

'We are not islands, there is such a thing as society'

Robin Dunbar talks to Lance Workman about his attempts to see the big picture and find the big number

You started out studying the social behaviour of the gelada baboon. Do you think it's a natural step from primatology to asking questions about humans?

I think the short answer is yes – almost everybody who has worked on primates has ended up also dabbling in humans. Some famously so – look at people like Robert Hinde and John Crook, they both shifted their attention from monkeys to humans. In monkeys we seem to be seeing humans in a miniature cartoon version. So it's a very easy step to move from that to the bigger story.

You've been in biology, anthropology and psychology departments. In terms of academic discipline how would you describe yourself?

This has always been a great source of trial and trauma. Actually, technically, my roots are in philosophy. I started by doing joint philosophy and psychology at Oxford. In those days you couldn't do philosophy on its own – so I chose psychology, which I knew nothing about. I'm not even sure I could spell it back then! I was very much a dyed-in-the-wool humanities person. But psychology turned me into a scientist – taught me statistics and the scientific method. So I ended up in psychology departments for my undergraduate degree, my PhD and my first postdoc position. That has always been core to what I do and explains why, unlike other people in behavioural ecology, I have always had this core cognitive dimension and why I became interested in the brain and in evolution.

You mention behavioural ecology. Over the last 30–40 years we seen a plethora of evolutionary-based fields of the behavioural sciences developing... sociobiology, behavioural ecology, evolutionary anthropology, evolutionary psychology and evolutionary economics. Are these discrete disciplines, or are they tapping into different aspects of the same area?

In a sense they are discrete disciplines because each one focuses on a particular corner of what it is to be human. Evolutionary politics is another big area where people focus on political structures. Or in evolutionary economics people focus on the economic behaviour. What the evolutionary bit is doing is to provide a unifying framework. If you look at psychology it is probably the most fractionated discipline you can imagine. You have all of these different areas such as developmental, cognitive, neuroscience, educational, and so on, none of whom ever seem to speak to each other. They all have their little corner that they sit in. My pitch is really that the evolutionary component does no more than provide a unifying framework that allows these subdisciplines to talk to each other. This is what happened for biology. The evolutionary framework allows, say, ecologists to talk to physiologists. They still do their ecology and their physiology, but now they have an interactive framework that provides an interface for communication. I think that would be hugely beneficial for psychology.

I couldn't do what I do without that framework because it allows me to slip from doing what is jobbing social psychology at one end, through neuroscience and neuroimaging, through to standard cognitive psychology and then dabble in personality and developmental psychology. We simply couldn't do that without the overarching framework of evolutionary theory. It's a story that spreads across them.

My impression is that biological and cognitive psychologists are more sympathetic to the evolutionary approach than the social psychologists. Is that a problem for you?

No, not really. Well, maybe they just don't talk to me! I was struck by this some years ago... doing talks in psychology departments, someone commented that I tend to try to build this big picture to integrate these different components and

show where they sit. But that is very unfashionable in psychology. Psychology talks tend to act like 'here's my little area and I'm going to go into it in finer and finer detail' – all the time losing the big picture. So there is a kind of cultural dissonance as they are not used to thinking in these big picture terms.

I've seen this with linguists as well. I once had an excoriating review in *Nature* where a linguist wrote 'how can you possibly write a book about the evolution of language without mentioning grammar – not even as a footnote?' The answer is really: quite easily. He's now one of my big buddies. Once I'd met him and he saw where I was going he was fine. In all disciplines you tend to see something coming out of the blue as either agreeing entirely with you or, if it doesn't fit in exactly with your point of view, entirely against you and then you start to think it must be rubbish. But evolutionary theory allows you to step to the layer above and see the bigger picture.

Some social scientists are very critical of evolutionary psychology – they would rather it just went away. Why?

Evolutionary psychology is really split into two groups of people who don't entirely see eye-to-eye. You've got the behavioural ecology end where I sit, which is interested in individual differences. Most of us came out of zoology or anthropology via behavioural ecology. Then you have the classic Santa Barbara school, most of whom came out of psychology. They tend naturally to develop a modular view and tend to concentrate on human universals. I think they began to worry about being criticised as being seen as racist or sexist or any of the many other '-ists' such as biologist or geneticist! Their attempt to duck that criticism was to say 'no, no, we aren't trying to say some humans are better than others, we are just dealing with human universals'. So this stopped them being seen as on the wrong side in the nature/nurture debate. This means that they have gone down a channel that they didn't really want to go down – and maybe led to a polarising of evolutionary psychology against mainstream psychology which is much more on the nurture side of the equation.

It's interesting because sociologists of science see a clear split amongst psychologists where people who would naturally have fallen on the nature side of the nature/nurture divide became the embattled minority within psychology over the last 30 to 40 years. Many of them saw evolutionary psychology as a bulwark against these awful nurturists. So

they leapt on the evolutionary psychology bandwagon and restarted the nature/nurture debate in a way that probably hasn't been very helpful to either party, because to a biologist it really doesn't make any sense.

I think this made evolutionary psychologists become more pseudo-geneticist than they really needed to be. I've always backed off from that because my background in behavioural ecology means that there is an assumption that animals do things to boost their fitness, but this doesn't assume that animal behaviour is genetically determined. The whole point of having a big brain is so you can adapt your behaviour and fine tune it to fit in with the circumstances. All the genetics of the system does is to provide you with the end goal.

What happens on a day-to-day basis probably fits in more with what the environmentalists have to say. I really think evolutionary theory should unify these disparate fields, but you have to see it in the right way, otherwise you end up polarising things. Once that happens in science it takes for ever to break out.

I went to a talk you gave a few years ago about how many people we really know and I went home and checked my Christmas card list. It was about 50, but given that each card went on average to a family of three it came out pretty close to your magic number of 150 people – 'Dunbar's number'.

Dunbar's number is simply the limit on the number of people you can have a meaningful relationship with. The definition we use is the people you would try to see or contact to catch up with at least once a year to keep the relationship going. The kind of people who, if you saw them in the transit lounge at Hong Kong airport at 3am, you would immediately go up and say hello because you know where they stand and you know where you stand. The relationship has a history. You have to invest time in relationships in order for them to work – but there is also a cognitive limit. You can only really know 100–200 people and on average it works out at around 150.

Then there's an inner core of about five that you have really intimate relationships with. You found that if you bring a new person into the core, like a new romantic partner, you then jettison at least one old one. It's interesting because my mother was just saying that she's hardly seen my nephew since he got a new girlfriend.

Well, relationships are time-costly – even family ones. Most of these are established very early on. I think there is something odd about kinship which is deeply ground into the genetics of the cognitive system – and we can show this with our data. Kin are always on a different plane to friends, come what may. There is something that kicks in as soon as you mention that someone is kin. This is based on very early relationships where, in effect, you become imprinted on them. But friendships are very unstable over time. There are some exceptions – the friends you make around about university years seem to be in a slightly different category because you can pick them up decades later more-or-less where you left off. But that is just a handful. Probably because you made friends over drinks – and alcohol leads to endorphins being released. The rest of your friendships do deteriorate over time very rapidly. In two



years a friend can drift from being at the inner core to the outer core of your relationships.

That's interesting about drink – does alcohol tap into something primeval?

Endorphins seem to be essential in the psychopharmacological underpinning of close relationships, and we trigger their social release by touch, laughter and all those kinds of things that we do in social interactions. Seemingly, alcohol is a very good releaser of endorphins. Maybe because it's a poison – endorphins are released in response to any sort of physiological or psychological stress on the body. But you also have to realise that as a student if you don't go drinking with people, how are you going to spend a lot of time with people so that they can become close friends? So people who don't drink at university might be at a disadvantage.

You are supporter of humanism – does

that stem from your scientific interests or is it a separate sphere for you?

I guess it's a bit of both. As I say, I did start life as a philosopher. Then I became a psychologist and then finally a biologist; and I think it's hard to be a biologist and to be religious. Some people do, but I find that puzzling. In the end, it is your biological contribution to future generations in terms of fitness that drives evolutionary processes (and hence the decisions organisms make). The social cohesion of things that I'm now working on is a major component of that – like all monkeys and apes, sociality is the key to our evolutionary success. Religion plays a role in facilitating this, because its rituals seem to be especially good at kicking off the endorphin response. But there's a moral and philosophical position that you have to have in order to create a cohesive society – Mrs Thatcher notwithstanding, we are not all islands, there is such a thing as society. The principles that we hold dear – moral, social and political – are all important in creating bonded societies. So you have to have these mechanisms which you might think of as pseudo-religious.

I get the impression that you are busier than ever these days, especially when it comes to giving public talks.

Yes, I'm afraid so! The problem is that it's all getting more and more exciting. Some areas of science are very difficult to put over to the public, but my area happens to be very easy. It's an area where you can talk about quite sophisticated data, because even a lay person gets it. If it's about physiology or physics then they look at you blankly, but if it's about human relationship, it is so easy to get across. And I enjoy doing it because it can be fun.

But there is a very serious side of this too. It's very easy for politicians to target science when looking for ways of making major savings because most science doesn't show its benefits until decades later. And it's very easy to throw a lot of science out for philosophical or religious reasons – such as in creationism in America – it's an obvious target. Get rid of it because we don't need it, and we can save a lot of money at the same time. So I think it's very important that the scientific community gets out and stomps the boards and shows the public, who pay for all of this, what they are getting for their money and why they should be interested in it. It is a major component of our culture now and is at least as important as art and literature. So hopefully I'm doing my bit for the community!