

## **SCIENCE AND ANIMALS - OR, WHY CYRIL WON'T WIN THE NOVEL PRIZE**

**Lynda Birke**

*In loving memory of Tess, a wilful and feisty cairn terrier, who was killed on the road the week before I began to write, and of Ginny, a loving lurcher whose sudden death shortly after deprived the world of beauty.*

### **Prologue**

There have always been animals in my life. I have long had a love affair with horses; dogs, too, feature strongly in my emotions and in my house. And not only companion animals, but also the wild creatures that surround us all. Even in London, in the postwar devastation I witnessed while growing up, I learned the joy of watching the birds in the trees.

In what sometimes seems another life, I trained as a scientist. Ambivalent though I was about doing biology (surely I could not bear the thought of cutting up dead animals?), I ended up studying just that. For years, I agonized over the fate of animals in the laboratories, and my own role as a student of biology in that fate. Here, I want to tell something of my own story - how I survived doing science, but how my relationships with animals finally persuaded me that science was too disrespectful.

If now I can speak of these things, it is partly because I no longer work in the laboratories. Courage to speak is always easier for those on the outside. But it is also partly born of my feminism, which has encouraged me to ask questions that are troubling - even about the science that I was doing. Silence helps no one.

### **Becoming a scientist**

Becoming a scientist - like any other professional training - is a gradual process of learning: students must learn not only facts, but also how scientists behave. Much of this is gained informally, at coffee and

conferences. Gradually, you learn how to look at the world through scientists' eyes, how to ask "scientific" questions, and what counts as scientific knowledge and what does not.

Submerged in all this learning are two critical distinctions. One is that knowledge only 'counts' if it is gained through scientific method; thus, the knowledge of people who live or work with animals does not count. The second is that there are (at least) two kinds of animals. Scientists, like anyone else, might have very personalized relationships with companion animals at home. Yet, in the laboratory, the 'lab animal' becomes a tool of the trade, a sensitive piece of apparatus.

In telling my own story now I realize that I had to live with these two contradictions. I acknowledged both ways of knowing, and I accepted two quite different ways of being with animals. Yet despite these overwhelming dilemmas, there were also good reasons to learn science. One is that I was fascinated by it, by natural history and especially by animals. The budding eight-year-old, pony-mad scientist learned to recite the Latin names of every single bone in the vertebrate skeleton - provided it had an equine form around it. Moreover, no one in my family thought that girls could not do science; on the contrary, I was given chemistry sets and learned to build radios.

I had moreover long been drawn to natural history; surely I thought, science would enable me to study animals and plants in detail. Yet I was ambivalent about doing biology precisely because of the need to do things to animals. Twice over in my early training, I tried to concentrate on the physical sciences: but always something drew me back to biology. The fascination with the living world won out, even though I had to steel myself against the need to do dissections - or worse. I often wonder, when I hear people express concern about the need for people to understand more science, how many have been put off it for life by having to cut into animal flesh.

Thirty years later, I can still feel vividly that sense of horror at school as I was confronted with a white rabbit with pink ears, for dissection. I said nothing: you were simply expected to get on with it. Even by age 17, I had been socialized not to show emotion; I did after all, want to do science. Alongside the sense of revulsion however was another emotion, a sense of fascination at the beauty of (once) living tissues, at how they

are put together. For all that I think dissection is unnecessary in biological education, it seems important to say that seeing 'what the animal was made of' did have an impact.

So while I hated the very idea of picking out the frog that was to be killed (which I handed to a friend to kill, rather than bear doing it myself), there was a profound sense of awe as we stood together gazing at the iridescent skin, the slowly moving red blood cells, through the microscope. I cannot ever justify that animal's death; but I do know that the awe stayed with me, making me feel even more strongly just how beautiful animals are.

Yet whatever one's aesthetic reaction, scientific training soon makes the student learn to suppress emotions. Slowly, you need to learn not to show questioning reactions to the use of animals, living or dead. Insofar as aesthetic or emotional reactions are encouraged in scientific training, these are likely to be responses to what nature has become after the processes of science. Scientists might for instance, express pleasure or even excitement at the colours or the orderliness of cells in a photograph taken with an electron microscope, just as I felt a kind of fascinated pleasure at the colours and textures of the tissues from the animal I had to dissect. But expressing anxiety about the sufferings of living animals in laboratories comes suspiciously close to the rhetoric of animal rights and would only be discouraged.

Budding scientists must learn to deny such feelings of empathy. Indeed, those feelings are considered 'unmanly' as the entomologist Miriam Rothschild once noted in a lecture. Whatever else it involves, becoming a scientist entails learning to acquire, or fit into, the macho culture of the laboratory and forswearing such 'feminine' responses as empathy with the animals. In that sense, the suppression of empathy or other emotions in scientific training is a gendered experience.

With all these contradictions and dilemmas in the background, I began a research career with some unease. Somehow I ended up doing animal behaviour research which at least allowed me to study what animals do and is perhaps less disrespectful than many other areas of biology. Despite all my turbulent feelings about animals and nature however I had been sufficiently desensitized to toe the line: ambivalence notwithstanding, I did laboratory-based research - for a while.

Yet alongside that I was also involved in both the Women's Movement and in environmental activism. Out of those politics, I questioned more and more what science was all about: what kinds of issues, for instance, influence how science is done. To begin with I continued with research justifying it to myself as long as nothing too nasty was done to the animals and they were well cared for. Much of my research was motivated by feminist questions - issues to do with women and health for example - for which at that time I was prepared to swallow my conscience and use animals as 'models' for humans. Only later did I explicitly question the use of animals altogether, and the fact that keeping them in laboratories must inevitably mean their exploitation and subsequent deaths.

It seems to me that it is an abuse of animals, not respect, (let alone the economic considerations) that allows large numbers of animals to be bred only to be wasted. Animals are killed routinely in laboratories. Some are 'sacrificed' in the course of an experiment; many more are killed simply because no one uses them on time or because scientists from one laboratory in the building don't particularly talk to those in another. The result is that in different laboratories, animals are killed for different parts of their bodies, when laboratories could co-operate and thus save lives. I find it odd that the numbers of animals killed because they are not 'needed' for experiments seems to merit far less attention from animal rights activists than the animals killed during particular experimental procedures.

Where individuals in the laboratory start to be respected as individuals by humans is where they pass over the boundaries from the world of 'data' to becoming a pet. Researchers working with animals sometimes designate particular animals as pets, so removing them from the realms of potential experimental animals. Naming the individual is one way of doing this; it is much harder to do something nasty to a Rita than to a numbered rat.

I can well recall the occasional animal that passed through our hands that would become special 'like a pet' - whose death we would mourn in a way that we did not mourn for all of the other animals, who remained numbers in cages. Cyril, for example, was a white rat whose front teeth did not meet properly in the middle. Rather than 'cull' him (lab-speak for

killing), we removed him from the experimental cages and kept him as a pet, clipping his teeth into shape regularly so that he could eat.

Still, those concerns about killing did not for a long while actually stop me from doing science. I knew that animals were going to have to be killed. I knew that some of the procedures I might have to use were somewhat invasive. Yet I swallowed my feelings about those for many years - such is the power of the desensitization that comes through scientific training.

Ironically, I was a vegetarian all this time. Eating animals was to me unethical, even unthinkable, and I did not want to be part of it. Yet there are many parallels between the meat industry and the breeding and maintenance of animals in laboratories. Large numbers are bred in order to be killed in both cases, and wastage is considerable. In both industries, too, animals must be killed (sacrificed?) deliberately: an animal that ups and dies on its own cannot count either as data or as a meal.

Meanwhile, in the lab I dissociated myself. To be a scientist in the lab meant having two, quite different, relationships to animals. My experience of those animals with whom I lived and played was so much at odds with my experience of animals in the laboratory. In lab work, you end up treating animals in groups. Animal 39/2/F is just a number in a cage. She represents a group or a treatment or a species, but you know nothing about her own history, about her life with her companions.

For all that I was fascinated by science (and still am), doing it has meant for me a sense of alienation, sometimes as a woman in a (still) largely male world, and more often as someone who cares deeply about animals. Cyril was lucky; his difference allowed him to become special. Most of the many millions of animals that pass through the world's laboratories each day are not.

It is distressing to be in a lab around people who are being cavalier with animals. There is a disrespect in the way some people handle the animals they use - not many people, perhaps, but enough. The animals often seem to be tools, means to an end (and certainly become so when reduced to numbers in the scientific report). Perhaps people don't mean to be cruel - but stunning a rat by swinging it round by the tail while cracking jokes is

hardly a sign of respect. On the other hand, I don't know that anyone who wants to stun a rat would be able to behave in any other way. Is it possible to have respect for the animal you are about to stun and decapitate? Cracking jokes may be a way of coping with doing something that, in other contexts, would be considered quite horrible. It is, if you like, a way of giving the act a different name.

### **Naming nature: making scientific stories**

Science is, ostensibly, about discovering how the world works; it is meant to be the pursuit of truth and proof. Maybe so, but it is also - as many critics have pointed out - deeply imbued with the values of the wider society. So its twin tasks of naming and describing nature are not innocent. How animals are described in scientific texts and natural history programmes on television have considerable impact on how we collectively think about them.

That process helps to ensure that we continue to see non-human animals as inferior to humans. Indeed, it is only quite recently that there has been much scientific interest at all in the question of 'animal minds' or animal consciousness. In my training, we were strongly discouraged from the sin of 'anthropomorphism' - attributing human feelings to animals. What that means is that you can talk at home about how much Rover understands, but woe betide you if you even think about what Cyril is feeling in the lab. The result, inevitably, is that scientists learn double-speak. Perhaps we might get away with jokey references to animal feeling or thought in the experiments: but then you must go away and write that arcane language of scientific articles that denies any feelings at all.

There are perhaps unsurprisingly many attempts to refute any evidence that shows animals to be clever. There is too much invested, both scientifically and culturally, in the notion of animal irrationality and inability. Culturally, we in the West have come to want to separate ourselves from nature, to shore up the boundaries between clever humans and those furry, feathered and finned 'others' who are not human.

The more easily that they become 'others' the more easily we can treat them with disrespect - whether they are other humans or other species.

That is why many scientists can accept working with rats and mice, but would find it difficult to work with primates: they are too like us. I am also reminded of an anecdote about a scientist who felt that it was easier for him to use greyhounds than other dogs, because they did not 'look at you in the same way'. I shuddered when I heard that story, and thought of my beautiful lurchers (relatives of greyhounds); Ginny was not 'other', but part of my life and I of hers.

Even if scientists begin to study animal minds, there remains the problem of how to interpret research findings. Humans are rather too good at disparaging what an animal does, especially if it fails to perform a task in the way that we would do it, and on our terms. Many books recount the tale of the horse 'Clever Hans', who allegedly could count. When it turned out that Hans was responding to his owner's unconscious cues, his abilities were discounted. But to me that is still pretty clever; I would not use the story to dismiss his abilities, merely because he did not seem to 'count' the way we do. I doubt that I could spot those subliminal cues to which Hans responded.

Those who train animals might well wonder why it has taken science so long to catch up with what they have long known about animal thinking. They might sometimes adopt the languages of science - talking behaviouristically of conditioning, for example - while simultaneously believing in the animal's abilities to form complex concepts. Admittedly, the kinds of animals that we train in depth are nearly always mammals or birds; hence, we know relatively little about the concept formation of other kinds of animals.

There is a strong belief that animals are simply not as smart as we are. Yet interpreting 'stupidity' is not easy, even among ourselves. In looking at 'animal consciousness', Radner and Radner note the case of a species of bee that was fooled by experimenters into repeating a particular behaviour pattern over and over again<sup>1</sup> (the bees respond to the odour of oleic acid, indicating to them that there is a dead bee in the hive that should be removed. The experimenters daubed oleic acid onto a live bee, and found that the bees repeatedly tried to remove it). Now, the behaviour can be thought of as illustrative of bee stupidity. But why are we so sure that they are simply being stupid?

We ourselves cannot always recognize death, the Radners note, even with the aid of high-tech medical apparatus. And we make allowances for humans to be credulous or gullible even when they persist in irrational beliefs, while 'animals...are expected to be perfect little scientists. In order to earn the epithet "conscious" they must be proficient in logic, ever ready to change their beliefs in the face of available evidence, careful to take all considerations into account. When people fail to live up to this idea, we say they are all too human. When animals fail, they are said to be machine-like'.

There is an issue moreover about the conditions in which the animals are tested by humans, as well as those in which they live. The animals used in such tests are usually kept in relatively impoverished conditions, and given tests that may not be particularly appropriate for their species. Yet scientists can still conclude lesser intelligence! Even humans would come out pretty stupid if given tests of their ability to find their way by smell, or if they had spent their life living in a space the size of a small bathroom.

Shoring up the intellectual boundaries between us and other animals seems to be something of a cultural preoccupation, a protection against great anxiety. In a preface to a short story, Ursula Le Guin reflects on this, noting that

Some linguists deny the capacity of apes to talk in quite the same spirit in which their intellectual forbears denied the capacity of women to think. If these great men are threatened by Koko the gorilla speaking a little [sign language], how would they feel reading a lab report written by a rat?<sup>2</sup>

How indeed.

### **Living socially: humans and other animals**

Perhaps it does not matter that science makes these claims that animals are qualitatively different from us. Yet the very same science also expects to work on the assumption that non-human animals are sufficiently similar to us that we can justifiably use them as 'models' for us in experiments. Surely there is a contradiction here?



Part of the reason why scientists can live with this contradiction is precisely the reliance on data from groups or species (unless, ironically, it is intelligence itself which is studied: then individuals may well be the focus of attention). But when animals come in numbered lots (like rats in stacked cages) it is much easier to ignore their idiosyncrasies. It is also easier to ignore their status as sentient animals and to behave as though they are merely tools of the laboratory. I well remember the technicians in one laboratory I visited telling me that they had to swap the rats from clear plastic cages to opaque ones. The reason, they said, was that the scientists were disturbed 'because the rats would come and look at you'. Looking with interest at the humans outside is something a sentient animal might do: test tubes do not.

By contrast to the numbered lots of rats in the lab, I knew all the animals at home, my horses or dogs, as individuals; I worked with them and knew their idiosyncrasies. I trained the horses daily and began to understand their individuality. Scientific accounts based on such individual stories would be considered insufficient for any generalizations about the species, horse. Yet after many years of working with horses, I have a strong suspicion that I know that species far, far better (and thus in a way that is more predictive of its behaviour) than I know any of the species that I worked with in the laboratory. Yet isn't science supposed to be about its ability to make predictions about the natural world?

What I have learned from companions at home is how intelligent they are, what love they have to give, how beautiful their movements are and about their different personalities. I learn too how patient they are in trying to get us to understand what they have to say - and how often we fail. Science could never teach these things.

Still the laboratory work had its own value in the development of my own thinking about our relationship to animals and what that means. It was through working with rats, for example, that I came to appreciate better what fine animals they are. I know full well the cultural loathing of these animals which is played on by organisations defending animal use in science as they point to the fact that most experiments are done on rats and mice. Thus the British Research Defence Society points out to the public that some 85 per cent of experiments are done on these creatures - as though that somehow makes them more acceptable. People who have

not had such relatively privileged lives as I have had may of course have good reason to hate or fear them. Rats there are aplenty in the stables but I have none infesting my house, and I cannot imagine what it must be like to have them nibble my toes in my sleep. Cultural antipathy to rats certainly has some grounding in the history of disease: yet it is also loaded with myth, just as stories about the 'fearsomeness' of wolves abound. As I watched them and worked with them so I grew to like them, those little white rats with pink eyes (like Cyril) or the black and white ones with sparkling dark eyes. I learned to appreciate their curiosity and watchfulness, their playfulness, and their obvious intelligence in spite of their impoverished lives in laboratory cages. Every day that I entered the lab, I spoke to the rats - 'Hi, everyone!'. I enjoyed their company. And every day my unease grew. To begin with, I simply changed procedures, so that the animals were interfered with as little as possible. But then one day I walked in and lifted the little wire-mesh trap door of a cage as it sat on the floor. In the cage were a group of young sisters, black and white adolescent rats. Curious, they all came to the gap in their ceiling, putting their tiny paws onto the edge of the wire, their bright black eyes sparkling and their whiskers whisking. I looked at their paws, like miniature hands, at their glossy coats in different patterns, and I marvelled at their inquisitiveness. I knew then that I had had enough.

Ironically, I think that the work I do now has more to do with science, in the sense that it is deeply motivated by my love of the natural world and of animals. I continue to think, teach and write about 'how we think about animals'. I did that as a working scientist, too: but now, I am willing to range more widely, not to restrict myself. In that venture, I am reminded of what philosopher Sandra Harding has said of science - that, despite its pretences at objectivity, it cannot be strongly objective unless it takes proper account of the 'missing voices'. For her, that includes all kinds of human 'others' marginalized from science.<sup>3</sup> For me, that must also include non-humans.

Living with animals has made me sensitive to the complex ways in which they and we become integrated into a social relationship. Domestic horses, for instance, are not just 'broken', as the saying goes. Rather, they are usually assimilated into relationships with us (and us with them) from the day they are born. So too are domestic dogs. Yet science has almost nothing to say about the emergence of relationships

between humans and non-humans, or about the ways in which particular kinds of animal enter human society. To be sure, we can read about the 'instincts of the dog' derived from its wolf ancestors, and about how these predispose dogs to behave socially in certain ways. But where are the studies of how dogs become socialized into human ways? Or even us into theirs?

I have often wondered what science might look like if, instead of having animals in numbered lots, they were treated respectfully as individuals. Now my work includes thinking about what science might have become, had its history been different, had it not relied on distancing ourselves from nature. What stories would scientists tell if they spent their days with Cyril instead of cages 34- 40? How would their tales change if they had watched Tess, or Ginny, instead of watching machines printing out data from beagles? They could no longer pretend to be distancing themselves from nature; rather, they would have to listen. They might even find that Cyril, or Ginny and Tess, had rather a lot to say, about life, the universe, and even humans.

But can we listen?

### Notes

1. D. Radner and M. Radner, *Animal Consciousness* (Prometheus, New York, 1989), pp. 180-1.
2. Ursula LeGuin, 'The author of the Acadia Seeds', in *Buffalo Gals and Other Presences* (Capra Press, Santa Barbara, 1987), p.157.
3. S. Harding, *Whose science? Whose Knowledge?* (Open University Press, Milton Keynes, 1991)

### Biography

Lynda Birke is a biologist and feminist who teaches in the Centre for the Study of Women and Gender at the University of Warwick, England. Her work focuses particularly on feminist studies of science; her published work includes *Women, feminism and biology* (1986), *Tomorrow's Child* (1990; with two others), *Feminism, Animals and Science* (1994) and *Reinventing Biology* (1995, edited with Ruth Hubbard).