

‘You need to use the evolutionary knife to cut behaviour into constituent slices’

Professor Val Curtis works at the London School of Hygiene and Tropical Medicine where, among other roles, she is Director of the Environmental Health Group, a multidisciplinary team researching water, sanitation and hygiene (WASH). Ian Florance spoke to her about interactions with psychology and psychologists.

Professor Val Curtis tells me she has three strings to her bow – engineering, anthropology and epidemiology – and she refers to herself as an evolutionary biologist. ‘But I’ve been called a

disgustologist and the “Queen of Hygiene”. My brother introduces me by saying “This is Val. She’s big on poo.”. The title of her 2013 book *Don’t Look, Don’t Touch: The Science Behind Revulsion* gives a





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pointer to one of her areas of interest, as does a recent paper on 'The Structure and Function of Pathogen disgust'.

Growing media coverage of her work and the issues that interest her led to our discussion. She works with psychologists and sees psychological solutions to some very basic needs. 'In public health the most important thing is to get rid of shit,' she says. 'Only 50 to 60 per cent of people in the world have toilets. So I'm involved in promoting toilet building, the hygiene behaviour that goes with it – washing hands with soap. I set up the global handwashing partnership which links governments, industry and academics in trying to understand why people don't wash their hands. It's an issue of human behaviour and how it can be influenced.'

Val says she could have concentrated on hygiene issues in UK hospitals, but 'wanted to work overseas, where it matters most. To give examples, I've been involved in Swachh Bharat, the Clean India mission, which has built tens of millions of toilets and I'm advising the Tanzanian government on their national sanitation campaign.'

I asked Val to describe the thinking and experiences that had led to her present range of activities. 'I started work as a young civil engineer. I had wanted to work in Saudi Arabia but, given attitudes to women working in the Kingdom, ended up living in the Ugandan war zone working on water and sanitation in displaced peoples' camps. I love Africa deeply and it annoys me the way people stereotype Africans. I lived there for ten years and brought up children in an African Muslim family. I also worked in Ethiopia and Kenya for NGOs.'

After a while, Val got frustrated at the small scale of the solutions she was involved in. 'I began to see patterns emerging and that led me to do a Master's

in Public Health. And after that I worked in Burkina Faso on diarrhoea prevention issues and two things became obvious to me.

The first was that the solution to the problems I was addressing was behaviour change: people already had clean water, but they weren't using it to behave more hygienically. The second related point is that the old model of health education simply didn't work. People had been taught to wash hands, had understood the issues and... still didn't wash their hands'. Val showed this is still true in the UK too, in a study where she wired up motorway service station toilets.

An evolutionary advantage

Val's work seems to have moved forward by a combination of serendipity combined with insights based on a lot of experience and study. Unilever wanted to research the foundations of hygiene behaviour. 'I was involved in that research, then undertook a PhD in anthropology in Holland, where I put all that findings together. I did extensive reading at the time, particularly in evolutionary theory – authors like Richard Dawkins and Matt Ridley. Suddenly a light went on and everything made sense. I grasped that behaviour is the phenotype that designed our brains; in other words the brain is designed by behaviours that give us evolutionary advantage.'

This is where psychology moved to the heart of Val's work. 'Motivation is the beginning of behaviour and I thought that a quick search of psychological literature on the topic would give me a tool to help get people to change their behaviour. However, I soon realised that nobody had a workable model of human

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motivation. This ended up being a ten-year project with my collaborator, Bob Aunger, and suggested that, for my purposes, getting into psychology led me into trouble.'

Another Eureka moment occurred when Val started looking at disgust. This, presumably, was an evolutionary advantageous behaviour, but what lay behind it? Val had researched the sorts of things people described as disgusting around the world (there's a list – not for the squeamish! – near the beginning of Val's book) and the more she looked at them the more she realised that the same things kept cropping up. Looking in *The Control of Communicable Diseases Manual*, she found the index contained many of the same things. This led to a seminal 1991 paper, *Dirt, Disgust and Disease: is Hygiene in our Genes?*

'Let me try to explain. Fear gives you an evolutionary advantage in allowing you to avoid predators who want to eat you from outside. Disgust helps us to avoid "internal predators" – parasites, germs, diseases who want to eat you from inside. We can't see these directly, so we react to things that have co-occurred, or which have proved to be risky – waste products, certain smells, certain type of material, certain behaviours among other humans. Who gets this right stays alive and reproduces. This is the Parasite Avoidance Theory (PAT) of disgust. It replaces and corrects earlier attempts to explain it, from writers as diverse as Darwin and Freud.'

Of course, says Val, there are trade-offs. 'Sex is an example. We need sex to reproduce but there are multiple reasons for not having sex with someone who might represent a risk. That's why we've developed rituals to appraise each other – our smell, our hygiene state, signs of disease – to see if we represent a threat. Disgust can be down-regulated when there are more pressing survival needs than disease avoidance – some cases of cannibalism show this. And disgust, like other motives, can be expressed in extreme and unhealthy ways. Obsessive Compulsive Disorder is a certain type of disgust gone wrong.'

Val's work has a practical application in 'a new way of doing health promotion. We developed Behaviour Centred Design, which is used in the campaigns I've mentioned in India and Tanzania. It draws on evolutionary theory and our work on motivation. But it starts with what people actually do: it must start

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in a real understanding of behaviour. Let me give an example. You can try to make people wash their hands by showing them pictures or giving messages about the disgusting outcomes of not handwashing. But you can replace motivations, pointing out, say, that handwashing can link to higher status or, in the case of mothers, nurturing their children.'

When Val shows me some of the outcome of this work, she becomes quite emotional about what it has achieved, reflecting her avowed commitment to social justice. She sums up: 'My aim is to improve the world by changing both the environment and behaviour.'

I get the impression her message is getting through. 'Five years ago we had to hide the evolutionary paradigm we were working with. There's more acceptance of it now and evolution has established itself in popular culture both because of the books that have been written and also thanks to the absurdities of creationism. But there's still a shaky understanding of evolutionary

psychology. It's viewed as simplistic by some. Evolutionary biology is not simplistic at all.'

Cutting behaviour into constituent parts

Val had mentioned that psychology leads her work into trouble. Given that the people who will read this interview are psychologists or training for the profession, I wondered what she would say about the discipline? 'First I've collaborated with psychologists and trained them as students. In fact, being transdisciplinary is important: I work with social scientists, anthropologists, psychologists – anyone interested in behaviour.'

'Second, I'd want to stress that theory is vital to underpin practice. Any science needs to drive instances to general applications.'

'Third, and perhaps most important, psychology cannot advance as a science if it doesn't define its terms in the same way that something like physics does. This is what we found when we thought we'd have an easy job defining motivations from existing research. In fact, people were talking about different things. You need to start from the fact that humans are animals then use the evolutionary knife to cut behaviour into constituent slices.'

Val is now working on several issues: writing a book about motives, explaining the factor structure of disgust (included in her paper mentioned earlier).

It's obvious that her work has huge practical effects – literally life and death. And I found her ideas have impacted how I think about things, not least the act of shaking hands when I meet people!

Might you have an interesting story to tell about your career path, the highs and lows of your current role or the professional challenges you are facing? **If you're thinking of writing or being interviewed for a 'Careers' piece** in *The Psychologist*, get in touch with the editor via jon.sutton@bps.org.uk. Of course there are many other ways to contribute to *The Psychologist*, but this is one that many find to be particularly quick, easy and enjoyable.