

Correspondence

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Neurohawks fight back

Bullmore *et al*¹ mount a defence of neuroscience in psychiatry, invoking history, a dawning golden age, Reil and Freud. Although ensuring that the curriculum for undergraduates and trainees should accurately reflect what is valuable for doctors wishing to understand and treat mental disorders, they do not fulfil the ambitions of their manifesto. Their argument against neuro-scepticism is weak. Specifically, physical models for mental disorder imply a particular position on psychology which is known as analytical behaviourism, and which effectively denies the existence of mind as a reasonable concept. They may wish to advance this view but either do not realise it or do not say so.

Neuroscience is a materialist enterprise that generates and examines hypotheses about brain function, which may inform new ways of looking at mental life: but psychiatry cannot be 'based' on neuroscience without becoming neurology. If psychiatrists cease to occupy the no man's land of unknowability, others will. The point about reductionism is a parallel problem. The kind of conversation that psychiatrists engage in with patients could well be better informed by neuroscience, but the reason for contemporary 'vague talk about neurotransmitters' is that the innumerable diagnostic categories invented in psychiatry bear no relation to discrete pathognomonic anomalies: nobody would base a diagnosis of schizophrenia on a brain image whether functional or structural. Patients do not need to see their brains light up to know that they are experiencing voices. In psychiatry there is an underrated crisis of validity, which many get around by claiming that psychiatry is where the rest of medicine was before the discovery of microbes and so on. An alternative view would be that schizophrenia, for example, is indeed a 'functional' disorder: an illness but not a disease, an illness that is culturally plastic and to a great extent subjective in its essence.

Finally, the authors claim to refute the allegation that neuroscience is relatively bereft of therapeutic achievement. They fail to provide a single example of a 'neuroscientific' novelty since the 1960s that has transformed any really notable aspect of outcome in psychiatry. The one really big change, de-institutionalisation, could have occurred without any input from neuroscience at all; in fact, it was in large part a reaction against biomedicalism. It is doubtful that it would be deemed necessary to place yet another prominent polemical article in the *Journal* in defence of narrowly conceived neuroscientific hegemony within psychiatry, were this not the case.

- 1 Bullmore E, Fletcher P, Jones PB. Why psychiatry can't afford to be neurophobic. *Br J Psychiatry* 2009; **194**: 293–5.

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doi: 10.1192/bjp.195.3.268

Bullmore *et al*¹ argue for psychiatry to continue to develop as a neuroscientific discipline, rebutting what they describe as 'neurophobic' views of mental illness. I share their enthusiasm for further understanding the biological basis of psychological conditions, and the article highlights an unhealthy division that continues to cause debate and disagreement in those treating mental illness. It often manifests itself in day-to-day clinical practice and is expressed by those that view mental illness as 'psychological' and those that look for a 'biological' explanation. Obviously the two cannot be separated – unless clinging to a Cartesian dualistic viewpoint, one must be optimistic that all mental life will eventually be mapped onto a neuronal substrate.

Proponents of both approaches would do well to familiarise themselves with David Marr,² acknowledged as the founder of computational neuroscience, and his concept of 'levels of analysis' which he applied to his seminal explanations of the visual system's information processing. He pointed out that one must be aware of the 'level' at which one is trying to explain a problem. Bullmore *et al* urge us to find explanations to mental functioning at the implementational level involving the biological substrate, i.e. genes, molecular and cellular interactions creating a complex system. Theories put forward by Beck and Seligman on explaining depression, for example, and Clark's work on panic disorder³ are set at a higher level of explanation and do not address the implementation of the processes. For example, Clark postulated that it is a catastrophic interpretation of body state that leads to a panic attack. This level of explanation offers a psychological mechanism but does not comment on the biological underpinning of the disorder. This does not mean that Clark's explanation of panic attacks claims the disorder to be 'psychological' rather than 'biological'. Instead, the explanation is set at a computational level and not an implementational level.

To understand that brain-based and psychological explanations are not mutually exclusive but that they offer different levels of explanation will help avoid unnecessary debate. We can no more afford to be 'neurophobic' than we can afford to be 'psycho-phobic'; understanding at every level is vital in moving psychiatry forward as a discipline of medicine.

- 1 Bullmore E, Fletcher P, Jones PB. Why psychiatry can't afford to be neurophobic. *Br J Psychiatry* 2009; **194**: 293–5.
- 2 Marr D. *Vision: A Computational Investigation into the Human Representation and Processing of Visual Information*. W.H Freeman, 1982.
- 3 Clark DM. A cognitive approach to panic disorder. *Behav Res Ther* 1986; **24**: 461–70.

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doi: 10.1192/bjp.195.3.268a

Bullmore *et al*¹ falteringly attempt to challenge 'neurophobic' positions in psychiatry, and then fail to present a persuasive argument for the increasing prominence of the neurosciences in psychiatry. They also contradict themselves in a number of places. For example, they argue that psychiatrists implicitly rely on neuroscience through prescribing drugs, suggesting that psychiatrists would not do so unless they believed that mental disorders are related to abnormal signalling between nerve cells,