

Introduction: reading Aristotle

When, nearly thirty years ago, I wrote a general introduction to Aristotle, developmental studies were all the rage. Stimulated by Jaeger's pioneering work, many Aristotelian scholars attempted to plot the changes in Aristotle's views, either in particular areas of his thought, or overall.

Much of this work was naively conceived and poorly executed. Scholars saw inconsistencies between statements where reconciliation was not just possible, but obvious. A recurrent flaw was that the changes of heart that Aristotle was supposed to have undergone were left unexplained: scholars were content to suggest *that* his views had altered, but did not offer reasons *why* they should have done so. I have had occasion myself to modify some of my own overenthusiastic early developmental hypotheses (Lloyd 1991, pp. iff.).

Yet developmental studies did have one great strength, compared with the tendency to systematisation that had been the previous orthodoxy. They did not treat the thought of Aristotle as a monolith. They allowed for the possibility that not everything in the Corpus had been fully integrated into a single definitive whole.

The fashion for developmental studies lapsed some time ago. In another area of academic study, meanwhile, in literature, the entire tradition of attempting to arrive at fixed interpretations of writers, past or present, came under blistering, deconstructive attack. Such interpretations merely reflected their authors' own hidden agenda and prejudices, and in pursuing the will-o'-the-wisp of closure, blocked, rather than stimulated, study.

This fashion, too, had its excesses and has since waned, leaving very little mark on the work of Aristotelian specialists. Yet they, whether impressed by deconstructionist views or not, certainly need to pay due attention to the cautions emanating from literary and

historical studies. This is especially necessary as an antidote to the tendency to treat Aristotle as a contemporary philosophical colleague. That tendency is, no doubt, often driven by the entirely laudable desire not just to take his work seriously, but to learn from it. But that has to be done without assuming that he is one of us (whoever 'we' are) or that his thought is somehow disembodied and timeless.

The nature of the evidence with which we have to deal poses special problems of reading and interpretation over and above those that affect *all* texts. What has survived reflects the vagaries of transmission and the choices of the transmitters. None of the literary works of Aristotle is extant in its entirety. If they too had survived, we cannot say *what* difference that would have made, but very probably it would have been considerable. The treatises, for their part, have been subject to editorial intervention of various types – ranging from the grouping of related discussions together, through the addition of cross-references or bridging material, to sheer interpolation. However, much of this editorialising, of the first two kinds, may well have been by Aristotle himself.

It is clear that these are not works prepared for publication as literature, even by the criteria for 'publication' that apply to the ancient Greek world. But we can go further. The existence of doublets, and of references to the conclusions of earlier discussions that do not correspond to the contents of the discussions we have, casts a long shadow over the issue of the extent to which the treatises represent *finished* work, that is that Aristotle considered such.

Of course the problem of doublets – the repetition of closely similar material or different versions of the same text in different manuscript traditions, as in the case of *Physics* VII 1–3 – can, in principle, always be resolved by arguing that one or other treatment is inauthentic, the work of a pupil, maybe, attempting a précis of the master's lecture. That is the line of argument that has often been adopted with regard to the zoological treatises and is, in the final analysis, the preferred solution of Wardy's careful study of *Physics* VII (Wardy 1990). On the other hand no one believes that one or other version of the critique of Plato in *Metaphysics* A and M is inauthentic. Moreover when in the opening chapter of *Metaphysics* H the conclusions of a preceding discussion are summarised, this tallies well enough with the problems tackled

in *Metaphysics Z*, but seems to discount some of the results arrived at in the book as we have it (cf. Woods et al. 1984). Again *Metaphysics Z* 7–9 has the marks of an independent self-contained inquiry, which was subsequently incorporated into the text we have. All of this suggests, what is in any case plausible enough, that on certain topics Aristotle's writing went through several drafts, as we might call them, and that in turn sounds that general cautionary note that I have mentioned about how definitive the version we have was.

Plato alerts his readers to the need to be context-, and in his case also character-specific, in reading every sentence in his dialogues. Every statement is made by a particular speaker to a particular audience at a particular juncture in the course of what is represented as a live conversation, whether told in *oratio recta* or reported at one or more removes in *oratio obliqua*. But similarly, if not quite equally, the statements we find in Aristotelian texts have always to be taken as embedded in their, more or less richly crafted, contexts.

Plato interposes the dialogue, like a veil, between himself and us, the reader. But Aristotle too demands, though less obviously, similar hermeneutic skills, and not just for reasons connected with the abstractness and complexity of his thought.

The starting-point of this set of studies is a sense of the difficulty of the work that Aristotle undertook. I do not mean thereby to imply that we necessarily have any clear idea of how he saw that 'work'. I mean something far more basic. The list of his interests is a daunting one, even if we just use the familiar, if potentially misleading, labels we attach to certain subject-areas: logic, physics, psychology, zoology, metaphysics, ethics, politics, rhetoric, poetics.

In most of these fields he is extraordinarily innovative. Of course his own predecessors and contemporaries, with whom he is in constant debate, had opened up many fundamental philosophical and scientific questions; but Aristotle's own researches add many more items to his agenda. Among those we shall be discussing in the chapters that follow are: how is any given animal to be defined – that is, how is definition to be applied in zoology? Where does the boundary between plants and animals come? How are such processes as digestion and reproduction to be explained? How are apparent instances of spontaneous generation and of metamor-

phosis to be accounted for? Do all five modes of perception conform to a single analytic schema? How are the varieties in the movements of the heavenly bodies to be explained? How far does the concept of the natural apply also to the political domain? What are the limits of the usefulness of *metaphora*, transfer?

These problems relate only to a handful of the areas in which Aristotle worked. Nor could they be claimed to be a representative selection of fundamental issues (if such were possible). But they give some indication of the difficulty of the tasks he set himself: indeed the nature of the possible solutions available to him (and in some cases still also to us) leaves a lot to be desired. Of course, what appears readily soluble is heavily influenced by historical determinants. But Aristotle himself registers the difficulty he encounters in many of the cases we shall be considering.

Does he, for those tasks, have a single, all-embracing methodology, or at least one for each type of task? Is he consistent in his application of the approved methodology? Is he consistent in his aims, indeed, and in the criteria he adopts for a satisfactory explanation or resolution of the problems? Is he confident in the results he proposes, whether or not the results stem from the use of the methodology?

There are many indications, in his texts, that point towards the ideal of an affirmative answer to those questions, at least over a range of issues, and no one can doubt the extraordinary breadth of the field of application of such cross-disciplinary concepts as form and matter, potentiality and actuality, order and nature itself. Yet there are also plenty of signs, if we do not discount them, of tentativeness, of hesitation, of the pluralism and open-endedness of his approach, of a readiness to backtrack, to qualify and modify even fundamental doctrines and principles.

Of course many would be tempted, many have been, if not to discount those signs, at least to minimise their significance, in the name of the coherence and unity of Aristotle's thought. There is no way in which *a priori* the rights and wrongs of *that* methodological principle can be settled as against what is adopted here. But this exploration is committed to allowing the possibility that Aristotle's explorations indeed ran certain risks.

This is not to say that he was simply unmethodical, merely opportunistic in applying or not applying his overarching methodological concepts or general theories. Not at all. It is rather that

his methodology is far more pluralist than is often allowed, and in particular that it is responsive to the need for adaptation in the light of the demands and circumstances of different problem areas, responsive, for instance, to the state of research in the field and to its difficulty.

The first detailed case-study tackles one of his most powerful methodological concepts of all, that of demonstration, and argues – against the grain of much synthesising scholarship devoted to showing the unity of Aristotle’s thought – not just that there are several different modes of demonstration, both in theory and in practice, in different areas of Aristotle’s work, but also that he recognises this plurality. The subsequent studies investigate other aspects of his theories and practices, endeavouring to use a sustained analysis of the practices to illuminate the theories as well as re-examining the theories to help interpret the practices.

The picture that will emerge is not, nor should we expect it to be, a uniform one. The extent to which Aristotle’s general theories are at risk in the face of the exceptions he is ready to admit varies – depending on the general theory and the nature of the exceptions. The extent of his own first-hand engagement in research also varies (as the example from astronomy, in chapter 8, will bring out) and this has important repercussions on the status of the methodological recommendations he makes. But if he sometimes offers methodological pronouncements just for their own sake – at the limit, purely for form – that highlights the contrast with those instances where the methodology has work to do, as providing the theory that guides the practice, or rather, as we shall repeatedly see, the theories that guide the practices.

This book ascribes risk-taking to Aristotle and in doing so itself runs certain risks, for to argue for the unevenness in the grain of an author’s work is always more difficult than to do so for its homogeneity, especially when the author has so often been held up as a paragon of systematisation. Yet that view of Aristotle has contributed not a little to the neglect of aspects of the difficulty of the work he was doing – and of his recognition of that difficulty. Besides, since the thesis of the book is that those risks are a price Aristotle paid for deep involvement in first-hand research of considerable complexity, it is only natural for a similar price to have to be paid for engaging to the full in the difficulties of his inter-

Cambridge University Press
978-0-521-55619-4 - Aristotelian Explorations
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Excerpt
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pretation. Yet the book also argues that Aristotle's conclusions are less definitive than they are often represented to be: and in this too it mirrors itself, for there can certainly be no question of certainty about the issues that we are about to explore.

CHAPTER I

*The theories and practices of demonstration**

The question of the relationship between Aristotle's theory of science set out in the *Posterior Analytics* and his actual practice in the physical treatises is, it may be felt, a hoary old chestnut indeed.¹ Faced with a series of apparent discrepancies between the two, starting with the notorious mismatch between the attention devoted to the theory of the syllogism in the *Organon* and the evident lack of good-looking actual examples of syllogisms in the physical works, what are we to say? Crudely, one may distinguish two main schools of interpretation: I shall call them lumpers and splitters, the lumpers all for reconciliation, the splitters insisting on the differences and offering various suggestions as to how they may have come about. One such suggestion is that the *APo.* is not about doing science, but about teaching it. Another, allied to that, is that it is about presenting the results of a finished or at least a mature science. On either view that means that the physical treatises do not need to conform to the schemata set out in *APo.* In places the physical treatises may be provisional, preliminary, exploratory studies, and some would say that their method would be better described as dialectical than as demonstrative. A third more drastic, some may even think desperate, splitter-type theory invokes the now unfashionable style of developmental hypothesis, though

* This article is reprinted in its original form from the *Boston Area Colloquium in Ancient Philosophy* vi (1990), edd. J. J. Cleary and D. C. Shartin (Lanham, 1992), pp. 371–401, with the correction of misprints and the removal of remarks relating to my oral presentation at Boston University in April 1990. But I have added some additional notes identified by an asterisk, and a postscript.

¹ Among the most important contributions to the debate on this issue in recent years have been those of Barnes 1969/1975 and 1981, Bolton 1987, Düring 1961, Furth 1988, Gotthelf 1987, Kullmann 1974, Lear 1980, Lennox 1987a, Leszl 1981, Mignucci 1975, Rossitto 1984, Smith 1982, Sorabji 1980, Waterlow 1982, Wieland 1975 – and most recently Wians 1989 (an article I had not seen when this chapter was first produced).

it would take a desperado indeed to suggest either that the *APo.* antedated or that it postdated the *entire* corpus of physical treatises, that is everything from the *Physics* to the *de Generatione Animalium* in the Berlin edition. However even on a more moderate and more plausible developmental view there is still a problem in specifying *why* Aristotle should have changed his mind, in one direction or another, if and when he did.

But against the splitters, reconciling lumpers have recently been on the march, minimising or even cancelling the apparent discrepancies and going on the attack and insisting that in all sorts of ways that have been underestimated or ignored in the past the physical treatises *do* conform to the schemata presented in the *APo.* A fair number of pieces collected in the volume recently edited by Gotthelf and Lennox (1987) adopt such a stance, as Bolton does, for instance, in his comparison between the theory of definition in *APo.* and Aristotle's actual discussion of seed in *GA I*.² Lennox, too, in his analysis of the types of explanation actually given in the zoological treatises, concluded that they conform quite closely to those advocated in *APo.* Thus where *APo.* distinguishes between incidental and unqualified understanding, between what Lennox calls type A explanations that explain certain facts but *not* through the correct, primary explanantia, and type B explanations that do just that, so we can exemplify both types in the zoological works.³ Gotthelf in turn⁴ describes himself as facing 'head-on' the question of whether the *Parts of Animals* exemplifies anything approaching an axiomatic structure: are there first principles at the base of the complex explanatory structure? And he answers yes to both questions, though not without some difficulty. Noting that there is nothing *prima facie* axiomatic about the structure of *PA*, he has some softer formulations of his position – the structure is 'broadly axiomatic' or it is 'axiomatic-like' (in being linear).⁵ As for the first principles he detects in the physical treatises, that seems to me – as I shall argue later – to trade rather on the ambiguity of the term 'first principles': but more on that in due course. Meanwhile Gotthelf also lends his support⁶ to a suggestion of Aryeh Kosman's

² Bolton 1987.

³ Lennox 1987a, pp. 93ff.

⁴ Gotthelf and Lennox 1987, p. 68.

⁵ Gotthelf 1987, pp. 175, 179, 186.

⁶ *Ibid.* p. 195.

to the effect that *APo.* would be better seen *not* as requiring that proper science *be* formal, but simply as offering a formal description of proper science – though that still means (as Gotthelf acknowledges) that the *APo.* theory requires of the natural philosopher that his exposition be *puttable* into the appropriate form, even if not that it actually be so put. While I agree entirely with Gotthelf on the importance of the biology for understanding Aristotle, we disagree on some of the lessons to be learnt.

Now one common feature that runs through much of the recent discussion is that the problem of the relationship between the *Organon* and the physical treatises is construed holistically. Certainly so far as the theory and practice of *apodeixis* – demonstration – go, the controversy is sometimes conducted as if there were, in effect, *just the one* theory and as if one should expect to be able to generalise satisfactorily about *the* practice. Actually much of the debate is a good deal more ambitious than that and takes it that what we have to compare and contrast, and try – or fail – to reconcile, is nothing less than the theory of *science* and its practice, that is to say including, not just demonstration, but also definition, the status and method of discovery of the starting-points generally, the modes of deductive reasoning to be used in explanation, the modes of explanation themselves and much else besides. Of course it would be nice to think that Aristotle's thinking on all these topics was always and everywhere entirely uniform, consistent, unified, and systematic, allowing one to effect a grand reconciliation between the theory as a whole and the practice as a whole. Yet in reality the situation may be – and in the case of demonstration I shall argue that it is – appreciably richer. Oversystematising Aristotle should be avoided, where there are signs of a certain tentativeness and flexibility in both theory and practice. Some of the unresolved areas in current scholarly debate may – let us hope – reach some clarification and resolution: but we have to allow the possibility – the splitter in me insists – that the grand synthesis and reconciliation of the Aristotelian theory and practice will fail for reasons that lie in the Aristotelian texts themselves, and not just because of modern scholarly shortsightedness on one side of the debate or the other.

So to the topic of demonstration in particular, and I use that throughout as a conventional translation for Aristotle's *apodeixis* and I shall concentrate on occasions when this term and the cog-

nate verb *apodeiknumi* are in play in the Aristotelian texts themselves, leaving to one side further issues that could only be resolved by spreading the net wider to include the whole range of other *deik*-forms and compounds, let alone other vocabulary used in one context or another to signify showing, manifesting, proving, demonstrating. It is agreed on all sides that *apodeixis* is a key concept in the *Organon* and the question of how far, in this regard, the physical treatises practise what the *Organon* preaches has (as I said) been pursued with some energy in recent studies. However the very variety of contexts in which this term is deployed has not always received the attention it deserves: indeed it has often been all but totally ignored. My aim in this paper is first to broaden the scope of the data to be taken into consideration, to see what light that throws on the general problem. To take stock of Aristotle's use of *apodeixis* we cannot limit ourselves to the *Organon* and the physical treatises, but have also to take into account evidence from, for example, the *Rhetoric*, the moral philosophy, the *Metaphysics*. Broadly speaking, my argument will be that when we do that, we have every reason to be wary of talking of *the* theory and *the* practice of demonstration, as if there were just the one of each. On the contrary we have good evidence that there are *several* theories and indeed several practices, and not just more, and less, strict concepts of *apodeixis* but *apodeixeis* that vary with certain features of the subject-matter under consideration and with the nature of the inquiry undertaken. That may be blindingly obvious (I hope it will be): but the implications for the strategic problems of the relationship between the *Analytics* and the physical works have often been missed.

But I must begin at the beginning with a brief reminder of what the *Analytics* have to say on the topic. *APo.* 71b17f. of course defines *apodeixis* as *sullogismos epistēmonikos*, though neither term in the definiens is exactly totally pellucid. Thus by *sullogismos* he sometimes means (as is well known) no more than deductive reasoning. Those who see a pre-syllogistic phase in Aristotle's theory of demonstration lying behind the *APo.* as we have it would no doubt want to leave *open* the general interpretation and not immediately foreclose with the translation 'syllogism'.⁷ But whatever may or may not be true of what lies behind the *APo.*, the *Analytics* as we have

⁷ Cf. e.g. Barnes 1981.