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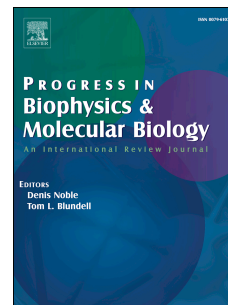
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# Cellular Intelligence: Microphenomenology and the Realities of Being

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## ABSTRACT

Traditions of Eastern thought conceptualised life in a holistic sense, emphasising the processes of maintaining health and conquering sickness as manifestations of an essentially spiritual principle that was of overriding importance in the conduct of living. Western science, which drove the overriding and partial eclipse of Eastern traditions, became founded on a reductionist quest for ultimate realities which, in the modern scientific world, has embraced the notion that every living process can be successfully modelled by a digital computer system. It is argued here that the essential processes of cognition, response and decision-making inherent in living cells transcend conventional modelling, and microscopic studies of organisms like the shell-building amoebae and the rhodophyte alga *Antithamnion* reveal a level of cellular intelligence that is unrecognised by science and is not amenable to computer analysis.

*Keywords:* microphenomenology; cellular intelligence; computation; decision-making; evolution; regeneration

## INTRODUCTION

Post-Cartesian reductionism became an alluring aspiration for Western science, and for cell biology it has matured into an inescapable imperative. Investigators are driven inexorably towards ever smaller entities and tinier processes until the context in which phenomena occur, their purpose, and the motivational constraints by which they are governed, are transcended by the sense of achieving the most minute insights into the grandest of realities. It is as though we are peering closely at particles of pigment, analysing their constituents, resolving their chemical constitution and the precise alignment of their molecules, without noticing that these specimens are actually printer's ink from a book of Shakespearean sonnets. We are fixated by analysing the minutiae of the manuscript, rather than relishing the prose. As Noble (2016) has so ingeniously pointed out in his recent book, which is rich in resonances of his previous pioneering publication (Noble, 2006) the beauty of the cell is its way of interpreting its genetic and epigenetic information to produce the coordinated intricacy of physiology, much as an orchestra creates a symphony from the crisp terseness of a musical score. After centuries of reductionism, Noble is championing the cause of systems biology, where the discrete mechanisms of cell chemistry are united into processes that define how an organism functions. The term remains vaguely defined, and tends to draw our attention away from the hidden complexity inherent in living organisms (Nurse & Hayles, 2011).

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