Neurohawks fight back

Bullmore et al1 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 Descartian 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 disorder2 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.