

Book Review

Review-Discussion of Marco Solinas's *From Aristotle's Teleology to Darwin's Genealogy*

Walter Leszl

Department of Philosophy, University of Florence, Florence 50139, Italy; leszlwalter@gmail.com

Received: 26 September 2017; Accepted: 3 October 2017; Published: 16 October 2017

The book I am discussing is the second book by Marco Solinas. He is the author of a book on Plato and Freud which first appeared in Italian (Solinas 2008) and then in an expanded version in German translation (Solinas 2012a). That Platonic psychology, starting with the three-part division of the soul, could be compared with Freud's theory was not a new intuition, but the book developed it in full, using documentation that showed that Freud himself had some awareness of the points of contact between his psychology and that of Plato.

This new book, which now appears in English translation (it first appeared in Italian (Solinas 2012b)), is similar to the first one in scope. It offers an account of biological thought from Aristotle to Darwin, which is, of course, selective, but which focuses its attention on what can be regarded as its central aspect. What is illustrated is the transition between two fundamentally different views of living beings. The first view, the Aristotelian one, is that according to which species are immutable, and individuals belonging to each species develop and are organized in a finalistic way; both immutability and finalism reflect a form of essentialism, and leave a rather marginal role to chance; finally, among the populations of the various species, there is an equilibrium which prevents the extinction of any species. The view adopted by Darwin is opposed to all this, for the descent with modifications thesis is set against the ahistorical thesis of the fixity of species; the appreciation of individual variations is set against anti-random essentialism; the recourse to natural selection, and so to extinction, is set against finalism and equilibrium among the species. The account given by Solinas of this development distinguishes itself for its clear-headedness on the main issues to be dealt with, and at the same time is very stimulating and of great interest even to those who are not familiar with the history of science. I would remark that this is a field that has been cultivated by scholars, with a few exceptions, only in rather recent times, but that there are already a good number of important contributions to it, to which Solinas's book can be added without hesitation. These books do a good deal to overcome the well-known divorce between the 'two cultures', i.e., between natural science and the humanities.

What follows is not a proper review of the book, for here I develop some observations I made on the occasion of its presentation at the British Institute of Florence. I also am continuing the discussion I had with the author from the time when, as Solinas's supervisor, I followed the Ph.D. dissertation which constituted its first version (see his Acknowledgments). The dissertation, it should be remarked, was submitted in the year 2004 and the book is in many ways a different object. What has not changed very much is the feeling I had that the outcome would be admirable in many ways, as already stated above, but without being entirely persuaded by the idea of establishing such a direct relationship between Aristotle and Darwin. In coming back to this issue at a distance of time I make an attempt to bring to light the main grounds for my reservations.

I would state, as a premise for my comments, that I share the view that Aristotle's and Darwin's position are wholly incompatible (one cannot associate them, for instance, on the issue of teleology, as attempted by some scholars), and my remarks mainly concern the historical side of the book. On this I point out, first of all, that Solinas's book is based on two assumptions (this is not harmful, for any book of this type is based on some assumptions). The first assumption is that the history of science

(at least of biology, but it is probably not restricted to this field) is dominated by a few comprehensive theories (or, if one prefers, frameworks), exemplified in the book by those of Aristotle and of Darwin. All the other contributions either fall inside these frameworks or, if they do not do so, but rather remain too partial and fragmentary (as for instance the intuitions by Empedocles), are condemned to marginalization if not to oblivion. The second assumption is that the facts that are taken into consideration in a field like that of biology are always seen (or understood or interpreted) in the light of the theory itself, are not just innocent facts that one can look at in a wholly neutral way.

This second assumption is widely shared by scholars in the field, and I think that the book is very successful in showing that it works in the field of the history of biological thought. The subtitle of the book ("the stamp of inutility") touches on this point, making it evident that Aristotle tended to close his eyes to the fact that there are organs, like the wings of geese or the eyes of the mole, that, since they do not exercise their proper function, escape his finalistic account of organisms. Another example that can be given is that Aristotle, in considering the parts of animals, pays attention to analogies (for instance the scale of a fish corresponds to the feather of a bird in the function they exercise) and not to homologies (i.e., identities or similarities in structure and position of organs, independently of their function, e.g., between the bones of our hand and the bones of the wing of a bat or between our whole skeleton and that of a bird). These are all facts that are best explained in a genetic way.

The first assumption is not (I believe) so widely shared, and I myself have reservations about its validity. It is at least conceivable that even relatively small innovations, when they are many, operate in a cumulative way and are bound, in the end, to produce a change that appears more revolutionary than it really is. Solinas's account of the evolution of biology is to a large extent an attempt to apply to this field Thomas Kuhn's conception of the history of science (first stated in his well-known (Kuhn 1970), according to which science passes through changes that are revolutionary, in the sense of involving a change in paradigm, i.e., a change that is not just that of bits and pieces, being in effect 'holistic'; once the change has taken place, however, the development tends to be gradual and cumulative, this being the phase of 'normal science'. (Solinas discusses Kuhn's conception in just one, embedded, chapter of the book, ch. 5.7 entitled "Revolutions", where he makes the suggestion that it is better to replace 'paradigm' with 'framework', but it is sufficiently clear that this constitutes his point of departure, also concerning the first assumption mentioned above). Now, Kuhn himself had a paradigm for his theory of scientific change: the so-called Copernican Revolution, about which he wrote another brilliant book with the same title (Kuhn 1957). In some of his publications he makes reference to the 'Darwinian revolution', but without coming to clarity about the respect in which this is a revolution. Solinas's suggestion is that this gap can be filled by indicating Aristotle's biology.

The Copernican revolution is paradigmatic from this point of view because the 'revolution' took place in a relatively short time and there was consciousness of the fact that the Ptolemaic-Aristotelian paradigm or framework was being rejected (at least this consciousness emerges in Galileo's *Dialogue Concerning the Two Chief Systems of the World*, one of these systems being the Aristotelian-Ptolemaic, the other being the Copernican). Darwin himself was convinced, as emerges in a passage from ch. 15 of the *Origin of Species* quoted by Solinas (in ch. 5.7) that his work (and that of Wallace) was giving rise to a "considerable revolution in natural history", yet he had no awareness at all that the revolution concerned Aristotelian natural history (otherwise he could not have taken the passage from Aristotle's *Physics* II 8 quoted by Solinas at the beginning of his book as reflecting Aristotle's genuine point of view), and his polemic is usually against some form of creationism. Evolutionism of some sort emerged before Darwin, and the concept of homology had also already been elaborated (especially by Richard Owen). Solinas does not ignore these complications, and has to concede that (with some exceptions, e.g., Cuvier) in the period before Darwin there was a gradual loss of awareness of the Aristotelian framework and of its impact on the development of the life sciences, though he still maintains that it plays "a decisive role, although by now in a largely indirect form". How, however, it could still play such a role is not explained in any depth.

A suggestion that can be advanced is that the Aristotelian framework got mixed with views coming from other sources, in such a way that no new clear framework emerged but the old framework became blurred. One other main source was the Christian religion, as shown by Darwin's polemics against creationism. To give an idea of what is involved, it can be pointed out that everybody who reads the Old Testament in a naïve way and as a believer is induced to think that the world as a whole (and hence the earth) cannot be very old. Chronologists (who included Isaac Newton) made their calculations on this basis, and a certain consensus was reached: the world is about 6000 years old! And this became a sort of dogma for the Christian world. (I noticed recently that the Danish philosopher Kierkegaard, a near-contemporary of Darwin, who was certainly very religious, but was also a cultivated person, in some passages of his diaries and elsewhere takes this date for granted). So, if animal species are supposed to have at their disposal just 6000 years, clearly this implies they have no chance of developing in any important way. It is research in the field of geology that rendered this chronology indefensible. Yet Buffon had some trouble with the theological faculty at La Sorbonne in making this sort of heresy known to a larger public. Here, however, Aristotle is not at fault, since he believed that the world is eternal! Further, belief in a God-created universe leads to the view that animals of the various species are too perfect to be capable of an evolution that reflects some sort of imperfection (that shown by the 'stamp of inutility'); what is perfect has no need to change. Furthermore, there was probably a considerable resistance to admitting that man descended from apes. (We know of Benjamin Disraeli who, on one occasion, declared: "The question is this—Is man an ape or an angel? My Lord, I am on the side of the Angels.") I conclude that the book by Solinas cannot be the definitive exposition of the important side of the history of biological thought he deals with, but that a more definitive exposition would probably lack some of the merits of his attempt, for it would be a good deal less straightforward and hence also less readable than his actually is, which is also due to his efficacious use of verbal imagery.

Conflicts of Interest: The author declares no conflict of interest.

References

- Kuhn, Thomas. 1957. *The Copernican Revolution. Planetary Astronomy in the Development of Western Thought*. Cambridge: Harvard University Press.
- Kuhn, Thomas. 1970. *The Structure of Scientific Revolutions*, 2nd ed. Chicago: University of Chicago Press, First published in 1962.
- Solinas, Marco. 2008. *Psiche: Platone e Freud. Desiderio, Sogno, Mania, Eros*. Florence: Firenze University Press.
- Solinas, Marco. 2012a. *Via Platonica zum Unbewussten. Platon und Freud*. Vienna: Verlag Turia und Kant.
- Solinas, Marco. 2012b. *L'impronta dell'inutilità. Dalla Teleologia di Aristotele alle Genealogie di Darwin*. Pisa: Edizioni ETS.



© 2017 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).