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I am a human. At least in the sense that both of my parents were human.

This has certain consequences. I cannot, for instance, make children with a fox. I have to come to terms with that.

But species boundaries are, if not illusory, certainly vague and sometimes porous. Ask any evolutionary biologist or shaman.

It is a mere 30 million years – the blink of a lightly lidded eye on an earth whose life has been evolving for 3.4 thousand million years – since badgers and I shared a common ancestor. Go back just 40 million years before that, and I share my entire family album not only with badgers but with herring gulls.

All the animals in this book are pretty close family. That’s the fact. If it doesn’t seem like that, our feelings are biologically illiterate. They need re-education.

There are two accounts of creation in the book of Genesis. If you insist on seeing them as blandly historical, they are wholly incompatible with each other. In the first, man was created last. In the second, he was created first. But both tell us enlightening things about our family relations with the animals.

In the first Genesis account, man was created, along with all
the terrestrial animals, on the sixth day. That’s an intimate sort of shared ancestry. We have the same birthday.

In the second Genesis account, the animals were created specifically to provide companionship for Adam. It was not good for him to be alone. But God’s strategy failed: the animals didn’t provide company that was quite good enough, and so Eve was created as well. Adam was happy to see her. ‘At last!’, he exclaims. It is an exclamation that we’ve all either uttered or hope one day to utter. There is a loneliness that a cat cannot assuage. But that doesn’t mean that God’s plan completely misfired – that animals are utterly hopeless companions. We know that’s not true. The market for dog biscuits is vast.

Adam named all the mammals and the birds – so forging a connection with them which went to the root of what both they and he were. His very first words were the names.* We are shaped by the things we say and the labels we give. So Adam was shaped by his interaction with the animals. That interaction and that shaping are simple historical facts. We’ve grown up as a species with animals as our nursery teachers. They taught us to walk, steadying us, hand in hoof, as we tottered. And the names – which implied control – shaped the animals too. That shaping also is an obvious and often (at least for the animals) disastrous fact. We share with the animals not only genetic ancestry and an enormous proportion of DNA, but history. We’ve all been to the same school. It’s perhaps not surprising that we know some of the same languages.

A man who talks to his dog is acknowledging the porosity

* Although the first recorded words of Adam are in Genesis 2:23, Genesis 2:19–20 says, ‘Now out of the ground the Lord God had formed every beast of the field and every bird of the heavens and brought them to the man to see what he would call them. And whatever the man called every living creature, that was its name. The man gave names to all livestock and to the birds of the heavens and to every beast of the field ...’
of the boundary between species. He’s taken the first and most important step towards becoming a shaman.

Until the very recent past, humans weren’t satisfied with being Dr Dolittles. Yes, they spoke to the animals; yes, the animals spoke back. But that wasn’t enough. It didn’t sufficiently reflect the intimacy of the relationship. And it wasn’t sufficiently useful. Sometimes the animals wouldn’t give away the dangerous, valuable secrets, such as where the herd would go if the rains didn’t come, or why the birds had deserted the mudflats at the north end of the lake. To get that sort of information you had to insist ecstatically on the reality of shared ancestry. You had to dance to the drum around a fire until you were so dehydrated that blood spouted out of your ruptured nasal capillaries, or stand in an icy river and chant until you could feel your soul rising like vomit into your mouth, or eat fly agaric mushrooms and watch yourself floating into the forest canopy. Then you could pass through the thin membrane that separates this world from others, and your species from other species. As you pushed through, in an epiphanic labour, the membrane enveloped you, like the amniotic sac in which you emerged from your human mother. From it you emerged as a wolf or a wildebeest.

These transformations are the subject of some of the earliest human art. In the Upper Palaeolithic, when human consciousness seems to have ignited for the first time in the neuronal brushwood left by evolution, men crept into the cold wombs of caves and drew on the walls pictures of therianthropes – animal-human hybrids: men with the heads and hoofs of beasts; beasts with the hands and spears of men.

Religion remained a therianthropic business even in the urbanised, systematised schemes of Egypt and Greece. The Greek gods were forever transmuting themselves into animals to spy on the mortals; Egyptian religious art is a collage of human and animal body parts. And in Hinduism, of course,
the tradition continues. An icon of the elephant-headed god Ganesha is looking at me as I write this. For millions, the only gods worth worshipping are amphibious ones – gods who can shuttle between worlds. And the worlds are represented by human and animal forms. There seems to be an ancient and earnest need to unite the human and animal worlds.

Children, who have lost less than adults, know this need. They dress up as dogs. They have their faces painted so that they look like tigers. They take teddy bears to bed and want to keep hamsters in their bedrooms. Before they go to bed they make their parents read to them about animals who dress and talk like humans. Peter Rabbit and Jemima Puddleduck are the new shamanic therianthropes.

I was no different. I desperately wanted to be closer to animals. Part of this was the conviction that they knew something I didn’t and which I, for unexamined reasons, needed to know.

There was a blackbird in our garden whose yellow-and-black eye looked knowing. It maddened me. He flaunted his knowledge, and hence my ignorance. The winking of that eye was like a glimpse of a pirate’s crumpled treasure map. I could see that there was a cross on it, which marked the spot; I could see that what was buried was dazzling and would transform my life if I found it. But I couldn’t for the life of me make out where the cross was.

I tried everything I, and everyone I met, could think of. I was a blackbird bore. I sat for hours in the local library, reading every paragraph that mentioned blackbirds and making notes in a school exercise book. I mapped the nests in the area (mostly in suburban privet) and visited them every day, carrying round a stool to stand on. I described minutely in a pillaged hard-back accounts book what was going on. I had a drawer in my bedroom full of blackbird egg fragments. I sniffed them in the morning to try to enter the head of a nestling so that I might
grow up that day to be more like a blackbird, and in the evening
in the hope that I might be born in my dreams as a blackbird.
I had several dried blackbird tongues, wrenched with forceps
from road casualties, lying on beds of cotton wool in Swan
Vestas matchboxes. Taxidermy was my other ruling passion:
blackbirds with outstretched wings circled above my bed, sus-
pended from the ceiling on lengths of thread; deeply distorted
blackbirds squinted down from plywood perches. I had a black-
bird brain in formalin by my bedside. I turned the pot round
and round in my hand, trying to think myself inside the brain,
and often went to sleep still holding it.

It didn’t work. The blackbird remained as elusive as ever.
Its abiding mysteriousness is one of the greatest bequests of my
childhood. If I had thought for a moment that I had under-
stood, it would have been a catastrophe. I might have ended
up as an oilman, a banker or a pimp. An early conviction of
mastery or comprehension turns people into monsters. Those
mysterious blackbirds continue to rein in my ego and convince
me of the exhilarating inaccessibility of all creatures, including,
perhaps particularly, humans.

But that doesn’t mean that we can’t do better than I did with
the blackbirds. We can.

I don’t for a moment deny the reality of true shamanic trans-
formation. Indeed, I have experienced it: I have a tale about a
carrion crow, which is for another time. But it is arduous and,
for me, too downright scary for regular use. And it’s too weird
for its results to be convincing to most. There are plenty of
reasons to read a book about being a badger written by someone
who has taken hallucinogens in his living room and believed
he’s become a badger, but a desire for knowledge about badgers
or broadleaved woodland probably isn’t among them.

The same is true for the quasi-shamanism of J. A. Baker,
whose canonical book, *The Peregrine*, might be thought to do
for one species what I’m trying to do here for five. He pursued
his peregrines to the point of assimilation with them. His express purpose was to annihilate himself: ‘Wherever [the peregrine] goes, this winter, I will follow him. I will share the fear, and the exaltation, and the boredom, of the hunting life. I will follow him till my predatory human shape no longer darkens in terror the shaken kaleidoscope of colour that stains the deep fovea of his brilliant eye. My pagan head shall sink into the winter land, and there be purified.’

If Baker is to be believed, it worked. He found himself unconsciously imitating the movements of a hawk, and the pronouns change from ‘I’ to ‘we’: ‘We live, in these days in the open, the same ecstatic fearful life.’

No one admires Baker more than I do. But his way is not my way. It can’t be: I don’t have his desperate unhappiness, his desire for self-dissolution or his conviction that the neck-snappping, baby-disembowelling, profligate natural world embodies a morality better than anything humans can devise or follow. As a method, dissolution also creates great literary difficulties. If J. A. Baker really disappears, who is left to tell the story? And if he doesn’t, why should we take the story seriously? Baker seeks to solve this problem by developing (as Robert Macfarlane observes) a new language: wingless nouns stoop and glide; burrow-dwelling verbs somersault on the edge of the atmosphere; adverbs behave disgracefully. I love the strangeness, but it teaches me more about language than about peregrines. Always we’re left with the question: Who’s speaking here? A peregrine given a Cambridge education? Or Baker peregrinised? Because we’re never quite sure, the method never quite convinces. It’s of the nature of poetry that it never quite declares its hand.

Shamanic transformation possibly aside, there will always be a boundary between me and my animals. It’s as well to be honest about this and try to delineate it as accurately as possible – at least for the sake of coherence. It might be rather prosaic to be able to say of every passage in the book, ‘This is Charles Foster...’
writing about an animal’, rather than ‘This might be a mystical utterance from a man-badger’, but it’s a lot less confusing.

The method, then, is simply to go as close to the frontier as possible and peer over it with whatever instruments are available. This is a process radically different from simply watching. The typical watcher, huddled with his binoculars in a hide, isn’t concerned with Anaximander’s vertiginous question ‘What does a falcon see?’, let alone with the modern, wider, neurobiological translation of that question: ‘What sort of world does a hawk construct by processing in its brain the inputs from its sense receptors and construing them in the light of its genetic bequests and its own experience?’ These are my questions.

We can get surprisingly close to the frontier at two points. It is there that I have set up my own hides. These points are physiology and landscape.

Physiology: Because of our close evolutionary cousinhood, I am, at least in terms of the battery of sense receptors we all bear, quite close to most of the animals in this book. And when I’m not, it is generally possible to describe and (roughly) to quantify the differences.

Both mammals like me and birds, for instance, use Golgi tendon organs, Ruffini endings and muscle spindles to tell them where the various parts of their bodies are in space, and free nerve endings to scream ‘Horrid!’ or ‘Hot!’ I collect and transmit these types of raw sensory data in a way very similar to that of most mammals and birds.

By looking at the distribution and density of the various types of receptors, we can work out the type and volume of the inputs to the brain. Look at an oystercatcher stabbing the sand phallically in search of lugworms. On the edge of its bill it has huge numbers of Merkel cells, Herbst corpuscles, Grandry corpuscles, Ruffini endings and free nerve endings. The stabbing sends shock waves through the wet sand, and the network of receptors notes, like a submarine’s sonar, the discontinuities

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in the returning signal that might indicate the presence of a worm. Some receptors, sensitive to minute vibrations, pick up the scrape of the worm’s bristles on the side of its burrow. This is like nothing in human experience so much as sex. One very good argument against circumcision is that it makes you less like an oystercatcher. The inside of the human prepuce has similar concentrations of Merkel cells and other receptors which are massaged rapturously during sexual intercourse (the poor glans has little except free nerve endings, often buffeted almost to extinction by decades of self-abuse and the attrition of rough trousers). In terms of the naked intensity of signal, estuarine worm hunting by waders is tectonic. It’s like wandering down the food aisles in Sainsbury’s in a state of perpetual tumescence – pushed to the cusp of orgasm when you see the breakfast cereal you’re after.

Except that it’s not. Everything’s in the central processing. Destroy the cerebral cortex of the horniest German porn star and he’d never have another orgasm. It’s not true that men’s brains are in their trousers. Even the most thoughtless abuser of women only ever has sex in his head. And an oystercatcher only ever feels lugworms in its head.

So that’s my problem: the weird transformation of signal into action or sensation. The universe I occupy is a creature of my head. It is wholly unique to me. The process of intimacy is the process of becoming better at inviting others in to have a look around. The sensation of loneliness is the crushing acknowledgement that, however good you get at giving such invitations, no one will be able to see very much at all.

But we need to keep trying. If we give up with humans, we’re wretched misanthropes. If we give up with the natural world, we’re wretched bypass builders or badger baiters or self-referential urbanites.

There are things we can do. I’ve read lots of physiology books and tried to paint somatotopic pictures of my animals
— pictures which present the body parts as having the size justified by their representation in the brain. Humans come out with huge hands, faces and genitals but spindly, wasted torsos. Mice have vast incisors, like the sabre-toothed tiger of a caveman’s worst nightmare, big feet and whiskers like hose pipes.

We have to be careful about somatotopic pictures: they say nothing about the nature of the processing that goes on, or of the output. They simply say that a lot of hardware is devoted to whiskers — not that a mouse lives in a world that is subjectively dominated by its whiskers. Yet they’re a good start.

We can draw cautious parallels with our own responses to particular situations.

Yes, it’s ultimately in the processing, but there is every reason to suppose that when a fox and I step on a piece of barbed wire we ‘experience’ something similar. The inverted commas are important in the case of the fox. I will return to them shortly, but for the moment I mean simply that pain receptors in the fox’s foot and mine fire in a more or less identical way and send electronic impulses along more or less identical tracts in the peripheral and central nervous systems to be processed by the brain, which in each case sends a message to our muscles saying ‘Take that foot off the wire’ — if indeed a reflex hasn’t already achieved that. The brain processing will certainly, in both the fox and me, ingrain the lesson ‘Don’t step on barbed wire: it’s not nice’; this will become a part of the experience which we have genuinely shared. It happened to both of us in a neurologically identical way: we both know what stepping on barbed wire is like, in a way that people and animals who have not stepped on barbed wire do not know. I take it that there are many neurological sequences which it is possible meaningfully to say I share with an animal. If a wind blows down the valley in which we are both lying, we both feel it similarly. It may (it will) import different things for us. For the fox its main significance might be that the rabbits are likely to be grazing in the wood by
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the horse chestnuts; for me its main significance might be that I’m cold and need to pull on another layer. But that doesn’t mean that we haven’t both felt it. We have. And the differing significance can be deduced by observation.

We humans tend to denigrate our own sensory lives – to assume that all wild things ‘do’ the wild better than we do. I suspect this is because we want to justify to ourselves our own dismally unsensuous urban lives (‘I have to live in a centrally heated house and get my food in tins because I couldn’t ever live in a tree and catch a squirrel’) and also because it makes a statement about our own supposed cognitive superiority over the animals (‘They smell and hear more acutely than I do because I’ve moved on from such basic, brainstem functions. I don’t need to smell: I think instead, and that’s much more useful’). But in fact we don’t do so badly at all. Young children often hear sounds of a frequency greater than 20,000 hertz. That’s not so far from a dog (typically 40,000 hertz) and much better than a teal (up to 2,000 hertz) and most fish (generally not much above 500 hertz). And we’re far better than many small mammals at low frequencies. It’s a good reason, were any further reasons needed, not to go to a nightclub. Even our sense of smell, which we normally think of as atrophied by civilisation, is surprisingly (for most) intact. And useful. Three-quarters of people can detect, out of three worn T-shirts, the one they’ve worn. More than half can find that T-shirt out of ten presented to them. Like it or not, we are multimodal sensory animals, in a reasonable position to know something of what is wafted or beamed or vibrated to our cousins in the fields and woods.

We have, too, a number of advantages. There is the cognitive advantage, which helps us to make allowances for our own cognition and our own physiological differences from the animals and therefore to describe the respects in which we are different and similar. But there are other reasons why a human is better placed to write this book than a meerkat would be.