in on a '9.30 editors meeting.' Representatives from each of the online sections - ranging from Politics to Entertainment - presented the stories for the day. Again, it was strange to think that I was hearing the news before it reached the wider public. Another highlight of my first week was an onsite filming session. A lot of patience was required as it took several attempts to get a 'jargon-free' piece. I learned about the importance of working with the camera man to obtain the most effective shots. The producer also played a key role in providing encouragement and visual feedback to the scientist. It was also useful to identify props that could be used to help guide an explanation of the research. I had my own moment of fame when Radio 5 Live lunchtime news asked me to provide some scientific background to one of their items. The question of the day was, "Have you noticed that cattle all face the same way?" The item showed a light-hearted side of science, which had clearly caught the attention of the public. However, it was frustrating that – due to time constraints – the piece centred on the "quirky" nature of the research, giving the impression that there was no serious substance to it. I found myself wanting to "stand up for science!"

My 3 weeks at Science and Nature gave me a solid basis for my next placement at the **Radio Science Unit** at Bush House. I mainly worked under the guidance of Martin Redfern - the producer of Material World, a programme that enables UK scientists to present their most recent findings. However, I also got a feel for some of the other programmes, including Case Notes and Leading Edge. Specifically, I researched ideas for Leading Edge, wrote a number of 1 minute factfiles for Case Notes (*eg.* schizophrenia, elephantiasis, ultrasound) and recorded a voice-over translation for Digital Planet. My main ambition was to write a programme for Material World. During the first week I familiarised myself with the format and content of previous programmes. I also took advantage of opportunities to watch the live, weekly Material World broadcasts from Broadcasting House. It proved quite a challenge to generate original and interesting ideas - it required a lot of imagination, patience and inspiration. I had to consider that not all interesting science stories would make good radio and that the producers were generally looking for local scientists. Another constraint was that Material World did not tend to include health-related topics, as these were generally covered by other Radio 4 programmes. My first approach was to consider interesting speakers that I had heard at the BA Festival of Science. I also searched through press releases from local universities. During this process, I appreciated the efforts that some press offices make to keep their websites up to date. There was also a lot of variation in the quality of their press releases. In the end, I extended my geographical range to the University of Warwick and I approached a former colleague - one of the most enthusiastic neuroscientists that I know. Together, we developed a programme idea and he put me in contact with someone he thought would be interested in speaking. Originality, preparation and confidence were then the key elements to delivering a successful pitch to the producers. I definitely felt a sense of achievement when I found 2 speakers to make the programme. It was also rewarding to respond to the constructive feedback that I received from the scientists involved. I am looking forward to hearing the finished programme on November 13th. Overall, I was impressed by the breadth of topics covered by the producers of Material

World and the efforts of the team to 'get the science right', while still making the programme entertaining and approachable.

BA Festival of Science

The BA Festival of Science in Liverpool was certainly one of the highlights of my placement. I was able to compare my experiences with the other BA Media Fellows and work alongside science journalists from several different organisations. There was a strong buzz in the Festival press office, which I won't easily forget. My daily schedule at the Festival was quite different from that at the BBC. Rather than reading papers and contacting the researchers, I attended press conferences that had been arranged by the BA. Selected key speakers provided a brief summary of their research and responded to questions from the journalists. I found it quite strange that I did not have to rely on hearing the full presentations to write my articles. It was interesting to see how the "journalist pack" worked together to decide on the stories of the day and compare the styles of their finished articles. I was able to fully appreciate the strategies that sciences journalists have to adopt to compete with other leading headlines and it was really encouraging to see full-page articles that covered the talks that had been presented at the Festival. In the afternoons, I appreciated the support of Jenny Carpenter, another Media Fellow who had also worked with the BBC. As the sole representatives of the BBC online news team we did feel an added responsibility to deliver the stories of the day. Each evening, the social events provided opportunities to talk with other journalists and it was also good to introduce myself to Martin Redfern and Quentin Cooper prior to starting at Radio 4. Their broadcast on Beatles memories from "The Cavern" was particularly enjoyable to listen to.

Future

My work colleagues and friends enjoyed reading my BBC articles and were interested in hearing about my media experience when I returned to the lab. In particular, they commented on how important it is for scientists to be aware of the wider picture and to be able communicate their research effectively. Personally, I am sure that the experience I gained from my Fellowship has improved my confidence and will help me to improve the quality of my future written work and presentations, which can only benefit any career path I choose. I feel that I am also more prepared to speak to journalists and become involved in the many schemes that provide an opportunity for scientists to engage with the public.

Many thanks to Nigel Eady, Jonathan Amos, Deborah Cohen, Martin Redfern, other members of the BBC Science and Nature desk (Paul Rincon, Mark Kinver, Richard Black, Rebecca Morelle, James Morgan) and Radio Science Unit (Peter McHugh, Quentin Cooper, Alex Mansfield, Colin Grant and Geraldine Fitzgerald) and all the BA Media Fellows for all their guidance, encouragement and support throughout my placements.

Appendix A

BBC News articles

Cattle shown to align north-south
http://news.bbc.co.uk/1/hi/sci/tech/7575459.stm

Model targets foot and mouth risk
http://news.bbc.co.uk/1/hi/sci/tech/7582760.stm

'Cold feet' may halt toad march
http://news.bbc.co.uk/1/hi/sci/tech/7584815.stm

Mammoths moved 'out of America'
http://news.bbc.co.uk/1/hi/sci/tech/7592668.stm

New giant clam species discovered
http://news.bbc.co.uk/1/hi/sci/tech/7588857.stm

Bumblebees outwit robotic crab spiders
http://news.bbc.co.uk/1/hi/sci/tech/7596808.stm

The case for forensic linguistics
http://news.bbc.co.uk/1/hi/sci/tech/7600769.stm

Seabed archaeology goes virtual
http://news.bbc.co.uk/1/hi/sci/tech/7605718.stm

Diatom nanostructures bend light
http://news.bbc.co.uk/1/hi/sci/tech/7608369.stm

Earthworms to aid soil clean-up
http://news.bbc.co.uk/1/hi/sci/tech/7611522.stm

Taxi drivers have brain 'sat-nav'
http://news.bbc.co.uk/1/hi/sci/tech/7613621.stm

Appendix B

Radio 4 Material World Transcript: "A fly's brain"
(To be broadcast on November 13th 2008)

Dr Kevin Moffat (studio) – Associate Professor, Department of Biological Sciences, University of Warwick.
Dr Richard Baines (BBC Manchester studio) – Reader, Faculty of Life Sciences, University of Manchester.

- **Kevin Moffat. Fruit flies are no strangers to the lab?** (Fruit flies do have a long history. More than a century has passed since the geneticist Thomas Hunt Morgan first brought them into the lab. He kept them in empty milk bottles, fed them on bananas – and his 'fly room' rapidly became a mass production line. Scientists were sceptical that fruit flies could be used to study very complex behaviours but in the 1960s Seymour Benzer was convinced that they could be used to study how the brain works.
- **Kevin. So what do I have in common with a fruit fly?** (More than you might think. As much as 75% of human disease genes can be matched to counterparts in the fly genome).
- **Richard Baines. What else do fruit flies have to offer scientists?** (They are very popular creatures as they have a short lifespan of about 2 weeks - so we can produce large numbers of them quickly and cheaply. 'Drosophilists' (we have a name) have built up a huge collection of mutant flies that are helping us to understand some very complicated processes - sleep, mating behaviour, the immune system, ageing – it's a growing list. In terms of evolution - hundreds of millions of years separate us from flies – yet we are now using them to understand human brain diseases – such as epilepsy).
- **Kevin. I'm thinking about the size of a fruit fly's brain – surely we're a bit more advanced than them?** (Their brains are as small as a pin-head and they do only have about 100 thousand nerve cells compared to our 100 billion. It is like comparing a desktop PC with a supercomputer – but the fly does more with less. They are surprisingly sophisticated – can you walk upside down on the ceiling)?
- **Richard. So how can you make a fly model of epilepsy?** (We use "bang-sensitive" fruit flies - they have genetic mutations that make them more susceptible to seizures. As the name suggests - if you give these flies a brief shock (eg. bang them on the desk) – they first become paralysed and then have a seizure. This is very similar to what we see in humans).
- **Richard. It seems quite easy to identify these flies - what can we learn from them?** (We can start to understand why seizures happen. The fly's nervous system is tiny – but it uses the same principles as the human brain. In my lab, we record electrical activity from nerve cells. We had to develop a way to dissect the tiny fly brains – we're the only lab in the UK that can do this. We also study fly embryos - they can comfortably sit on one of the dots around the edge of a penny - take a look – they're not big! We listen into the chatter that is going on between nerve cells).
- **Richard. Tapping into nerve cell gossip sounds intriguing:** (We've found that the nerve cells of bang-sensitive flies don't just talk to each other – they shout. Nerve cells communicate with each other by releasing chemical transmitters. In epilepsy, we think that the cells release too much transmitter. If we can work out why this happens - we can begin to find a possible cure for epilepsy. About one-third of patients do not respond to

drug treatments and many drugs that do work have serious side-effects. This can be difficult to live with if you have to take medication for most of your life).

- **Kevin. I understand that you are interested in Alzheimers disease?** (Age-related diseases such as Alzheimers are a growing health concern as we are now living for longer, there is known cure and the drugs that are available at the moment are only partially effective. To create a robust model of Alzheimers you have to know what the main hallmarks of the disease are. One 'prime suspect' is a protein called β-amyloid - it forms deposits or "plaques" between nerve cells. I'm interested in another protein called tau which is the main component of 'rope-like tangles' that also found in the brains of people with Alzheimers).
- **Kevin. What job does the tau protein normally do?** (In healthy cells, tau stabilises microtubules – these structures are like roadways – they transport 'cargo' to different parts of nerve cells. In Alzheimers, severe 'traffic jams' occur as this transportation system breaks down. The nerve cells are crippled as they cannot communicate with each other properly).
- **Kevin. It sounds a bit like the M25 – how does this fit into your model of Alzheimers?** (You can insert the human tau gene into the fruit fly. These "humanised flies" show some symptoms of Alzheimers – including loss of nerve cells. We can make sure that the gene is only expressed in specific cells – for example, in the eye. Fruit flies have eyes that are made up of a regular crystalline structure of about 800 lenses - it's easy to see when this is disrupted. We can also put tau into motoneurons – and see if the flies have problems with movement).
- **Richard. Brain research has clearly taken flight. Could cures for brain diseases lie within the fruit flies themselves?** (Fruit flies are a great system for making "chance discoveries." You can randomly switch certain genes on or off - and see if this has any effect on the disease you are looking at – for example, it's easy to see if seizures are suppressed. Large-scale genetic screens can produce some surprising results. A group in the US discovered that they could prevent seizures by switching off the gene for a protein that is important for folding molecules of DNA – you would never have guessed this would be the case).
- **Kevin. In the meantime, can fruit flies help us to develop new, more effective drug treatments?** (We can actually feed fruit flies a whole array of different drugs and look to see if any prevent the disease from developing. We can also investigate how these drugs work – this can tell us a lot about what is going wrong in the nervous system and the causes of the disease).
- **Richard. Could fruit flies replace other animals in the lab?** (This is an important ethical consideration. Fruit fly research is becoming increasingly popular - in academia and the pharmaceutical industry. It does go a long way to reducing the need for larger animals for medical research - something that we all see as a benefit).