A higher consciousness

JON SUTTON *interviews* **PROFESSOR SUSAN GREENFIELD.**

You once said 'I studied classics at school, psychology as an undergraduate, and only switched to science as a postdoc' [see *tinyurl.com/9pum2*]. A slip of the tongue, or is psychology an art?
Psychology is what you make it. There's the introspective side, and the rigid experimentalism; it's such a broad area. Some philosophers will incorporate it into their work without any scientific background.

Do you think that breadth can be a disadvantage?
It's multidisciplinary… it's hard to see how that can ever be a disadvantage. Psychology is one of the few disciplines that can be understood and used by non-experts, and that's great.

Why did you choose it?
I thought it would help me analyse people… and boyfriends! As an adolescent you're in a very strange and isolated place, and you feel that any help is welcome. Plus I wanted to do philosophy, and at the time at Oxford you couldn't do that on its own.

And did psychology live up to your expectations?
No, it was about rats pressing bars! But I enjoyed it hugely. Philosophy was so sterile. It was all about language, the structure of sentences…I learnt vast tracts of Greek grammar and the way that words work. Psychology introduced me to the notion of the experimental world, and I started to approach things in that way.

So why did you 'jump ship'?
My tutor said it might be a laugh for me to be a scientist! I was interested in cybernetics, bionics, anything to do with computers. I had a boyfriend who made music on a synthesiser and I thought that was fascinating! I suppose I saw the science as an antidote to my classical upbringing.

Elsewhere you've warned against scientists being 'seduced by whizzy technology'. It sounds like you were! Are psychologists well placed to resist that seduction?
Yes, I think they recognise the importance of theory; scientists shouldn't just rush into fancy experiments just because they have the technology to do that. At the moment we lack enough theories to pull it all together.

'Psychology introduced me to the notion of the experimental world'

It must be difficult to take that approach within neuroscience, which it could be argued is more about showing which parts of the brain light up when you do particular things than about what it all means.
It's also wrong: just because a part of the brain lights up doesn't mean it's the centre of activity. It's the same with the genome: this idea that we can identify a faulty gene 'for' something, take it out and the problem is solved. It's very seductive, but we should realise by now that necessary does not mean sufficient.

In my experience the general public are fascinated by what the brain can do – savant abilities for example – but have massive misconceptions, such as thinking we only use 10 per cent of it. How do you get them interested in it, and can you get them as interested in the theory?
Oh absolutely. Theory is far more exciting than just saying 'Yuk!' or 'Wow!'. The public are really interested in the brain because it's about their lives and their families. Just imagine if you can understand what a dream is, what a headache is. These things affect people, it's not like learning about black holes or other dimensions.

So what do you think of psychology now, looking back from the fringes?
It's difficult to say, because I neither teach nor research on it, but a lot of what I do is regarded as psychology. It's exciting, because in the molecular sciences I think there is a palpable renaissance against genes and reductionism, towards the more cognitive aspects: what it actually does.

And you're ideally placed to form the bridge between those two approaches?
Well that's what I aim to do. Take my book, *The Private Life of the Brain*. That was me saying 'what can we bring to the party?' Drugs, for example… we know how it works at a molecular level, but we still need the phenomenology – people telling you how they experience them.

Not you presumably – you've got quite an anti-drugs stance!
That's because I don't take the black-and-white, life-and-death approach. To me there are three levels of thinking about drugs. Does it kill you? Does it harm you without killing you? And is it really you reaching your full potential? When you know how it works in the brain you can really see the harm that it can do without killing you.

Turning to your work to increase the public understanding of science, how are you getting on with your stated aim of making science an event, like going to the cinema?
It's still so difficult to get scientists to communicate. They get resentful – they are defined by their corpus of knowledge, and if you suggest that they could share this out they see it as a threat to their identity. But the great scientists can do it – Medawar and the like.

But are even the ones who do it preaching to the converted? Who comes to your events here at the Royal Institution?

WEBLINKS

Homepage: *www.pharm.ox.ac.uk/academics/greenfield.htm*

Oxford Centre for the Science of the Mind: *www.pharm.ox.ac.uk/oxcsom/oxcsom.htm*

Profile from *The Guardian*: *tinyurl.com/8za7d*

BBC interviews: *tinyurl.com/bfpmf*

It's even in terms of gender, and it's spread across generations. It's only about 10 per cent scientists. We don't know about socio-economic status.

The problem is not so much the public, and venues, it's the scientist. Scientists have one agenda – to get grants. Grants give them status and let them do experiments. If they think something isn't going to help them do that, and may even hinder them, in terms of time or of peers on committees sneering at them, they won't do it. All those things have to change. But it's important that they do – it's harder intellectually to talk to the public, and it makes you a better scientist.

And what about the science side? Are we actually doing better science then 30 years ago, that's more worthy of communication?
It's certainly more regulated, and more thorough, but the rigid structure of peer review is leading to a dampening down of innovation. It's less high-risk and speculative. Peer reviewers like to 'appear' solid, sound and critical, and there's not much to challenge the dogma. There's a lot of 'science accountancy' – it's got large samples, it's sound statistically, but is it asking the big questions?

I think that's particularly true of psychologists. I've spoken to people from other disciplines who say that psychologists are so into criticising methodology that they do their colleagues out of a lot of funding, and therefore the chance to advance the science.
Yes, it reminds me of what Daniel Dennett said about the field of consciousness – 'with so many idiots in the field it's no wonder we haven't solved the problem'!

The sociologist Hilary Rose says experimental life scientists describe biologists involved in consciousness research as undergoing 'philosopause' – 'that change of life when experimental fertility runs out'. Truth or slur?
It's just a silly statement – based on no evidence at all, and on the assumption that only experimentation is fertile. It's that attitude that stops people asking the big questions. Of course some of it may end up arid, but simply adhering to rigid experimentalism without considering the theory? That's infertile.

How do you expect your own research to have bloomed in five to ten years?
There's our grant from the Templeton Foundation for the Oxford Centre for Science of the Mind [see weblinks], so I hope to have contributed to an experimental theory of consciousness. I don't expect to have it cracked, perhaps just an idea of the pitfalls and the cul-de-sacs.

I am also about to start as Director of the Institute of the Future of the Mind, funded as part of the James Martin School of the 21st Century, in Oxford. This will complement the work of the Oxford Centre for Science of the Mind, and I am very excited about the possibilities that are now opening up, ranging from mathematical modelling of our research, through to looking at the impact of science and technology on education.

In my other area of Alzheimer's I hope to have a better handle on the basic mechanisms, to lead in to diagnosis and therapy.

Alzheimer's takes us back to competitive scientists actually, and a quote from the other Rose, Steven. He says 'because part of my own work is now directed at a potential treatment for Alzheimer's disease, and hence requires drug development, I too have become, willy-nilly, part of this more competitive culture'. Do you think that can reduce cooperation and hinder progress?
It's not just about lucrative patents, there's always been strong competition. We're not just duty physicians, we're scientists and it's natural to want your work to be as good as possible. I don't think there was ever a wonderful day when people shared everything. It's always been like that – look at Crick and Watson and the race for the structure of DNA. It moves science on.