Strange Creatures

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Points of Access—Pre-Reading

1. What have you learned about genetics from your biology classes? How do genes replicate? Why do some genetic traits survive, while others die off?
2. Think about something—an idea, a fashion, or an object—that you used to think was really cool, but no longer is. Why did you think that something was 'cool' in the first place? How did you find out about it? Why do you think it's not cool any more? Did someone tell you, or did you decide gradually on your own?
3. What do you think it is that makes humans different from other animals? What ideas have you heard? What do *you* believe?

We humans are strange creatures. There is no doubt that our bodies evolved by natural selection just as other animals' did. Yet we differ from all other creatures in many ways. For a start we speak. We believe ourselves to be the most intelligent species on the planet. We are extraordinarily widespread and extremely versatile in our ways of making a living. We wage wars, believe in religions, bury our dead and get embarrassed about sex. We watch television, drive cars and eat ice cream. We have had such a devastating impact upon the ecosystems of our planet that we appear to be in danger of destroying everything on which our lives depend. One of the problems of being a human is that it is rather hard to look at humans with an unprejudiced eye.

On the one hand, we are obviously animals comparable with any others. We have lungs, hearts and brains made of living cells; we eat and breathe and reproduce. Darwin's theory of evolution by natural selection can successfully explain how we, along with the rest of life on this planet, came to be here, and why we all share so many characteristics. On the other hand, we behave quite differently from other animals. Now that biology has so successfully explained much of our similarity with other creatures we need to ask the opposite question. What makes us so different? Could it be our superior intelligence, our consciousness, our language, or what?

A common answer is that we are simply more intelligent than any other species. Yet the notion of intelligence is extremely slippery, with interminable arguments about how to define it, how to measure it, and to what extent it is inherited. Research in artificial intelligence (AI) has provided some nice surprises for those who thought they knew what makes human intelligence so special.

In the early days of AI, researchers thought that if they could teach a computer to play chess they would have reproduced one of the highest forms of human intelligence. In those days the idea that a computer could ever play well, let alone beat a Grand Master, was unthinkable. Yet now most home computers come with passable chess programmes already installed, and in 1997 the program *Deep Blue* beat World Champion Garry Kasparov, ending unquestioned human supremacy at the game. Computers may not play chess in the same way as humans, but their success shows how wrong we can be about intelligence. Clearly, what we thought were human beings' most special capabilities may not be.

Quite the opposite goes for some apparently quite unintelligent things like cleaning the house, digging the garden or making a cup of tea. Time and again AI researchers have tried to build robots to carry out such tasks and been defeated. The first problem is that the tasks all require vision. There is a popular (though possibly apocryphal) story about Marvin Minsky at MIT (the Massachusetts Institute of Technology) that he once gave his graduate students the problem of vision as a summer project. Decades later the problem of computer vision is still just that—a problem. We humans can see so effortlessly that we cannot begin to imagine how complex the process has to be. And in any case, this kind of intelligence cannot distinguish us from other animals because they can see too.

If intelligence does not provide simple answers perhaps consciousness might. Many people believe that human consciousness is unique and is responsible for making us human. Yet scientists cannot even define the term 'consciousness'. Everyone knows what their own consciousness is like but they cannot share that knowledge with anyone else. This troublesome fact—the subjectivity of consciousness—may explain why for most of this century the whole topic of consciousness was more or less banned from scientific discussion. Now at last it has become fashionable again, but scientists and philosophers cannot even agree on what an explanation of consciousness would look like. Some say that the 'Hard Problem' of subjectivity is quite different from any other scientific problem and needs a totally new kind of solution, while oth[illegible]e sure that when we fully understand brain function and behaviour the problem of consciousness will have disappeared.

Some people believe in the existence of a human soul or spirit that transcends the physical brain and explains human uniqueness. With the decline in religious belief fewer and fewer people intellectually accept that view, yet most of us continue to think of ourselves as a little conscious 'me' inside our brain; a 'me' who sees the world, makes the decisions, directs the actions and has responsibility for them.

As we shall see later, this view has to be wrong. Whatever the brain is doing it does not seem to need help from an extra, magical self. Various parts of the brain carry on their tasks independently of each other and countless different things are always going on at once. We may feel as though there is a central place inside our heads into which the sensations come and from which we consciously make the decisions. Yet this place simply does not exist. Clearly, something is very wrong with our ordinary view of our conscious selves. From this confused viewpoint we cannot say with certainty that other animals are not conscious, nor that consciousness is what makes us unique. So what does?

What Makes Us Different?

The thesis of this book is that what makes us different is our ability to imitate.

Imitation comes naturally to us humans. Have you ever sat and blinked, or waved, or 'goo gooed', or even just smiled, at a baby? What happens? Very often they blink too, or wave, or smile back at you. We do it so easily, even as an infant. We copy each other all the time. Like seeing, it comes so effortlessly that we hardly think about it. We certainly do not think of it as being something very clever. Yet, as we shall see, it is fantastically clever.

Certainly, other animals do not take naturally to it. Blink, or wave, or smile at your dog or cat and what happens? She might purr, wag her tail, twitch, or walk away, but you can be pretty sure she will not imitate you. You can teach a cat, or rat, to beg neatly for its food by progressively rewarding it, but you cannot teach it by demonstrating the trick yourself—nor can another cat or rat. Years of detailed research on animal imitation has led to the conclusion that it is extremely rare. Though we may think of mother cats as teaching their kittens to hunt, or groom, or use the cat door, they do not do it by demonstration or imitation. Parent birds 'teach' their babies to fly more by pushing them out of the nest and giving them the chance to try it than by demonstrating the required skills for them to copy.

There is a special appeal to stories of animals copying human behaviour, and pet owners are fond of such tales. I read on the Internet about a cat who learned to flush the toilet and soon taught a second cat the same trick. Now the two of them sit together on

the cistern flushing away. A more reliable anecdote was told by Diana Reiss, a psychologist at Rutgers University. She works with bottlenose dolphins, who are known to be able to copy vocal sounds and artificial whistles, as well as simple actions (Bauer and Johnson 1994; Reiss and McCowan 1993). She trained the dolphins by giving them fish as a reward and also by a 'time out' procedure for punishment. If they did the wrong thing she would walk away from the water's edge and wait for one minute before returning to the pool. One day she threw a fish to one of the dolphins but had accidentally left on some spiky bits of fin. Immediately the dolphin turned, swam away, and waited for a minute at the other side of the pool.

That story touched me because I could not help thinking of the dolphins as *understanding* the action, as having intelligence and consciousness and intentionality like ours. But we cannot even define these things, let alone be sure that the dolphin was using them in this apparent act of reciprocation. What we can see is that it imitated Dr. Reiss in an appropriate way. We are so oblivious to the cleverness of imitation that we do not even notice how rare it is in other animals and how often we do it ourselves.

Perhaps more telling is that we do not have separate words for radically different kinds of learning. We use the same word 'learning' for simple association or 'classical conditioning' (which almost all animals can do), for learning by trial and error or 'operant conditioning' (which many animals can do), and for learning by imitation (which almost none can do). I want to argue that the supreme ease with which we are capable of imitation, has blinded us to this simple fact—that *imitation* is what makes us special.

Imitation and the Meme

When you imitate someone else, something is passed on. This 'something' can then be passed on again, and again, and so take on a life of its own. We might call this thing an idea, an instruction, a behaviour, a piece of information . . . but if we are going to study it we shall need to give it a name.

Fortunately, there is a name. It is the 'meme'.

The term 'meme' first appeared in 1976, in Richard Dawkins's best-selling book *The Selfish Gene*. In that book Dawkins, an Oxford zoologist, popularised the increasingly influential view that evolution is best understood in terms of the competition between genes. Earlier in the twentieth century, biologists had blithely talked about evolution occurring for the 'good of the species' without worrying about the exact mechanisms involved, but in the 1960s serious problems with this view began to be recognised (Williams 1966). For example, if a group of organisms all act for the good of the group

then one individual who does not can easily exploit the rest. He will then leave more descendants who in turn do not act for the group, and the group benefit will be lost. On the more modern 'gene's eye view', evolution may *appear* to proceed in the interests of the individual, or for the good of the species, but in fact it is all driven by the competition between genes. This new viewpoint provided a much more powerful understanding of evolution and has come to be known as 'selfish-gene theory'.

We must be absolutely clear about what 'selfish' means in this context. It does not mean genes *for* selfishness. Such genes would incline their carriers to act selfishly and that is something quite different. The term 'selfish' here means that the genes act only for themselves; their only interest is their own replication; all they want is to be passed on to the next generation. Of course, genes do not 'want' or have aims or intentions in the same way as people do; they are only chemical instructions that can be copied. So when I say they 'want', or are 'selfish' I am using a shorthand, but this shorthand is necessary to avoid lengthy explanations. It will not lead us astray if we remember that genes either *are* or *are not* successful at getting passed on into the next generation. So the shorthand 'genes want x' can always be spelled out as 'genes that do *x* are more likely to be passed on'. This is the only power they have—replicator power. And it is in this sense that they are selfish.

Dawkins also introduced the important distinction between 'replicators' and their 'vehicles'. A replicator is anything of which copies are made, including 'active replicators' whose nature affects the chances of their being copied again. A vehicle is the entity that interacts with the environment, which is why Hull (1988a) prefers the term 'interactors' for a similar idea. Vehicles or interactors carry the replicators around inside them and protect them. The original replicator was presumably a simple self-copying molecule in the primeval soup, but our most familiar replicator now is DNA. Its vehicles are organisms and groups of organisms that interact with each other as they live out their lives in the seas or the air, the forests or fields. Genes are the selfish replicators that drive the evolution of the biological world here on earth but Dawkins believes there is a more fundamental principle at work. He suggested that wherever it arises, anywhere in the universe, 'all life evolves by the differential survival of replicating entities' (1976, p. 192). This is the foundation for the idea of Universal Darwinism; the application of Darwinian thinking way beyond the confines of biological evolution.

At the very end of the book he asked an obvious, if provocative, question. Are there any other replicators on our planet? The answer, he claimed, is 'Yes'. Staring us in the face, although still drifting clumsily about in its primeval soup of culture, is another replicator—a unit of imitation.

> We need a name for the new replicator, a noun that conveys the idea of a unit of cultural transmission, or a unit of *imitation*. 'Mimeme' comes from a suitable Greek root, but I want a monosyllable that sounds a bit like 'gene'. I hope my classicist friends will forgive me if I abbreviate mimeme to meme.

As examples, he suggested tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches'. He mentioned scientific ideas that catch on and propagate themselves around the world by jumping from brain to brain. He wrote about religions as groups of memes with a high survival value, infecting whole societies with belief in a God or an afterlife. He talked about fashions in dress or diet, and about ceremonies, customs and technologies—all of which are spread by one person copying another. Memes are stored in human brains (or books or inventions) and passed on by imitation.

In a few pages, Dawkins laid the foundations for understanding the evolution of memes. He discussed their propagation by jumping from brain to brain, likened them to parasites infecting a host, treated them as physically realised living structures, and showed how mutually assisting memes will gang together in groups just as genes do. Most importantly, he treated the meme as a replicator in its own right. He complained that many of his colleagues seemed unable to accept the idea that memes would spread for their own benefit, independently of any benefit to the genes. 'In the last analysis they wish always to go back to "biological advantage"' to answer questions about human behaviour. Yes, he agreed, we got our brains for biological (genetic) reasons but now we have them a new replicator has been unleashed. 'Once this new evolution begins, it will in no necessary sense be subservient to the old' (Dawkins 1976, pp. 193-4). In other words, memetic evolution can now take off without regard to its effects on the genes.

If Dawkins is right then human life is permeated through and through with memes and their consequences. Everything you have learned by imitation from someone else is a meme. But we must be clear what is meant by the word 'imitation', because our whole understanding of memetics depends on it. Dawkins said that memes jump from 'brain to brain via a process which, in the broad sense, can be called imitation' (1976, p. 192). I will also use the term 'imitation' in the broad sense. So if, for example, a friend tells you a story and you remember the gist and pass it on to someone else then that counts as imitation. You have not precisely imitated your friend's every action and word, but something (the gist of the story) has been copied from her to you and then on to someone else. This is the 'broad sense' in which we must understand the term 'imitation'. If in doubt, remember that something must have been copied.

Everything that is passed from person to person in this way is a meme. This includes all the words in your vocabulary, the stories you know, the skills and habits you have picked up from others and the games you like to play. It includes the songs you sing and the rules you obey. So, for example, whenever you drive on the left (or the right), eat curry with lager or pizza and coke, whistle the theme tune from *Neighbours* or even shake hands, you are dealing in memes. Each of these memes has evolved in its own unique way with its own history, but each of them is using your behaviour to get itself copied.

Take the song 'Happy Birthday to You'. Millions of people—probably thousands of millions of people the world over—know this tune. Indeed, I only have to write down those four words to have a pretty good idea that you may soon start humming it to yourself. Those words affect you, probably quite without any conscious intention on your part, by stirring up a memory you already possess. And where did that come from? Like millions of other people you have acquired it by imitation. Something, some kind of information, some kind of instruction, has become lodged in all those brains so that now we all do the same thing at birthday parties. That something is what we call the meme.

Memes spread themselves around indiscriminately without regard to whether they are useful, neutral, or positively harmful to us. A brilliant new scientific idea, or a technological invention, may spread because of its usefulness. A song like Jingle Bells may spread because it sounds OK, though it is not seriously useful and can definitely get on your nerves. But some memes are positively harmful—like chain letters and pyramid selling, new methods of fraud and false doctrines, ineffective slimming diets and dangerous medical 'cures'. Of course, the memes do not care; they are selfish like genes and will simply spread if they can.

Remember that the same shorthand applies to memes as to genes. We can say that memes are 'selfish', that they 'do not care', that they 'want' to propagate themselves, and so on, when all we mean is that successful memes are the ones that get copied and spread, while unsuccessful ones do not. This is the sense in which memes 'want' to get copied, 'want' you to pass them on and 'do not care' what that means to you or your genes.

This is the power behind the idea of memes. To start to think memetically we have to make a giant flip in our minds just as biologists had to do when taking on the idea of the selfish gene. Instead of thinking of our ideas as our own creations, and as working for us, we have to think of them as autonomous selfish memes, working only to get themselves copied. We humans, because of our powers of imitation, have become just the physical 'hosts' needed for the memes to get around. This is how the world looks from a 'meme's eye view'.

Meme Fear

This is a scary idea indeed. And perhaps that is why the word 'meme' is so often written with inverted commas around it, as though to apologise for using it. I have even seen eminent lecturers raise both hands and tweak them above their ears when forced to say 'meme' out loud. Gradually, the word has become more generally known, and has even been added to the *Oxford English Dictionary.* There are discussion groups and a *Journal of Memetics* on the Internet, and the idea almost seems to have acquired a cult following in cyberspace. But in academia it has not yet been so successful. A perusal of some of the best recent books on human origins, the evolution of language and evolutionary psychology shows that the word does not appear at all in most of them ('meme' is not in the indexes of Barkow *et al.* 1992; Diamond 1997; Dunbar 1996; Mithen 1996; Pinker 1994; Mark Ridley 1996; Tudge 1995; Wills 1993; Wright 1994). The idea of memes seems extremely relevant to these disciplines, and I want to argue that it is time for us to take on board the notion of a second replicator at work in human life and evolution.

One of the problems with the idea of memes is that it strikes at our deepest assumptions about who we are and why we are here. This is always happening in science. Before Copernicus and Galileo, people believed they lived at the centre of the universe in a world created especially for them by God. Gradually, we had to accept not only that the sun does not revolve around the earth, but that we live on some minor little planet in an ordinary galaxy in a vast universe of other galaxies.

A hundred and forty years ago Darwin's theory of evolution by natural selection provided the first plausible mechanism for evolution without a designer. People's view of their own origin changed from the biblical story of special creation in the image of God, to an animal descended from an apelike ancestor—a vast leap indeed, and one that led to much ridicule and fanatical opposition to Darwin. Still—we have all coped with that leap and come to accept that we are animals created by evolution. However, if memetics is valid, we will have to make another vast leap in accepting a similar evolutionary mechanism for the origin of our minds and our selves.

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What will determine whether the theory of memes is worth having or not? Although philosophers of science argue over what makes a scientific theory valid, there are at least two commonly agreed criteria, and I will use these in judging memetics. First, a theory must be able to explain things better than its rival theories; more economically or more comprehensively. And second, it must lead to testable predictions that turn out to be

correct. Ideally, those predictions should be unexpected ones—things that no one would have looked for if they were not starting from a theory of memetics.

My aim in this book is to show that many aspects of human nature are explained far better by a theory of memetics than by any rival theory yet available. The theory starts only with one simple mechanism—the competition between memes to get into human brains and be passed on again. From this, it gives rise to explanations for such diverse phenomena as the evolution of the enormous human brain, the origins of language, our tendency to talk and think too much, human altruism, and the evolution of the Internet. Looked at through the new lens of the memes, human beings look quite different.

Is the new way better? It seems obviously so to me, but I expect that many people will disagree. This is where the predictions come in. I shall try to be as clear as I can in deriving predictions and showing how they follow from mimetic theory. I may speculate and even, at times, leap wildly beyond the evidence, but as long as the speculations can be tested then they can be helpful. In the end, the success or failure of these predictions will decide whether memes are just a meaningless metaphor or the grand new unifying theory we need to understand human nature.

Points of Engagement—Reading Comprehension

1. What is a meme? Point to two passages in Blackmore's essay to support your answer.
2. What relationship do memes have with genes?
3. How do memes replicate? Be specific. Give two examples: one from Blackmore's essay, and one of your own.

Points of Departure—Assignment Questions

1. In "Strange Creatures," Susan Blackmore offers a theory of what differentiates humans from other animals: the meme. She proposes that "what makes us different is our ability to imitate" (33). Other animals may not be able to imitate, but Sherry Turkle presents a compelling case that robots already can, and will only get better. What do we make of advances in imitative and responsive technologies, which, of course, have been invented by humans? Are we making our own uniqueness obsolete by creating robots more and more like ourselves? Write a paper in which you explore this dilemma using the ideas of Blackmore and Turkle, and proposing a clear answer of your own.