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Vetting the Clinic and Academia

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"Just as important to me is bringing my newly gained neuroscience and human neurology knowledge and research skills to the veterinary world."

Eight years ago I was a veterinary surgeon in a small-animal practice. A normal day for me might have been vaccinating cats, treating dogs with coughs, and clipping rabbits' teeth. So how come I now find myself writing up a PhD thesis on a cellular electrophysiological study in epilepsy?

I first thought about being a vet when I was about 10. My father himself had been a veterinary practitioner for about 30 years, although he has now left the clinical world to work in industry and academia. I got lots of pleasure out of looking after our various pets at home-- rabbits, cats, dogs, tortoises, sheep, donkeys. You name it, we had it! And for as long as I could remember I had also watched operations and hung around in the clinic.

I had a brief spell of doubts at 15 when I had to choose my GCSE (General Certificate of Secondary Education) subjects. I seriously considered trying to get into music college to study piano and composition. Eventually I decided to go for the more sensible option of the sciences, and after 5 years of very hard studying at the [Royal Veterinary College](#), University of London--getting covered in mud (and far worse) on sheep, pig, and dairy farms and drinking beer with the rugby players--I graduated as a veterinary surgeon.

Immediately after graduation I went into a small-animal practice in the South-East of England and there I learnt to play many roles including physician, orthopaedic and soft tissue surgeon, animal behaviourist, and counsellor. I most of all enjoyed the problem solving that is involved in medicine and I found I was skilled at communicating science to the pet owners. I also developed an interest in neurology; particularly in brain conditions such as canine epilepsy.

But after about a year in the job, I was getting very itchy feet. I felt that I did not really fit in, and I could definitely not imagine myself spending the rest of my life as the local vet in a small town. At about this time I happened to bump into an old professor of mine at a conference. He was a veterinary neurologist in the college and was looking for a young vet to train in his discipline. He asked me to apply for a residency in veterinary neurology and neurosurgery, and this is how I embarked on the 3-year training programme.

During that time I performed spinal surgery on paralysed dogs that had slipped discs, removed brain tumours from cats and dogs, and used magnetic resonance imaging (MRI) to study canine and feline brain disease. This type of clinical work was far more challenging than anything I had encountered previously. In my clinic I saw paraplegic animals that, after surgery, could walk normally again. It was enormously satisfying, although the emotional pressure was sometimes enormous. I also became involved in teaching undergraduates and found that I enjoyed giving seminars and lectures.

But after acquiring my diploma in veterinary neurology, a specialist qualification, I was ready for a new challenge. This is when I came across a 4-year PhD programme in neuroscience organised by the [Wellcome Trust](#). You could choose three different neuroscience labs (from molecular through cellular to systems research) from a list of about 60 and spend 3 months in each before deciding which one to do your PhD in. I was quite excited about this idea and so I went along for the interview-- which felt like a bizarre experience at the time. I was shown round several cellular electrophysiology labs that smelt a bit musty and contained things called "rigs" in which people apparently studied neuronal function using techniques such as "patch-clamping". This was a different world. I was also competing against much younger basic science graduates and I was thrown a whole mixture of scientific questions. Thankfully, being a vet gives you a very broad overview of biology and I was offered a place on the programme.

The next 4 years were very challenging, but in a different way. The first thing I noticed was how wonderful it was to have so much time, peace, and quiet to work. The phone did not ring, owners of pets did not want my advice, and I did not have any emergencies to rush off to. But intellectually, my PhD has been the most difficult thing I have done so far. I guess I was a bit cocky when I started, but soon I felt humbled when I realised my knowledge of molecular and cellular biology was pretty rusty.

I also had to make the difficult decision of whether I was prepared to do *in vivo* work. I ended up working on different animal models for human epilepsy using slices of brain tissue. Many vet friends ask: "How can you do work with experimental animals, when you have trained to make animals better?" The way I see it is that first, as a vet, I can ensure that my lab animals have the highest standard of welfare possible and second, I feel privileged to be doing research that may be relevant to both human and animal health. It was fascinating to realise, from working alongside neurologists in human medicine, that in some ways, veterinary medicine is a long way behind human medicine, but in others we are surprisingly advanced.

Finally, although the pace of life in a lab seems apparently more appealing than a busy clinic, I have struggled at times. I hated the fact that I could work extremely hard, when learning a new technique for instance, but achieve nothing for months on end. During these periods I became really quite depressed and wondered what on earth I was doing with my life. On the plus side, that was a perfect excuse to start playing the piano again.

So what is the next step for me as a veterinary neurologist with (nearly) a PhD? I have been lucky enough to gain a lecturer's position at my veterinary college. I will have 50% time on clinics and 50% research time while teaching the veterinary undergraduate module in neurology.

I am very excited to return to the challenge of a busy veterinary neurology clinic. I have been missing the daily sense of achievement, although along with that goes more stress, being on-call, and the responsibility of dealing with very sick pets and their very worried owners. Just as important to me is bringing my newly gained neuroscience and human neurology knowledge and research skills to the veterinary world. I aim to do this by continuing to do experiments in my PhD lab until I slowly gain more publications and am eventually able to build up my own projects at the veterinary college. I also intend to do some clinical research projects using my veterinary caseload, and what I have learnt about project design and writing papers will help enormously.

Of course I have a few concerns. I am still an inexperienced research scientist and even though I have presented my research at several conferences all over the world and am on the way to getting my first paper, I need many more of these. I have been advised that ideally I should have done at least one postdoctoral project. I went against this idea, because first I did not want to abandon clinical work for any longer, and second I am in my 30s and need a proper income. To make the challenge greater, is my busy clinical work going to eat into my research time? The answer could be yes, but I am sure that, with self-discipline, it must be possible to protect my 50% research time.

The first advice I would give to other vets out there thinking about going into research is to spend a few months in a lab before committing yourself to a long-term project. It's a big culture shock, and I have lots of vet friends who I suspect would hate lab life and the pressures to publish and get more funding. On the other side, you lose your clinical skills quickly, so if you are doing research and thinking of returning to the clinic, try to keep your hand in.

One of the most positive aspects to my dual training is that I have met so many interesting people. Vets tend to stick with their own kind. I have found scientists to be far more sociable, and my circle of friends has become much more varied. And lastly, a veterinary degree really does give you a very broad education and you certainly can use it to go down lots of fascinating paths.

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