

Report on Ian Pitchford's PhD Dissertation "Evolutionary Developmental Psychopathology"

By Patrick Bateson

This is a brilliant dissertation. Many of the central conclusions can be attacked but the broad sweep of the argument is very impressive. Mr Pitchford has read the literatures of an astonishing variety of disciplines, ranging from ethology, sociobiology, evolutionary psychology and developmental systems theory to pharmacology, psychopathology, neurology and endocrinology. He places great emphasis on the modular architecture of the brain and the relationship between each module and the evolutionary processes that generated them. He attempts to develop the argument that much of psychopathology can be explained when the modules are out of kilter with each other in the world in which the individual has to live.

In more philosophical terms he suggests that categories used to explain psychopathology should represent non-arbitrary aspects of the world that underlie lawful regularities. Uncovering these regularities can then lead fruitfully to the integration of much clinical information which seems otherwise to be disconnected. This is an extraordinarily ambitious programme.

His argument has a number of tensions in them which I suspect reflect his own intellectual development. He would like to argue that the modules are developmentally stable so that their current phenotypes express directly the Darwinian pressures that operated in the past. This assumption must underpin any attempted explanation of psychopathology in terms of an over-arching evolutionary theory. Yet he has become fully aware, from reading modern developmental theory, that the modules have to develop in an individual's life-time and their characteristics may very well reflect the particular circumstances that surrounded the individual. He therefore properly rejects the dichotomies which have been so damaging to the understanding of the development of both normal and abnormal behaviour. If the systems approach to development is fully accepted, however, it would be as attractive to argue that malfunctioning of the modules might well derive from the obvious truth that the Darwinian pressures of the past are not the same as those operating now.

Similarly, he would like to argue that psychopathology represents malfunctioning of the nervous system and yet he has become aware that Darwinian pressures operating on an individual can depend on the relative frequency of that individual's own phenotype. So a phenotype may have an advantage when a small number of individuals behave in a particular way but becomes disadvantageous when many individuals behave like that. The classic illustration used to develop this argument is schizophrenia which occurs in higher frequencies than might have been expected if this phenotype were some genetic aberration periodically thrown up by mutation or unusual recombination. It has been suggested that in low frequencies the schizophrenic acquires high social status because of their strange perception of the world and the forceful character of their convictions. In a word, they become shamans. In large numbers, such people would be disruptive and lose their special advantage. While frequency dependent selection is widely accepted in evolutionary theory, it is far from obvious that this evolutionary explanation of schizophrenia is correct. If it is, however, then it cannot be argued that schizophrenia was invariably dysfunctional to the individuals who behaved this way in the world in which they evolved.

These tensions are by no means fatal to Mr Pitchford's thesis but he does not fully recognise them and he does not always move with great ease between historical explanations and those expressed in terms of current utility. Similarly, he does not move easily between explanations at different levels of analysis. It is by no means obvious that a modular account of neural architecture necessarily maps onto an account of behaviour expressed in terms of independent systems. The capacity of a television set to receive and play many different channels does not require an electronic module for each channel. Nevertheless, the discovery that, say, Williams syndrome children have extraordinary linguistic abilities and very poor cognitive ability came as a great surprise to those who would have argued for much greater interdependence of such capacities. The linking of the syndrome to the failure to develop of most parts of the brain other than the speech areas lends powerful support to explanations in terms of the modular architecture of brain function.

I should not be too critical of Mr Pitchford's stumbles when moving between different levels of analysis, because a great many very distinguished people in the neurosciences and cognitive psychology experience similar difficulties. At all times in his writing he remains very articulate and he can be highly critical of some of the muddles which he has correctly detected for himself. He also realises very clearly the futility of a search for a single scheme of psychiatric classification useful to both clinicians and those attempting to understand the development and integration of behaviour in humans. His dissertation ranges across some of the conceptually most difficult areas in modern biology and psychology and does so with remarkable maturity and intelligence. I very much look forward to what I am sure will be an extremely lively and interesting viva.

I have no hesitation in recommending that Ian Pitchford be awarded the degree of Doctor of Philosophy.

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