

Monad to Man: The Concept of Progress in Evolutionary Biology by Michael Ruse. Harvard University Press. Cambridge, MA. London, U.K. 1996. 539 pp. Bibliography. Index. Notes. ISBN 0-674-58220-9.

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Description

Evolutionary theory remains controversial. This is, Ruse argues, because it has been shaped by the controversial idea of cultural progress (Progress). In support he offers three proofs. The overall content of a person's biology must conform to the idea of Progress (1). Since this could be mere coincidence, the biologist must personally value the idea of Progress (2). Thirdly, since theories go beyond evidence the gap must be filled in a way consistent with the idea of biological progress. Again this consistency could be due to mere coincidence or to other non-evidential reasons. Ruse, therefore, attributes a causal role to the idea of Progress only when the Progressionist extension of theory beyond evidence is held against strong counter trends.

Approximately forty case studies cover French, German, British and U.S. biologists from the 18th century up until today. For two centuries ideas of biological evolution, biological progress and human progress appear to have been linked. Evolutionary biology was initially considered a pseudo-science, Ruse argues, because P/progress was associated with speculative metaphysics, it functioned as a substitute religion, it had no empirical basis, and it failed to produce economic benefits and attract grants. Darwin's work raised the status of evolutionary theory from pseudo science to popular science and so it remained for the 2nd century. Ruse concludes that historically the desire to be accepted as professionals was the main reason for the expulsion of the idea of Progress from evolutionary theory. This was not a necessary requirement. Thoughts of P/progress enter into evolutionary thought by being re-interpreted into forms fruitful in biology. This occurs by the use of metaphors such as Wright's adaptive landscape or

Simpson's 'evolutionary trends.' Ruse emphasizes that the metaphor of the adaptive landscape does not entail progress logically. Hence the content of evolutionary biology is not entailed by the idea of P/progress, but evolutionary biology may be informed by it. This explains why a mutual engagement of evolutionary biology and the idea of Progress is inevitable, and why good evolutionary biology is possible in spite of it.

Evaluation

The three proofs in support of the thesis are linked because they are manifestations of one underlying metaphor representing a metaphysical commitment to P/progress. As metaphor, the idea of Progress shapes biology as a whole (#1). The metaphoricity of cognition involves the individual knower (#2). And metaphor as bearer of knowledge creates cognitive tension in the target domain by imposing knowledge from a source domain thereby extending theory beyond evidence (#3). If cognition is metaphorical, this linkage is unavoidable and, therefore, other independent proofs are not available.

The application of proof #3 is problematic. Ruse is unclear about whether it is the theory or the popular opinion that needs to be outstripped by the evidence in order to satisfy proof #3. This weakens the proposal that Progress affects professional evolutionary theory. Secondly, that someone should go beyond the evidence (proof #3) in ways consistent with a personal metaphysical commitments (proof #2) is to be expected. Knowledge can be imported from any source by metaphor, be it from metaphysics, religion, economics, sociology or popular science. Neither is it surprising that this personal commitment will shape someone's biology. Thus to attribute the extension of a theory beyond evidence to the influence of the idea of Progress, the extension must be shown to go against one or more alternatives that have a strong cultural role. On this score the book is disappointing. Only in seven of the approximately

fourty one cases are counter trends to the extension of theory beyond evidence explicitly identified in the discussion of proof #3.

Finally, where does one look for a counter trend? The counter trend required for proof #3 must be a *functional* one because a culture has subcultures. For instance, how would proof #3 apply in a predominantly P/progressionist culture? Popular culture can harbor both the P/progressionism eradicated from professional biology and many non-Progressionist counter trends. This is why Ruse needs to demonstrate that a particular subculture functions as an alternative against which a particular biologist holds his or her Progress-driven extension of theory beyond evidence. Unfortunately, Ruse merely establishes the availability of counter trends.

If non-epistemic values inform the theoretical gaps left by empirical evidence, all sorts of values can slip in: political, moral, social, religious. This raises several questions. First, is evidence of a personal commitment to P/progress sufficient to establish a causal link with theory? What about the role of other values? Second, why does Ruse ignore the possibility of the idea of P/progress informing the content of explanations and theories in science in addition to filling the evidential gaps? This is important if one wants to determine whether the expulsion of cultural values from science is necessary for its maturity. I believe cultural values are good for science. If metaphors such as Wright's adaptive landscape can transform the idea of biological progress into specific working hypotheses, they increase knowledge and that is good for science. The locus of action of the cultural value then is not in the gaps between evidence and theory, but in the cognitive content of biological concept or theory itself. Since this mode of action is not logical, but cognitive, as Ruse emphasizes, good evolutionary biology is possible in spite of being informed by the idea of P/progress. This means that the professional status of evolutionary biology is not necessarily threatened by P/progress. Perhaps this explains why Julian Huxley, Dobzhansky, Lewontin,

Wilson and Gould did not think the professional / popular divide sacrosanct. Thirdly, if theory always leaves evidence behind, the expulsion of cultural values cannot be a necessary condition for its maturity because epistemic values are cultural values as Ruse indicates. The maturing of science does not involve the wholesale replacement of cultural with epistemic values. Rather it involves, I conclude, the selective retention of those values that are good for mature science.

The idea of P/progress is a fortunate choice for those interested in interdisciplinary studies. The idea of cultural progress may have driven the idea of biological progress which in turn may have informed evolutionary theory, but this theory is currently overextended. The book is a pleasure to read. One can't help, but smile when female dung flies are portrayed as "archetypical Victorian maidens."

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