

ARISTOTLE'S PHILOSOPHY OF SCIENCE

M. WILSON: *Aristotle's Theory of the Unity of Science*. Pp x + 271. Toronto, Buffalo, and London: University of Toronto Press, 2000. Cased, £55. ISBN: 0-8020-4796-3.

This is a careful, learned, and thorough study of an important aspect of Aristotle's conception of science and scientific practice. It builds on the scholarly work of the last decade or so, which has argued that the explicit philosophy of science of the *Posterior Analytics* informs Aristotle's scientific practice, and extends it to show Aristotle's conception of the identity of a science in application in his other works.

Wilson portrays Aristotle as reacting to an epistemological holism he found in Plato, which meant that one could not know anything without knowing everything. Aristotle emphasizes the autonomy of particular sciences, and attempts to supply a criterion of identity for them in the *Posterior Analytics*: a particular science is delimited by what is related to the subject by *per se* and *qua* predication.

This suggests a picture of human knowledge as composed of a number of isolated sciences which have only incidental connections with one another. But Aristotle accepts that there are stronger links than that. W. shows how the materials for such stronger links can be found in the *Posterior Analytics*, and seen in application in a range of works, including the *Metaphysics* and the ethical works. The particular ways of making such links which he is interested in are analogy, focality (what Owen called 'focal meaning'), and what W. calls 'cumulation'.

Treating two things as analogues seems to allow one to treat the subjects of two different sciences in a parallel way, without any commitment to there being a super-ordinate single science of which these particular sciences can be seen simply as applications. In his discussion of analogy, W. offers a judicious consideration of current interpretations of the relation between analogy and genus in the biology, and offers his own alternative. He then argues that Aristotle takes advantage of relations of analogy in demonstrations in various ways, both in the *Posterior Analytics* and in the biological works. Where there are analogous demonstrations, it is possible to generalize their terms and in so doing create a new science.

W. uses the notion of focality to characterize two ways in which things can be linked within one science. Although the obvious indication of focality is a linguistic phenomenon—a kind of non-accidental homonymy—W. argues that this linguistic phenomenon is grounded in explanatory relations. He uses this to argue that things can only be focally related if they are *per se* related, and concludes that a science which is a focal unity is just a normal demonstrative science. This gives a narrow conception of the focal unity of a science. But W. argues that there is also a wider notion of focal unity: the terms used in a demonstration can be abstracted to some degree and become the subjects of sciences in their own right; if they cannot be wholly abstracted, they will bear crucial *per se* relations to the subject of the original, pre-abstraction science, and the whole network of semi-autonomous sciences can be regarded as united under a broader conception of the subject of a science. In the following chapter, W. makes the striking claim that for Aristotle the core science of Being is a focal science in the narrow sense (that is, it is a normal science), although metaphysics as a whole (including, in particular, considerations of One) is a focal science in the wider sense.

The third device that W. finds Aristotle using for making links between areas of study which might seem not to be unified by the criteria of the *Posterior Analytics* is what he calls 'cumulation': this is a technique for linking subjects by bringing them

within a series whose prior members are logically and ontologically contained in the posterior members—such as the series of kinds of soul. W. takes careful note of the similarities and differences between cumulation and analogy and focality, and explains the use of cumulation in the treatment of the different kinds of soul and in the treatment of friendship in the *Nicomachean Ethics*.

This is an important book for anyone interested in Aristotle's use of the three concepts: it forces one to think hard about the relations involved in these different kinds of case. Moreover, W.'s own views are in general balanced and undogmatic. I suspect two features of its style will limit its readership. First, the book is straightforwardly a work of scholarship: it is so firmly rooted in Aristotle's conception of demonstrative science, which it (reasonably enough) does not question, that it is unlikely to make any significant difference to contemporary thought about disciplinary unity; this distinguishes the book from much recent discussion of Aristotle, which has tended to draw Aristotle into contemporary philosophical debates. Secondly, the book reads very much as something based on a (very good) doctoral dissertation: it assumes a considerable familiarity with a large amount of quite esoteric scholarly literature, and would not help a reader new to the area to see the nature of the debates and the shape of the problems. One editing defect also makes it more difficult to use: the index seems not to refer to citations in the footnotes, where a considerable amount of supporting work is done. The worst thing about the book is its title, which suggests that Aristotle believed that all sciences can ultimately be unified, whereas the book itself argues for no such claim.

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TELES

P. P. FUENTES GONZÁLEZ: *Les Diatribes de Télès: introduction, texte revu, traduction et commentaire des fragments (avec en appendice une traduction espagnole)*. Pp. xvi + 620. Sorbonne: Librairie Philosophique J. Vrin, 1998. Paper, frs. 240. ISBN: 2-7116-1350-X.

This revised French translation of Pedro Pablo Fuentes González's 1990 Granada dissertation divides into seventy-eight pages of introduction, fifty-two of text and French translation, 400 of commentary, plus a summary in Spanish, a bibliography, and five indexes (of passages cited, themes and terms in French and Greek, proper names, and modern authorities). Broadly speaking, it has the expected strengths and weaknesses of a work of this style and origin. The bibliography on Teles, from Wilamowitz to Kindstrand (and beyond, in either direction), has never been so minutely and carefully reviewed; the central questions of Teles' style, sources, and doctrinal affinities are discussed at length; and copious parallels for his choice and manipulation of exempla, quotations, and images are cited. At the same time, the effort of coming to terms in such detail with the accumulated scholarship, and setting out the results of the review, leave the author with little energy to stand back and do anything very innovative. F. is level-headed and modestly revisionary, but limited in his approaches to Teles by the parameters set by the discussions he catalogues and criticizes.

The major strength of F.'s contribution (besides the simple collection of material, which is impressive in itself) lies in his coolly critical attitude to earlier scholars'