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# REVIEWS

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Alva Noë, *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness* (New York: Hill and Wang/Farrar, Straus & Giroux, 2009). Pp. 214 + xv. ISBN-13: 978-0-8090-7465-5. \$25.00 hardcover. ISBN-13: 978-0-8090-1648-8, \$15.00 paperback.

Alva Noë, *Action in Perception* (Cambridge, MA: MIT Press, 2006). Pp. 289. ISBN-13: 978-0-262-64063-3. \$21.00, paperback.

Alva Noë is a major, relatively young contemporary philosopher in philosophy of mind and consciousness who Polanyians should get to know. They should do so not because he knows and draws upon Polanyi's thought, for Noë acknowledges no indebtedness or even awareness of Polanyi in what he has published. His work is worth knowing because his ideas about mind, body, and perception are profoundly resonant – indeed, significantly convergent – with Polanyi's and because of Noë's increasing stature in the field of consciousness studies. Many students of Polanyi have wondered about the relevance of Polanyi's thinking to the latter field. An acquaintance with Noë's thinking promises to disclose what implications lie in store and to be an ally in establishing connections.

**Noë's position, in brief.** Consciousness is not something that happens inside us – not in our brains, or anywhere else inside; it is something we do, something we enact, something we achieve. Consciousness for Noë is first of all perceptual awareness (all higher order and reflective forms of consciousness, so far as Noë is concerned with them, are considered to be derivative from perceptual consciousness via the senses and some means of representation). Perception itself for Noë, though, is not an event or process in the brain which produces some representation of the world on the basis of sensory stimuli – which theory remains the dominant orthodox conception in contemporary neuroscience – but instead is contended to be a dynamic

activity, an achievement of a biological organism that puts it in touch with and successfully engages its ambient world. Consciousness for Noë is a relation (or complex of relations) of the whole embodied organism interacting with its environment, a dynamic activity, dependent to be sure on what takes place in the brain but essentially taking place in the world, relating the organism to its environment and empathetically accessible by observers from the outside.

Noë's position stands clearly against scientism, especially counter to narrowly conceived, reductionistic scientism. So also, it stands against residual Cartesianism: all radical disjunctions of subject and object, all 'brain-in-a-vat' thinking, and all flirting with the possibility of the perceptual world being some sort of 'Grand Illusion.' Further, with his appreciation of the intelligent achievements of biological organisms, Noë's position is opposed to the fact-value split, the ideal of a detached god-like knowledge of an objectified world from which all normative qualities are absent, and the correlative critical modern hostility between the sciences and the humanities disciplines. Without realizing it, Noë has sketched what Polanyi has termed the panoramic perspective of "ultra-biology" (PK 363): a continuum of progressive achievements of each level of life from the lowly amoeba to the highest reaches of human culture.

**Noë's background and current position.** Before coming to Berkeley in 2003, Noë taught philosophy at UC Santa Cruz. He received his doctorate from Harvard University in 1995; he has a BA from Columbia (1986) and a BPhil from Oxford University (1986). Currently he is Professor of Philosophy at the U of California, Berkeley, and a member of the Institute of Cognitive and Brain Sciences and the Center for New Media, both at Berkeley. Major influences on Noë include J. J. Gibson (who was so important to Marjorie Grene's later work in philosophy of biology), Maurice Merleau-Ponty, Hubert Dreyfus, Stephen

Toulmin, and John Searle – all of whom Noë cites. He also studied under Daniel Dennett, from whom he has earned considerable respect though not much agreement.

**Noë on recent brain research.** Noë has made considerable effort to become acquainted with what is going on in cognitive science, and his books review a good deal of this research. What do the recent breakthroughs in sophisticated brain scanning teach us? What does computer modeling of the brain activity teach us? Do they not establish that the brain, as an essentially information processing device, is in control, is the thing which produces consciousness, that creates subjective mental life as we know it? As a matter of fact, Noë argues, the answer is “No, they do not” – though to listen to the explicit claims of many of the principal and better known expositors in the field, it would appear that they do.

The problem is that the empirical data compiled through recent neuro-physiological research, more and more of which are being turned up every day, continue to be held hostage to and are made to serve reductionistic metaphysical assumptions (essentially mechanical, but not really ecological/biological), assumptions which are not themselves dictated by the data. On the contrary, a good deal of the empirical data themselves, Noë argues, point to contrary assumptions – though not undeniably so, for the same data to a degree permit divergent interpretations. According to those contrary assumptions, the seat of control is the organism as a whole in interaction with its environment, not the brain (although, to be sure, the brain, or neurological system specific to the organism, limits and channels, while it also enables, that control). The organism in dynamic, two-way interaction with its environment is what creates the corresponding neuro-physiological state, rather than vice versa – not as a stand-alone result but as an underlying, enabling structure. According to Noë’s account, the organism-environment interaction invokes or calls into being the neuro-physiological state to enable the success of the interaction, not the other way around. If adopted, Noë’s way of putting it would amount to a major shift of perspective and orientation of the neuro-physiological research program to an es-

entially biological/ecological one from being for the most part an essentially mechanical one. None of the empirical data would be denied or suppressed; they would simply be taken up into a different orientation of research.

**Noë on perception.** Perceptual knowing is the practical achievement of an acquaintance relationship (picking out and engaging an object in its environment as it pertains to the organism’s active interest); it is not passively representational as if it were an image in the brain, for Noë places an emphasis on sensory-motor activity over vision (or rather vision as itself a function of sensory-motor activity – for what we see is invariably experienced as a direct result of how we are situated and moving in relation to, and bodily interacting with, the things we see) and sensory-motor skills over intellection. (This is not to deny intellection, but to construe intellection as being derivative from and subsidiarily grounded in sensory-motor interaction.) Perceptual consciousness, for Noë, is thus a tacit knowing, but even more dynamic than it seems to be for Polanyi. All successful perception entails a skillful, interactive know-how and embodied access. In this manner, Noë seeks to counter representationalist construals of knowing and all efforts to render knowledge as explicit data.

Noë characterizes the mind as “distributed” spatially from within the organism’s embodied interaction with its environment in a manner that profoundly resonates with, if it does not exactly mirror, Polanyi’s understanding of the mind as extended through its tools, language, and culture. In this respect, Noë re-opens the table of consciousness studies to the humanities and the arts, much as Polanyi does. In this respect he takes a strong position on the irreducibility of higher order functions to lower order functions, but frames it all in a naturalist framework. Though he doesn’t talk much about emergence in these books, I would say that he would place himself in the emergent naturalist camp.

**What Noë can contribute to Polanyi’s thought.** Noë provides an excellent avenue for extrapolating Polanyi’s thinking to current work in cog-

nitive science and consciousness studies, and does so with a familiarity with relevant empirical studies and sophistication in analytic argumentation rarely found among Polanyi scholars. Moreover, the possibility of appeal to the work of a philosopher with the stature of Noë in these areas without the usual reductionistic and scientific bent would help to give Polanyi a voice he does not otherwise have.

**What Polanyi might contribute to Noë's thought.** I can imagine several things, chief among them might be Polanyi's account of the tacit fiduciary component of all knowing, particularly as exhibited in the process of discovery. As well, Polanyi's extension of this understanding of knowing to all forms of knowing, foremost among them knowing throughout the sciences—including the exact sciences, is something that Noë has yet to discover, as far as I am aware.

**Some critical remarks.** As is no doubt evident, I have become quite an enthusiast of Alva Noë. However, I have not found him to be as persuasive to some of my scientifically inclined colleagues in psychology and philosophy. This led me to look a bit closer at the way *Out of Our Heads* was put together. He does have a tendency to exaggerate, oversimplify, and state things provocatively at times. It is definitely addressed at a more popular level of presentation and has an element of preaching to the choir. Much less so is his *Action in Perception*, which is much more closely and carefully argued.

Also, Noë is not very convincing to persons who identify consciousness primarily with reflective self-awareness (as in the Augustinian-Cartesian line of identifying mind in terms of intellect, the 'inner self,' and/or the abilities to think and be self-aware). This is not to say that he cannot consistently handle the issues raised by this tradition of thought from the perspective he sets out; it is only to say that he does not address them well.

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Marjorie Grene and David Depew. *The Philosophy of Biology: An Episodic History*. New York: Cambridge University Press, 2004. Pp. 440. ISBN 978-0-521-64380-1. \$39.99pb.

*The Philosophy of Biology: An Episodic History* is a rich, rewarding, and complex look at a collection of events in the history of philosophy which intersect with events in the history of biology. Grene and Depew mention several times that three topics recur in the book, namely questions concerning classification of organisms, mechanism and teleology, and the relation of biology to other sciences. But the book is not a survey of views related to these topics—the figures mentioned do not necessarily address each recurring topic and many additional topics are broached (xvi). The reader must take the subtitle, *An Episodic History*, seriously and recognize that Grene and Depew use “a highly selective, if not idiosyncratic, procedure [to] illuminate some facets of the prehistory of the philosophy of biology” (xvi). The procedure is to give a detailed account of a few events and characters in the story of the philosophy of biology. The scope of the book combined with these idiosyncrasies make it impossible to discuss all the interesting topics, events, and implications of the work in a review. In lieu of this, it may be best to pick out one implication of the book, one that fits nicely with two comments that Phil Mullins made about Grene in a memorial essay printed in an earlier edition of *TAD*. These two comments are that Grene was “irreverent before orthodoxies” (*TAD* 36:1, 55) and “always appreciated Polanyi's ideas about embodiment” (*TAD* 36:1, 60). In Grene and Depew's book, the irreverent implication is that there is no grand narrative to be discovered in the history of the philosophy of biology because every episode, embodying different individuals in different environments, confronts different issues. As such, the book is organized more like a collection of short stories and less like a novel.

The structure of the book provides some evidence for this interpretation. The book is more or less temporally organized beginning with Aristotle in Chapter 1 and ending with some musings about what

philosophy of biology can contribute to the future of the philosophy of science in Chapter 12. While Grene and Depew do not group the chapters into sections, there are groupings that can be constructed. The first four chapters cover pre-19<sup>th</sup> century episodes which touch on biological topics. First, Grene and Depew discuss Aristotle, “the only major philosopher in our tradition who is also a major biologist” (1). Aristotle’s world view is not the modern view of the external world. Teleology is important to classification, mechanism is not. Furthermore, physics concerns itself with things that have an internal source of motion, i.e., are living things. In a sense, the nature of inquiry in physics follows biological inquiry and not the other way around. After Aristotle, they investigate the 17<sup>th</sup> century episode in which Descartes and Harvey provide alternative accounts of the circulatory system focusing on the recurring topics of mechanism and teleology, with a brief aside about the relation of biology to physics. This is followed by a chapter on Buffon’s taxonomic inquires which focuses on classification issues. The fourth chapter focuses on Kant’s interest in teleological issues as well as Kant’s discussions of race.

By the end of the first four chapters, three patterns have emerged that continue throughout the book. Between the chapter on Aristotle and chapter 10, no chapter discusses each of the three recurring topics identified by Grene and Depew. At most two of them are discussed. Furthermore, each chapter addresses at least one, and usually more, new topic which does not reappear later. For example, while the circulatory system is central to the chapter on Descartes and Harvey, it does not get mentioned in subsequent chapters; vitalism plays a significant role in the chapter on Buffon, but Grene and Depew only mention it again to point out that they will ignore it (221). Finally, each chapter involves a clearly defined spatiotemporal environment. Aristotle inhabited Greece over 2000 years ago, while Descartes was in 17<sup>th</sup> century France and Harvey in 17<sup>th</sup> century England. Buffon was an 18<sup>th</sup> century Frenchman and Kant an 18<sup>th</sup> century Prussian. These patterns support a reading in which Grene and Depew are implying that

there is no grand narrative in the philosophy of biology. As Grene and Depew point out at the end of the book, what they “are trying to understand, as philosophers, is the life of science: how scientific practices originate and continue as epistemic enterprises” (352). This involves “trying to understand certain ways of coping in, and with, certain environments” which they think is the most promising model for doing philosophy of science in the future (356). In this sense, the book is a demonstration of this model of doing the history and philosophy of science by looking at spatiotemporal episodes and what is unique about each.

Chapters 5 and 6 continue each of these patterns. Each chapter involves someone in the 19<sup>th</sup> century, but each is located in a different environment. Chapter 5 is entitled “Before Darwin I: A Continental Controversy” and focuses on the 1830 debate between Georges Cuvier and Étienne Geoffroy Saint-Hilaire in France concerning comparative anatomy. Here we have a new interest, comparative anatomy. One part of the debate that Grene and Depew highlight is the different guiding principles for research in comparative anatomy put forth by Cuvier and Geoffroy. Cuvier uses “conditions of existence” to identify why a particular entity functions as a whole in an environment and Geoffroy uses the “unity of composition” to trace how both humans and dogs have feet, or humans and birds have arms, but that these materials are used differently (140). The one recurring topic that is brought up here is that of classification. However, the interest even in these two men in the subject was quite different: “For Geoffroy ... classification was not an overriding interest” but “For Cuvier ... the development of a ‘natural classification’ was always a predominant aim” (143). So, even within this one episode one is hard pressed to uncover a unified narrative, a common set of philosophical interests that are at the heart of the practice of biology.

Chapter 6, “Before Darwin II: British Controversies about Geology and Natural Theology” is still temporally located in the 1830’s, but now in the environment of Britain where science and theology are maintaining a fragile peace. However, controversies in

geology and biology are active in this situation. The controversies mentioned include, on the geological side, uniformitarians, who believed the earth has been gradually changing, and catastrophists, who believe sudden, large events are responsible for these changes. On the biological side, the controversy was between the transmutationists, who believed one species gradually became another, and the fixists, who, for theological reasons, believed that species did not change. Again, most of these issues do not appear later in the book (one could argue that similar ideas were revived as punctuated equilibrium by Niles Eldredge and Stephen Jay Gould, ideas discussed in chapter 9). So, we have a new environment and new topics, with barely any mention of the recurring topics at all.

Chapters 7-8 can be viewed as forming another grouping which describes the developments of Darwin's theories (Chapter 7) and the interest in heredity and variability (Chapter 8), which is leading to the Modern Synthesis. Given the wide variety of developments in biology mentioned in these chapters, Grene and Depew's presentation of the material gives one a sense of chaos within biology. In Chapter 7, "Darwin," Grene and Depew are not so interested in the development and particulars of Darwin's biological theory and focus instead on the theory's "epistemic presuppositions and some of its consequences for the nature of biological explanation, as well as the place of man in nature" (200). The recurring topics of classification and teleology do appear in this chapter. But these appear alongside the new topics of sexual reproduction (relevant to *The Origin of Species*) and discussions of the relation between biology and psychology (relevant to *The Descent of Man*). Chapter 8, "Evolution and Heredity from Darwin to the Rise of Genetics," sees the environment change once again to one in which heredity and variation are the main topics. The time period covered by this chapter is the late 19<sup>th</sup> and early 20<sup>th</sup> century. Here we finally have what seemed to be impossible for Kant, namely, a search for biological laws. First we have attempts to discover biogenetic laws (which focus on DNA) by individuals such as Ernst Haeckel and biometric laws (which focus on physical and behavioral traits) by Karl

Pearson. Furthermore, we see the development and influence of cytology, or the study of chromosomes, as an important area of research. By this point, with all of the new topics, characters, techniques and questions that are discussed in each chapter, and almost no mention of the recurring topics, it becomes clear that each new generation of biologists, embedded in new environments, address different philosophical issues.

Chapter 9 discusses the Modern Synthesis and begins a new approach to discussing the development of biology related philosophical issues. This new approach is one in which Grene and Depew provide sign-post discussions for those who wish to look into the details through personal research. This approach, in which significant topics and episodes are discussed briefly but clearly (with many footnotes directing the reader to further readings), is necessitated by the explosion of biological inquiry in the 20<sup>th</sup> century. Some of the topics mentioned in this chapter include controversies about the unit of selection (individuals or groups), the development of sociobiology by E. O. Wilson and Richard Dawkins, the thesis of punctuated equilibrium and the dispute between the developmental gene concept of classical population genetics and the molecular concept of the gene. The result of all of these research programs can be seen as negative by some individuals. As Grene and Depew explicitly state at the beginning of chapter 10, these developments in biology call into question the idea "that all the sciences would one day (perhaps even soon?) be unified in the terms of, and through the theories of, the most basic level of physics" (290). Considering the lack of a grand narrative in the history and philosophy of biology, such a result is unsurprising.

In the last three chapters, Grene and Depew eschew the strictly episodic approach that they have used throughout the book to focus directly on more philosophical issues in biology. Chapter 10 touches on each of the recurring themes. First it discusses the species problem and the development of different methods of classification such as the biological species concept and cladistics. They also revive the question of whether biology is an independent sci-

ence or reducible to chemistry and physics. Finally, they bring up the use of teleological explanations in biology. Chapter 11 completely shifts the discussion of issues about biological approaches to theories of human nature. Here they discuss the nature versus nurture debate and its ties to eugenics, whether human consciousness and language are evolutionary adaptations, and the Human Genome project. They finish the book in chapter 12 by exploring ways in which “the emergence of a philosophy of biology can contribute to the philosophy of science in general” (348). Their conclusion is that the method implicitly used in the creation of this book, an ecological-historical view, can be a fruitful contribution. In this approach science is conceived as “communally organized efforts of real people to find their way in some section of the real world” and the philosopher of science is trying to understand “how scientific practices originate and continue as epistemic enterprises (352). Their final assessment is consonant with the implication that there is no grand narrative to be found: “there is no overall rationale to be found here; we are restricted in every case to a given historical context, in a way that goes far beyond the dreams – or better, the nightmares – of the sage of Konigsberg” (360).

Greene and Depew’s *The Philosophy of Biology: An Episodic History* is an incredible achievement. This review has barely touched on the wealth of information they have provided. At best it hints at the breadth of topics, provides some insight into one of their goals, and describes some of the strategies they utilize in realizing that goal. The book is already well respected and should be considered a major source for anyone interested in any topic in the history and philosophy of biology.

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## Notes on Contributors

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**Phil Mullins** ([mullins@missouriwestern.edu](mailto:mullins@missouriwestern.edu)), Professor Emeritus at Missouri Western State University, has been the *TAD* editor since 1991 and webmaster for the Polanyi Society since the mid nineties. His interest in Marjorie Grene and her work with Polanyi goes back to the early seventies when he first met Grene while in graduate school.

**David Nikkel** ([david.nikkel@uncp.edu](mailto:david.nikkel@uncp.edu)) is Associate Professor of Religion and Chair of the Department of Philosophy and Religion at the University of North Carolina at Pembroke, with special interests in theology, philosophy of religion, religion and culture, and science and religion. He received his Ph.D. from Duke University, studying under William Poteat.

**David Rutledge** ([david.rutledge@furman.edu](mailto:david.rutledge@furman.edu)) teaches religion courses at Furman University in Greenville, SC. His current interests include work on contemporary secularism in the Academy and society. He is currently President of the Polanyi Society.