
Holism, organicism and the risk of biochauvinism

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Abstract

Since Gilbert and Sarkar's reflection on the need for an 'umbrella' or 'organizing' concept to convey the new vitality of systemic or holistic concepts in biology (Gilbert and Sarkar 2000), seconded by Laubichler's paper proclaiming the return of the 'organism' as such an organizing concept (Laubichler 2000), some scholarly work has been done which dispels earlier prejudices and gives us a more useful, nuanced sense both of these concepts in biological science and their possible pertinence today (see e.g. Huneman and Wolfe eds. 2010, and Cheung 2006 on the history and theory of organism; Wolfe 2011a, b on forms of vitalism and Normandin and Wolfe eds. 2013 on the relation of vitalist themes to mainstream science). In addition, there has been some sustained work on these concepts in current biology. To name three recent examples, (1) in theoretical biology, the effort to articulate a model in theoretical biology of "organizational systems", in Moreno and Mossio's research (see Moreno and Mossio, forthcoming and earlier, Ruiz-Mirazo, Etxeberria, Moreno & Ibáñez 2000). A question arising in reaction to this research is the extent to which philosophically it is committed to a non-naturalistic concept of organism as organizing centre, as a foundational rather than heuristic concept – or possibly a "biochauvinism," to use Di Paolo's term (Di Paolo 2009). (2) In biochemistry, Kirschner et al.'s research paper in *Cell* (Kirschner et al. 2000) on what they called "molecular vitalism": they suggested that, faced with the limitations of genomics, researchers should investigate what the authors "whimsically" termed the "vitalistic" properties of molecular, cellular, and organismal function: "the organism has fashioned a very stable physiology and embryology. . . . It is this robustness that suggested 'vital forces', and it is this robustness that we wish ultimately to understand in terms of chemistry. We will have such an opportunity in this new century" (87). (3) In evolutionary biology, Pepper and Herron's 2008 paper suggests that organisms define a category that evolutionary biology cannot do without.

My aim in this paper is to conceptually clarify the forms of holism and organicism that are involved in these cases (and I acknowledge that the study of early 20th-century holisms [Peterson 2010] indicates that not all of them were in fact 'organicist' or 'biologistic'). I suggest that contemporary holists are still potentially beholden to a certain kind of vitalism or "biochauvinism"; but that when they reduce their claims to mere heuristics, conversely, they risk losing sight of a certain kind of organizational "thickness", a "vital materiality" (Wheeler 2010) which is characteristic of biological systems (Bechtel 2007, 2013). And I ask if it is possible to articulate a concept of biological holism or organicism (whether it is located in systems biology, theoretical biology, evolutionary biology or a philosophical reconstruction of several of these) which is neither an empirical 'biochauvinism' nor a metaphysical 'vitalism'?

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