but accepting claims that could not be doubted by reasonable persons. This limited criterion of 'reasonable doubt' was taken over by legal authorities in England in the late seventeenth century, and by the theoreticians of science in the Royal Society. In the Anglo-American world a mitigated scepticism has been accepted as the modern view in legal theory and in the sciences.

Thus, the revival of ancient scepticism and its application to the intellectual and religious problems of the time was crucial in the rise of modern philosophy. Its force and its undermining of the prevailing dogmatic philosophies led to the attempts from Descartes onward to construct a new philosophy that could overcome or avoid the doubts of the sceptics.

On the latter front of mitigated, limited constructive scepticism developed out of the anti-dogmatism of Castellio and Grotius and the *via media* between dogmatism and scepticism set forth by Gassendi and Mersenne. A recent study[58] has shown ways in which these two sets of views fused and mingled in English thought in the Restoration period. Gassendi's ideas and his hypothetical Epicureanism became popular with some of the same scientists, theologians, and philosophers as those who developed Grotius' and Chillingworth's 'reasonable doubt' into a general theory of knowledge. Even some Jesuit thinkers preferred Gassendi's mitigated scepticism to seventeenth-century Aristotelianism.[59] And Bishop Huet, after launching the full force of sceptical doubts against all kinds of dogmatic philosophy, said that he saw in the theory of the Royal Society a way of living with scepticism.

The quest for ways of doing this, accepting the sceptical doubts, and offering ways of persevering in the quest for knowledge has pervaded modern thought ever since.

[58] Richard W. F. Kroll, *The Material Word: Literate Culture in the Restoration and Early Eighteenth Century* (Baltimore, 1991).

[59] See R. Popkin, 'The Traditionalism, Modernism, and Scepticism of René Rapin', *Studi e ricerche de storia della filosofia*, 63 (1964) 751–64.

2

The Vitality and Importance of Early Modern Aristotelianism

CHRISTIA MERCER

I. 'The longest Tyranny'

In 1255, after some initial reservations, the arts faculty of the University of Paris instituted a new course of study based on the works of Aristotle. Despite the reluctance of some clerics (e.g. Bonaventure) who considered the Aristotelian philosophy anti-Christian, and despite the squabbles that led to the Condemnations of 1270 and 1277, the philosophy of Aristotle remained the educational mainstay at the University of Paris until the end of the seventeenth century.[1] That the Aristotelian philosophy dominated

This article stands firmly on foundations laid by P. O. Kristeller, J. H. Randall, and Charles Schmitt. I have benefited especially from the latter's article 'Towards a Reassessment of Renaissance Aristotelianism', *History of Science*, II (1973), 159–93, in which he criticizes the commonly accepted view of scholastic philosophy as a monolithic whole. The writings and advice of Roger Ariew have also been a great help in my first attempt at finding an appropriate way into this vast topic. I would like to thank L. W. B. Brockliss, Daniel Garber, Sarah Hutton, P. O. Kristeller, Jane Newman, Lex Newman, and Tom Sorell for helpful comments on earlier drafts of this paper. I am indebted to the University of California, Irvine, for funds that made this research possible. The present article is very much a work in progress. Much more serious study needs to be done before we can arrive at anything like an adequate understanding of either the importance or vitality of early modern Aristotelianism.

[1] C. H. Lohr traces the stages in the acceptance of the Aristotelian philosophy in the medieval schools and notes the important educational and attitudinal changes which this acceptance produced. By March 1255 the arts faculty had become 'what we might call a philosophical faculty, with a new importance in its own eyes and a tendency to develop a teaching independent of the theological faculty'. In other words, the philosophy of Aristotle was a revolutionary force in method and ideas. See C. H. Lohr, 'The Medieval Interpretation of Aristotle', in Norman Kretzmann, Anthony Kenny, and Jan Pinborg (eds.), *The Cambridge History of Later Medieval Philosophy* (Cambridge, 1982), 80–98. Also see in this collection Edward Grant's discussion of the Condemnation of 1277 when 219 articles in theology and philosophy

the schools of Europe during this time is well known among historians of philosophy, as is the fact that its critics complained bitterly about its continued prominence.

What is less well known, however, is the fact that from the time of the earliest humanists[2] to the end of the seventeenth century, when the intellectual revolution proposed by the new natural philosophers was finally complete, the critics of the Aristotelian philosophy railed against the philosophy of the schools on strikingly similar grounds. The early Italian humanist Francesco Petrarca (1304–74) offers one of the most influential critical models. For example, in his *De sui ipsius et multorum ignorantia*[3] he claims that the schoolmen love Aristotle more than the truth (p. 74), cannot see what stands before them because of their commitment to 'their god' (p. 65), speak about everything but understand nothing (p. 97), disagree among themselves, and use language that even they do not fully understand (pp. 102 f.). Over a hundred years later, another Italian humanist and influential anti-Aristotelian, Gianfrancesco Pico della Mirandola (1469–1533), interspersed the same criticisms

were condemned as heretical: 'The Effect of the Condemnation of 1277', 537–9. For a discussion of the dominance of Aristotelianism at the University of Paris throughout the 17th century, see L. Brockliss's 'Aristotle, Descartes and the New Science: Natural Philosophy at the University of Paris, 1600–1740', *Annals of Science*, 38 (1981), 33–69.

[2] The nature and importance of humanism has been much discussed. Although I refer to the humanists throughout this paper, I do not mean to suggest that they form either a tightly knit or an easily recognizable group. Indeed, they come in as many shapes and sizes as do the Aristotelians here discussed. For standard accounts of Renaissance humanism, see P. O. Kristeller's *The Classics and Renaissance Thought* (Cambridge, Mass., 1955) and *Studies in Renaissance Thought and Letters* (Rome, 1956); E. Gilson, 'Humanisme Médiéval et Renaissance', in *Les Idées et les lettres* (Paris, 1932); and E. Garin's *Ritratti di umanisti* (Florence, 1967). For the most important recent discussions and for references to the vast intervening literature on humanism and the humanists, see A. Grafton, *Defenders of the Text: The Tradition of Scholarship in an Age of Science, 1450–1800* (Cambridge, Mass., 1991); A. Grafton and A. Blair (eds.), *The Transmission of Culture in Early Modern Europe* (Philadelphia, 1990); and A. Goodman and A. Mackay (eds.), *The Impact of Humanism on Western Europe* (London, 1990). In the latter collection, P. Burke defines humanism and offers a brief survey of its dissemination throughout Europe in his article 'The Spread of Italian Humanism'. According to Burke, humanism is 'the movement to recover, interpret and assimilate the language, literature, learning and values of ancient Greece and Rome' (p. 2).

[3] *Opera* (Basle, 1554), 1123–68. There is a translation of this work by Hans Nachod in E. Cassirer, P. O. Kristeller, and J. H. Randall (eds.), *The Renaissance Philosophy of Man* (Chicago, 1956). The following citations are to that translation.

within a more comprehensive critique of the Aristotelian philosophy. In his *Examen vanitatis* of 1520, he focuses on Aristotle's methodology and particular physical doctrines; but he also returns again and again to the same sort of criticisms offered by Petrarca.

Through the works of humanists like Petrarca and Pico, subsequent anti-Aristotelians acquired a set of stock complaints.[4] The standard criticisms were that the Peripatetics are more committed to Aristotle than to the pursuit of the truth and, hence, are removed from the proper source of knowledge; talk about many things but understand little; do not even agree among themselves; and use obscure terminology which they neither properly define nor fully understand. We find these accusations, for example, in Francis Bacon's *The Advancement of Learning* of 1605. According to Bacon, the schoolmen have not participated in the advancement of learning (i.e. they do not seek the truth), but rather 'are the great undertakers [of learning] . . . fierce with dark keeping' (i.e. are removed from the proper source of knowledge). He notes that they do not agree among themselves, but dissolve 'sound knowledge . . . into a number of subtle, idle, unwholesome . . . questions'. Their texts are 'laborious webs of learning' full of 'monstrous altercations' and 'barking questions'. It was this 'degenerate learning' that did 'reign among the Schoolmen'. For these sorts of reasons, Bacon suggests, the Aristotelians have fallen 'under popular contempt' (1.4. 5 ff.).

The writings of seventeenth-century philosophers like Gassendi, Descartes, and Leibniz contain exactly the same list of grievances. Descartes, for instance, remonstrates about the language of the scholastics, their lack of concern with the truth, their disagreements among themselves, and their obscurity. (AT xi, 25 f., 33, 35). But Descartes and many other seventeenth-century anti-Aristotelians also extend these well-worn criticisms to topics of special interest to the natural philosopher. For example, they expand their dissatisfaction about the obscurity of scholastic language to a new and very specific topic, namely the use of substantial forms in explanations of

[4] Charles Schmitt has noted a delightful example of this codification of criticisms. Beginning with the anti-Aristotelians of antiquity and resurfacing among the Renaissance humanists is the image of Aristotle as a cuttlefish 'who obscures himself in his own ink'. The image shifts and changes slightly with more or less nasty results, but appears in the works of Gianfrancesco Pico, Marius Nizolius, Francesco Patrizi, Joesph Glanvill, and other sixteenth- and seventeenth-century philosophers. See Schmitt's 'Aristotle as a Cuttlefish: The Origin and Development of an Image', *Studies in the Renaissance*, 12 (New York, 1965), 60–72.

natural phenomena. Descartes writes, for instance, that the schoolmen explain 'that which is obscure through that which is more obscure [i.e. substantial form]' (AT iii. 507). Moreover, from Galileo on, seventeenth-century natural philosophers extend the complaint about the closed-mindedness of the Aristotelians to their supposed lack of empirical study and practical advancement. Bacon, for example, describes the way in which the scholastic philosophers are removed from the proper source of knowledge by noting that 'the wits' of the schoolmen were 'shut up in the cells of a few authors (chiefly Aristotle their dictator) as their persons were shut up in the cells of monasteries and colleges'.[5] By the mid-seventeenth century it was common for proponents of the new natural philosophy to chastise the Aristotelians for hiding behind their books and not attending enough to the world.[6] Descartes tells us, for instance, that in his youth 'as soon as age allowed me to free myself from the control of my teachers, I left the study of letters' and turned instead to the discovery of knowledge 'in myself, or else in the great book of the world' (AT vi. 9). Galileo also frequently notes that the Peripatetics hide behind their Aristotle and do not look around them.

These seventeenth-century extensions of the traditional criticisms quickly gained common currency among the new natural philosophers of the period. They thereby became part of the litany of remonstrations against the Aristotelians. The English philosopher Joseph Glanvill knew the list very well. He wrote in his *Scepsis scientifica* of 1665: 'The first charge against' the Aristotelian philosophy is 'that it is meerly verbal'. Prime matter 'signifies nothing' and 'form is also a meer word'.[7] Indeed, form is something even the 'Votaries of that *philosophy* themselves can scarce tell what to make of' (p. 113). The '*Peripatetick Philosophy* is *Litigious* . . . Peripateticks are most exercised in the *Controversial* parts of philosophy, and know little of the practical and *experimental*' (p. 118). Glanvill explains their litigiousness by noting that because their 'words' are 'carelessly and abusively admitted . . . it must come to pass, that they will be diversely apprehended by contenders, and so made the subject of *Controversies*'. And he goes on to explain that such 'entangled' disputes constitute 'their first step out of the way to Science': through '[t]his disputing way of Enquiry . . . there is no way to Truth' (pp. 119 ff.). Not surprisingly, then, the Aristotelian philosophy 'gives no account of the *Phaenomena*' (p. 111), 'is inept for new discoveries', and 'hath been the author of no invention'. That is, because the Aristotelian philosophy is 'founded on vulgarities . . . it makes nothing known beyond them' (p. 131). In short, 'the eager clamors of contending Disputants . . . have muddied the Fountain of Certainty' (pp. 122 f.).[8]

[5] *The Advancement of Learning*, 1. 4. 5.

[6] It is worth noting that when earlier anti-Aristotelians like Gianfrancesco Pico protested about the fact that the Peripatetics do not attend enough to the real source of knowledge, what they often have in mind is that Aristotle and his followers rely too heavily on sense experience. By the middle of the 17th century the details of the complaint have changed and the anti-Aristotelians contend that the followers of the ancient are removed from the source of truth in the sense that they do not attend enough to the world.

[7] Joseph Glanvill, *Scepsis scientifica, or Confest Ignorance, the Way to Science* (London, 1665), 109. This edition has a rather long dedication to the Royal Society.

We find the same list of objections, if not the same rhetorical flair, among the texts of a wide variety of seventeenth-century anti-Aristotelians. It is fair to say, then, that from the fourteenth century until the end of the seventeenth a long line of intellectuals, many of whom are our philosophical heroes, offered a common set of grievances against the Aristotelian philosophy. However much these philosophers may have differed about what was intellectually right, they were in full agreement about what was philosophically wrong. And many were happy to accept Bacon's judgement that, due to the persistent philosophical wrong-headedness of the schoolmen, they have become the objects of 'popular contempt'. Therefore, however radical and extreme the anti-Aristotelian harangues of the seventeenth-century natural philosophers may sound, they are often no more than mere reiterations of a well-used stock of complaints.

Given the longevity and similarity of these criticisms among our sixteenth- and seventeenth-century philosophical heroes, it is not surprising that historians of early modern philosophy have taken the Aristotelian philosophy of the period to be an anti-progressive tradition which played little role in the scientific and intellectual revolution of that time. Indeed, because most historians of philo-

[8] Glanvill does give some arguments for his claims. Although these are mostly based on an unfair interpretation of scholastic doctrine, they do offer insight into the sorts of exaggerated accusations of some mid-17th century mechanists against the Aristotelian philosophy. Moreover, the extremity of Glanvill's rhetoric is often quite amusing. For example, he describes the Jesuits as 'those Laplanders of *Peripateticism*' (p. 116)

sophy have primarily been interested in the development of the new natural philosophy, they have seen the period through the eyes of its proponents, the best known of whom were staunchly anti-Aristotelian. In the face of the diatribes which Descartes, Galileo, Bacon, and other 'moderns' offer against the Aristotelians, it has been all too easy to assume that the Aristotelian philosophy was wholly opposed to the nascent new natural philosophy. From a cursory look at the writings of the canonical figures of the period we can extract the following four claims about early modern Aristotelianism: (1) it constitutes a monolithic whole; (2) it contributes nothing of importance to the intellectual changes unfolding in the early modern period; (3) it is the staunch enemy of everything new; and (4) it is philosophically inferior to the new philosophy then developing.[9] The English poet John Dryden summarizes the position well when he writes in 1662, the year he was elected to the Royal Society:

> The longest Tyranny that ever sway'd
> Was that wherein our Ancestors betray'd
> Their free-born *Reason* to the *Stagirite*
> And made his *Torch* their universal Night.[10]

II. The Tyranny Reconsidered

However, it is never a good idea to accept without question either a victor's estimation of a battle or an enemy's description of a foe. By

[9] Following the lead of our early modern heroes, historians of philosophy have, until very recently, endorsed exactly these claims. For this traditional account of Aristotelianism in the early modern period, see e.g. Charles Singer, *A Short History of Scientific Ideas to 1900* (Oxford, 1957), esp. 247 f.; Robert H. Kargon, *Atomism in England from Harriot to Newton* (Oxford, 1966), esp. 3 ff.; Bertrand Russell, *A History of Western Philosophy* (1945; London, 1948), esp. 511 ff., 547 ff. (Unwin paperbacks has just published a new edition of Russell's work); Anthony Flew, *An Introduction to Western Philosophy* (London, 1971), esp. 275 ff,; Harold Hoeffding, *A History of Modern Philosophy*, i, trans. B. E. Meyer (New York, 1955), esp. 3 ff., 78 ff.; and E. A. Burtt, *The Metaphysical Foundations of Modern Science* (1925; London, 1959), esp. 2 ff. Burtt, for example, starkly contrasts the scholastics' reliance on 'external authority' with the 'new principle of freedom' and the new 'manner in which knowledge was successfully sought' by the modern thinkers (pp. 2 ff.). For him, 'modern science marched forward and shed the confining assumptions of the Aristotelians.

[10] From Dryden's poem 'To My Honored Friend, Dr Charleton', *The Works of John Dryden*, ed. E. N. Hooker and H. T. Swedenberg (Berkeley, Calif., 1956), i. 43 f. Dryden mentions Bacon, Boyle, and Harvey in the poem as those who have led us back to 'Nature'.

taking at face value the story which the anti-Aristotelians tell about their Aristotelian contemporaries, we inherit an overly simple account of the history of early modern philosophy. It may be true that, by the end of the seventeenth century, the power of the philosophy of the schools had significantly diminished (though not perished) and that the new mechanical philosophy was well situated at the centre of the philosophical and scientific stage. But this dramatic change of events does not preclude the fact that elements of the Aristotelian system contributed to the success and development of the new philosophy. And it may be true that, during the course of the early modern period, there were backward-looking and intellectually inferior Peripatetics. But at the same time there was a vast array of philosophically sophisticated and intellectually penetrating followers of Aristotle. While some philosophers were crying for the demise of the Aristotelian philosophy, others were effecting its transformation. In short, the history of early modern Aristotelianism is both much more interesting and much more important than its early modern critics would have us believe.

P. O. Kristeller and J. H. Randall have claimed since the 1940s that the Aristotelian philosophy of the sixteenth and seventeenth centuries is not the anti-progressive tradition it has generally been taken to be.[11] Throughout the century, German and French scholars have studied the development of Aristotelian thought in early modern Europe.[12] Unfortunately, the work of these scholars has not had a great influence on English-speaking historians of philosophy.[13] Recently, however, both intellectual historians and historians of

[11] As early as 1944 Kristeller proclaimed that there is no reason to take the scholastic philosophy to be the enemy of either humanism or the new natural philosophy. What he claimed then stands true today: '[t]he only way' to acquire an accurate understanding of the period 'is a direct and . . . objective study of the original sources'. See his 'Humanism and Scholasticism in the Italian Renaissance', *Byzantion*, 17 (1944–5), 346–74 and John H. Randall, Jr.'s, 'The Development of Scientific Method in the School of Padua', *Journal of the History of Ideas*, 1 (1940), 177–206.

[12] See e.g. Peter Petersen, *Geschichte der aristotelischen Philosophie im protestantischen Deutschland* (Leipzig, 1921); Max Wundt, *Die deutsche Schulmetaphysik des 17. Jahrhunderts* (Tübingen, 1939); Ernst Lewalter, '*Spanisch-jesuitische und deutsch-lutherische Metaphysik des 17. Jahrhunderts* (repr. Darmstadt, 1967); and P. Duhem, *le Système du monde* (Paris, 1913–58).

[13] For example, neither the *Encyclopedia of Philosophy* nor *The Dictionary of the History of Ideas* offers any analysis of Renaissance and early modern Aristotelianism.

philosophy and science have participated in a re-evaluation of the role of Aristotelianism in the early modern period.[14] But despite the contribution of these recent studies, a huge amount of work remains to be done before a systematic survey of the place of the Aristotelian philosophy within the period is complete.[15] The present essay contributes to this enquiry by putting early modern anti-Aristotelianism in its proper historical place and by offering some specific examples of the vitality and resilience of sixteenth- and seventeenth-century Aristotelianism. In the remainder of section II I will argue that the anti-Aristotelianism of the early modern period is much more subtle and varied than has generally been understood. In section III I will describe some of the more important debates which arose among Aristotelians in the sixteenth century and which continued into the seventeenth century, but which lie outside the strict confines of natural philosophy. In section IV I will focus specifically on some of the contributions which Aristotelian philosophers made to the development of the new natural philosophy. Even from the brief examples offered here, it becomes obvious that early modern Aristotelianism is not the uniform anti-progressive tradition which its contemporary critics would have us believe and

[14] For example, besides the work of Schmitt noted previously, see Schmitt, 'Towards a Reassessment of Renaissance Aristotelianism'; I. During, 'The Impact of Aristotle's Scientific Ideas in the Middle Ages and at the Beginning of the Scientific Revolution', *Archiv für Geschichte der Philosophie*, 50 (1968), 115–33; John Trentman's 'Scholasticism in the Seventeenth Century', in *The Cambridge History of Later Medieval Philosophy*, 818–37.

[15] Recent and forthcoming contributions include Daniel Garber's 'Descartes, the Aristotelians, and the Revolution that did not Happen in 1637', *Monist*, 71/6 (1988), 471–86; Christia Mercer's 'Mechanizing Aristotle: Leibniz and Reformed Philosophy', in M. A. Stewart (ed.), *Oxford Studies in the History of Philosophy* (forthcoming); Roger Ariew's 'Descartes and Scholasticism: The Intellectual background to Descartes's Thought', in John Cottingham (ed.), *The Cambridge Companion to Descartes* (forthcoming); and M. J. Ayers and D. Garber (eds.), *The Cambridge History of Seventeenth-Century Philosophy* (forthcoming). The most complete bibliographies of works relevant to early modern Aristotelianism are found in C. Schmitt's *Aristotle and the Renaissance* (London, 1983); the notes for Kristeller's *Renaissance Thought and Its Sources*, ed. M. Mooney (New York, 1979); Charles B. Schmitt, Quentin Skinner, and Eckhard Kessler (eds.), *The Cambridge History of Renaissance Philosophy* (Cambridge, 1988); and Ayers and Garber (eds.), *The Cambridge History of Seventeenth-Century Philosophy*. Although it focuses on France, the bibliography in L. W. B. Brockliss's *French Higher Education in the Seventeenth and Eighteenth Centuries* (Oxford, 1989) is also extremely helpful.

that early modern Aristotelians played an important part in some of the intellectual debates at the centre of the philosophical revolutions of the period.

Before turning to specific examples of some of these progressive Peripatetics, it will be necessary to make some distinctions. The anti-Aristotelians mentioned above offer an important key to a proper understanding of the history of early modern Aristotelianism. Once we look at their writings more closely and analyse their criticisms of the Peripatetics more carefully, we find that they are not as anti-Aristotelian as they have often been thought to be. Most are willing to distinguish the good Aristotelians from the bad and, hence, are not inclined to cast the whole of the Aristotelian philosophy into the flames. In fact, most anti-Aristotelians make two distinctions. The first and more common is between Aristotle and his scholastic followers. That is, many intellectuals of an anti-Aristotelian bent are willing to admit that Aristotle is both a better philosopher and more worthy of study than his followers. Not only does the distinction appear in Petrarca and the early humanists, it occurs in the writings of those philosophers who, like Gianfrancesco Pico, Bacon, Galileo, and Descartes, wanted to see the complete overthrow of the Aristotelian system. Bacon claims, for instance, that 'the wisdom and integrity of Aristotle is worthy to be observed' and Galileo has Salviati say: 'Had Aristotle been living in our time, he would have changed his mind on this point [the immutability of the heavens], because', unlike his followers, 'he always put sense experience (*sensata esperienza*) before natural discourse'.[16] The second distinction is between those Peripatetics who are worthy of study and those who are not. That is, a large number of Renaissance and early modern thinkers, including many followers of Aristotle, are prepared to distinguish between good and bad Aristotelian philosophers. For example, the English intellectual Kenelm Digby offers a biting criticism of the schoolmen and then defers to Aristotle and 'his Commentators' on a point.[17] The German textbook author Bartholomew Keckermann distinguishes between those Peripatetics

[16] See Bacon, *The Advancement of Learning*, I. 4. 6–7 (also I. 4. 10, 12); Galileo, *Le opere*, vii (Florence, 1890–1909), 75.

[17] *Two Treatises in the One of which the Nature of Bodies, in the Other, the Nature of Souls is Looked into in a Way of Discovery of the Immortality of Reasonable Souls* (London, 1658), compare his preface to p. 9 of his second treatise. For a discussion of some of Digby's philosophical views, see s. IV below.

who are only concerned with what Aristotle said and those who are interested in developing their own views about the truth. In the former group are those who render the schools 'worthless', make it impossible for the youth to learn anything worthwhile, and give Aristotle a bad name. In the latter are good scholastics like himself and Zabarella who add to the truth in Aristotle.[18] Finally, as we shall see, Leibniz distinguishes between those scholastics who practise a 'barbarous' philosophy and those who are worthy of study.

The distinctions, first, between Aristotle and his followers and, second, between good and bad scholastics are enormously important for even a general understanding of the history of early modern Aristotelianism. Thinkers who appear to disdain the Aristotelian philosophy often reject only some part of it or some group of its practitioners. There are many philosophers who divorce themselves from what they consider the philosophy of 'the schools' and yet remain wedded to the philosophy of the ancient; and there are those who are quite committed to some part of the scholastic tradition while energetically criticizing the rest. In other words, the anti-Aristotelianism (and Aristotelianism) of the early modern period is both much more subtle and much more diverse than it is generally taken to be.

Leibniz is an important case in point. From a cursory look at some of Leibniz's writings, one could reasonably assume that he was a staunch anti-Aristotelian. For example, he describes the scholastic philosophy as a 'barbarous way of philosophizing' and acknowledges his debt to anti-Aristotelians like Bacon. He writes, for instance, that 'the incomparable Lord Bacon of Verulam and other enlightened men . . . recalled philosophy from its airy digressions, or from an imaginary space, back to earth and to the guidance of life'. And, echoing Bacon, he notes that the scholastics had little to contribute because each sat 'behind closed doors, bent exclusively over his *haecceitates*'.[19]

But Leibniz's criticisms of scholastic philosophy apply only to some of the schoolmen and not to others: those who are firmly based in the philosophy of Aristotle are worthy of study, those who ignore

[18] See his *Praecognitorum logicorum tractatus III* (Hanover, 1604), 162 f. For a discussion of Keckermann and Zabarella, see s. III below.

[19] A. VI. ii. 415; *PPL* 124. Where references occur in the Loemker translation (*PPL*) I cite it, as here; but my translations often differ from Loemker's.

the real philosophy of the ancient are not. He writes: 'there are also many men of sound and useful learning among the [Peripatetic] philosophers, especially among those who draw from the springs of Aristotle and the ancients rather than from the cisterns of the Scholastics' (A. VI. ii. 415; *PPL* 124). Therefore, he continues:

> I do not hesitate to add that the older Scholastics [e.g. Scotus and especially Occam] are far superior to certain of our contemporaries . . . in their more cautious avoidance of useless questions. For some of our contemporaries, who can hardly add anything worth printing to the ancients . . . accumulate references, invent countless absurd questions . . . and contrive new terms again and again. This is how they produce so many and such bulky books. (A. VI. ii. 427; *PPL* 127).

Leibniz runs through the litany of traditional complaints against the Aristotelians, but his remonstrations apply only to those Peripatetics who are not firmly rooted in the 'real' Aristotle.

Equally important is Leibniz's claim that the inferior scholastics are responsible for giving Aristotle a bad name, while those Aristotelians who ground their views in the ancient himself help us to recognize the real value of the Aristotelian philosophy. He claims, for instance: 'Nothing is better known in our century than that Aristotle is free and innocent of all the ineptness with which the Scholastics are so often polluted.' According to Leibniz, anyone 'who consults' the proper commentators 'will readily admit . . . that Aristotle is far different than he is commonly described' (A. VI. ii. 425; *PPL* 127). Leibniz also notes that, when as a student he was encouraged to read the ancient himself as opposed to his (inferior) scholastic commentators, he 'saw that between Aristotle and the Scholastics, there was the same difference as between a great man versed in the affairs of state and a monk dreaming in his cell.' On this basis, he explains: 'I took of Aristotle's philosophy another idea than the common one.'[20]

In other words, the proper identification of many early modern philosophers and often the correct classification of their views depends on grasping where on the wide range of Aristotelian options they stand. The two distinctions articulated above help us to see that there are many diverse ways of being both anti- and pro-Aristotelian. Criticizing the Aristotelian system no more makes a philosopher a fully fledged anti-Aristotelian than the use of some

[20] Foucher de Careil's *Mémoire sur la philosophie de Leibniz* (Paris, 1905), 7.

Aristotelian terminology makes an author a scholastic.[21] An adequate understanding of the role played by the Aristotelian philosophy in the development of early modern philosophy requires a proper sorting out of the diverse strands of that philosophical tradition. That many of the new natural philosophers of the seventeenth century complained bitterly about the continued dominance of the philosophy of the schools need not imply that they were all whole-hearted anti-Aristotelians. Indeed, as we shall see, many were not.

III. The Diversity and Resilience of Aristotelianism in the Early Modern Period: Areas Other than Natural Philosophy

What I would like to do in this section and the one that follows is to suggest that the relationship between the Aristotelian philosophy and the development of early modern philosophy is much more complicated and interesting than is generally realized. The anti-establishment sentiments of the humanist and Reformation leaders and the intellectual crisis they provoked encouraged critical eclecticism as a method among Aristotelians. Of course, it should not be forgotten that school Aristotelianism had always been eclectic in the sense that the philosophy of Aristotle had been made to accommodate Christian teachings. But in the sixteenth and seventeenth centuries there was a wider diversity of ideas from a more varied group of sources which could be combined with the philosophy of the ancient. The religious Reformers, for example, had to construct new foundations appropriate for the Reformed faith. The result, as we will see, was often an intellectual system whose structure was Aristotelian but whose content was an odd collection of Aristotelian and non-Aristotelian ideas. This encouraged, among other things, new (and often bizarre) readings of the ancient. Especially relevant to my present concerns is the fact that the philosophy of Aristotle was commonly put to a variety of uses and served as a starting-point for many diverse investigations in all areas of philosophy.

From the beginning of the institutionalization of the Aristotelian

[21] Descartes's use of scholastic terminology in some of his writings (e.g. AT ii. 204–7) does not make him a pro-Aristotelian, although it seems to have fooled some readers (e.g. AT ii. 287). Roger Ariew interestingly suggests that Descartes's use of scholastic terminology is an attempt to win over some pro-Aristotelian readers. See Ariew's 'Descartes and Scholasticism', s. 4.

philosophy, there were disagreements and sectarian squabbles. As one seventeenth-century Aristotelian philosopher explains, on the subject of the history of Aristotelianism within the schools, the Peripatetic philosophy almost immediately 'progressed' into 'many different schools'.[22] The Thomists came to disagree fundamentally with the Scotists who disagreed as basically with the Occamists. That is, even the early scholastics by no means saw all Aristotelians as their comrades in arms. Indeed, they argued as viciously against one another as the anti-Aristotelians argued against them; they also criticized each other along lines very similar to the traditional anti-Aristotelian complaints noted above. An excellent case in point is the following accusation that one late scholastic philosopher makes against a position of St Thomas:

> But since all this consists only in useless imaginations, I am surprised that this opinion was received in several schools of philosophy; however, there are so many weak though opinionated brains who follow so closely the doctrine of certain persons [i.e. Thomas] that they would follow them right or wrong, and forget the golden sentence of the Philosopher: *I am a friend of Socrates, a friend of Plato, but rather more a friend of the truth*. These are, I say, weak minds who resemble certain soldiers who would give such devoted service to a Lord that they would just as soon follow him to an unjust as to a just war.[23]

Not only were there disagreements among the scholastic sects, there were heated debates and sophisticated discussions within them. As Kristeller has noted, the arguments among the scholastics were not limited to disagreements along sectarian lines;[24] indeed, the traditional divisions between, say, the Thomists and the Averroists are much less important than they have traditionally been taken to be exactly because there were so many different ways of

[22] See Johann C. Sturm's *Philosophia eclectica* (Altdorf, 1686), 5. For a discussion of some of Sturm's views, see below. In acquiring a more accurate picture of the history of the Aristotelian philosophy in the early modern period, it would be enormously helpful to discover what other historians of the period have to say about that history. Daniel Garber has come across two 17th-century authors who write specifically on the history of the Aristotelian philosophy: Jean de Launoy (Joannus Launoius), *De varia Aristotelis in Academia Parisiensi fortuna* (Paris, 1653) and Johannes Jonsius, *De historia peripatetica* (1652) and *De varia Aristotelis in scholis Protestantium fortuna schediasma praemisit* (1720).

[23] Scipion Dupleix, *Corps de philosophie, contenant la logique, la physique, la métaphysique et l'éthique* (Geneva, 1627), 149 f. Roger Ariew brought this passage to my attention; it is his translation.

[24] See Kristeller's *La tradizione aristotelica nel Rinascimento* (Padua, 1962), 15 f.

following Thomas and Averroes. Geographical distances and the passage of time encouraged more and more fragmented views within original sects, as did the humanists' rediscovery of both the Greek commentators and other sources of ideas about the Philosopher.[25] Often disagreements and discussions resulted from new ideas which came from within the tradition, sometimes from doctrines which came from without. Whatever the source, the sixteenth century witnessed a heightened interest in all sorts of Aristotelian ideas, texts, and interpretations. The sheer number of published texts makes this clear: as Schmitt notes, 'three to four thousand editions of *Aristotelica* were published between the invention of printing and the year 1600. By contrast, the number of relevant editions of Plato stands at less than five hundred.'[26] There were, in other words, many diverse ways of being an Aristotelian, or a Thomist, or an Averroist; and these various sects and splinter groups absorbed new ideas, evolved significantly, and existed side by side in what we generally call 'scholasticism'. From its inception, the philosophy of 'the schools' was never a singular, static thing. And it was certainly not such in the sixteenth century.

It may be helpful to cite three examples of sixteenth-century Aristotelian disagreements and discussions which are philosophically rich and which extend well into the seventeenth century. In each case, I will only be able to give a bare sketch both of the problem and of the solutions proposed by a few of the more illustrious contributors to the debate. But even this brief discussion should constitute ample evidence of the transformations and re-evaluations which dominate the more progressive strands of early modern Aristotelianism.

The immortality of the soul

Debates among the scholastics about the immortality of the soul had existed for some time, encouraged both by Averroes' rejection of personal immortality and the fact that Aristotle's position on the question was taken to be unclear. The problem arose because the most likely candidate in Aristotle's philosophy for an immortal soul,

[25] For the importance of the newly available commentaries and translations of Aristotle, see Schmitt's *Aristotle and the Renaissance*, chs. 2 and 3, and his references to other sources.

[26] *Aristotle and the Renaissance*, 14.

namely the intellective soul, seemed to be numerically one in all persons and hence seemed to disallow the personal immortality required by Christian doctrine. The availability during the Renaissance of the Greek commentators, of better translations, and of properly honed philological skills made it increasingly evident that Aristotle's views on the matter were difficult to reconcile with Christian teaching.[27] Such factors led to an intensified discussion of the problem which was then fuelled by the Lateran Council's proclamation in 1513 that individual immortality was a dogma of the Church and had to be defended by all philosophers.[28] The debate about immortality often led to a dispute about the role of reason in the discovery of theological truths. Among the earliest and most important of the new works were those by Agostino Nifo (1469/70–1538) and by Pietro Pomponazzi (1462–1525). Rejecting the Averroism of his youth, Nifo forged a complicated synthesis of Thomistic, Neoplatonic, and Christian doctrines to save the individual soul for immortality. On this basis, Nifo could conclude in his *De intellectu* of 1503 that the immortality of the individual human soul was true on the grounds both of Christian revelation and of philosophical demonstrations.[29] Pomponazzi strongly disagrees. According to Pomponazzi, in his *De immortalitate animae* of 1516, the question of immortality cannot be answered through the use of natural reason; it can only be resolved through faith and revelation.[30] Carefully following the texts of Aristotle, he concludes

[27] For a discussion of the influence that humanism and the classical revival had on debates on the immortality of the soul, see Kristeller's *Renaissance Thought and Its Sources*, ch. 10. For a general discussion of the problem of immortality in the Renaissance and of some of its more prominent participants, see Eckhard Kessler's 'The Intellective Soul' in Schmitt *et al.* (eds.), *The Cambridge History of Renaissance Philosophy*, 485–534; G. di Napoli, *L'immortalità dell'anima del Rinascimento* (Turin, 1963); and also *The Renaissance Philosophy of Man*, 11 ff., 257 ff.

[28] About the Council, see *Sacrorum conciliorum nova et amplissima collectio*, ed. E. D. Mansi *et al.* (1759–1962), xxxii 842. It is worth noting that, despite the fact that the Lateran Council's pronouncement contradicted the teaching of Averroes, his works became increasingly available through the 16th century and in better and better editions. For an account of this textual history, see C. B. Schmitt's 'Renaissance Averroism Studied through the Venetian Editions of Aristotle-Averroes', in *The Aristotelian Tradition and Renaissance Universities* (London, 1984), 121–42; and his *Aristotle and the Renaissance*, 22 f.

[29] See *De intellectu*, 1. 1. 10.

[30] *Tractatus de immortalitate animae* (1534), see esp. Ch. 15. My references are to this edition. There is an English translation of this work by William Hay in *the Renaissance Philosophy of Man* and a good discussion of both Pomponazzi's position and its relation to his more prominent contemporaries.

that 'no natural reasons can be adduced proving that the soul is immortal'. About 'this matter, there can be certainty only through God' (pp. 142 ff.). None the less 'it must be asserted as indubitable that the soul is immortal . . . [T]hose that go the way of the faithful remain firm and unshaken' (pp. 146 f.). In his *Apologia* of 1518, Pomponazzi goes on to say that individual immortality is contrary to natural principles, cannot be demonstrated by reason, but must be accepted as an article of faith. Pomponazzi's position and its implications about the role of reason in theology were hotly debated for the rest of the century and beyond. In their *Ratio studiorum* of 1586 the Jesuits reject Pomponazzi's interpretation of the Aristotelian texts; they announce that, according to Aristotle, reason, and the true philosophy, the soul is the substantial form of the body and is immortal.[31] Both Suárez (1548–1617) and Melanchthon (1497–1560), whose works were read well into the seventeenth century, continued the dispute and contributed significantly to it.

In the seventeenth century, Aristotelian philosophers well connected with the modernist movement actively participated in discussions about the immortality of the soul and about the role of reason in the discovery of such theological truths. In France, for instance, Jean-Baptiste Morin argues in his *De vera cognitione Dei* that, through the use of reason and the new mathematical method, the 'darkness of atheism' can finally be expelled.[32] In England, the most important work by the seventeenth-century physician and natural philosopher Kenelm Digby has as its central focus the immortality of the soul.[33] Contrasting the soul, as that which is immaterial and indivisible, with the body, as that which is material and divisible, Digby argues that the former is a '*substance*, a *thinker*, an *Ego* or *I*'

[31] For a brief discussion of the Jesuits' *Ratio studiorum*, see below. For a brief summary of their views on immortality and for other references, see Roger Ariew's 'Descartes and Scholasticism'.

[32] See his *De vera cognitione dei, ex solo naturae lumine; per theoremata adversus ethnicos et atheos mathematico more demonstrata* (Paris, 1655). The book went through several editions and was translated into English by H. Care in 1683. For a discussion of Morin's relation to both the modernist and Aristotelian natural philosophy, see s. IV.

[33] Digby's *Two Treatises* was first published in 1644. It went through several editions and was translated into Latin in 1654. A Latin summary by Thomas White entitled *Institutionum Peripateticarum ad mentem summi viri clarissimique philosophi Kenelmi equitis Digbaei* (London, 1647) was itself translated into English in 1656. Leibniz, who read the Latin translation, compliments the book at A. VI ii. 246 and 426.

which does not need the latter to exist. According to Digby, natural reason with the aid of the new science, the new mathematical method, and the philosophy of Aristotle can finally resolve the question of immortality. The texts of canonical seventeenth-century figures like Hobbes, Pascal, Locke, and Leibniz continue the discussion of the immortality of the soul and the role of reason in the discovery of theological truths.

Philosophical method

The scholastics had always been interested in methodological questions, but in the sixteenth century, at least partly in response to humanist criticisms of scholastic logic, there was a proliferation of new and sometimes innovative analyses among the Aristotelians.[34] One of the most important contributors to the newly inspired debate is Giacomo Zabarella (1523–89) who, drawing upon both Averroist and humanist sources, wrote logical works that were read throughout Europe. His commentary on the *Physics* is interesting for what it does not do: it does not slavishly follow the words and teachings of the ancient. Rather, Zabarella departs from Aristotle on crucial points and thereby offers what he considers a more systematic 'scientific' method which includes 'the proper placement (*dispositio*) of all parts of science'.[35] In a lecture of 1585, Zabarella describes his relation to Aristotle quite clearly: 'I will never be satisfied with Aristotle's authority alone to establish something, but I will always rely on reason.'[36] Not surprisingly, in his *De methodis*, he diverges

[34] For the history of logic and the shift from medieval to Renaissance treatments, see e.g. W. and M. Kneale, *The Development of Logic* (Oxford, 1962); L. Jardine, 'Lorenzo Valla: Academic Skepticism and the New Humanist Dialectic', in Myles Burnyeat (ed.), *The Skeptical Tradition* (Berkeley, Calif., 1983), 253–86; E. J. Ashworth's 'Traditional Logic' and L. Jardine's 'Humanist Logic' both in *The Cambridge History of Renaissance Philosophy* 143–72, 173–98. The latter includes a good bibliography. Also see Neal Gilbert's *Renaissance Concepts of Method* (New York, 1960). As Gilbert points out, the Latin term 'methodus'—as opposed to 'via', 'ratio', 'ordo', and 'modus'—only becomes common in the 16th century. See 67 f.

[35] See his *Libros Aristotelis Physicorum commentarii* (Venice, 1601), 3. For a discussion of his views on method, see e.g. *Renaissance Concepts of Method*, Gilbert, 167 ff.; and Randall's 'The Development of Scientific Method in the School of Padua' and *The School of Padua and the Emergence of Modern Science* (Padua, 1961), 49 ff.

[36] MS Milan, Ambrosiana D. 481, inf., quoted in Schmitt's *Aristotle and the Renaissance*, 11.

from the ancient and delineates a systematic procedure for knowing everything.

Whereas Zabarella's proposals went beyond those of the ancient, his style of presentation was fairly traditional. Other sixteenth-century Aristotelians, however, also began to reject the traditional scholastic textual style. Giacomo Aconzio (Jacobus Acontius), for example, presents his own Aristotelian-based ideas about method in a little book that manages to shed nearly all vestiges of the scholastic mode of presentation. His book, *De methodo*,[37] includes neither quotations from Aristotle nor references to scholastic texts; rather, it is a treatise that attempts merely to present his own views on the topic. According to Aconzio, many other philosophers (e.g. Aristotle and Galen) have written on method, but no one has given a proper methodological account (p. 5). He plans to offer his views 'briefly and clearly' so that they may be easily understood and, hence, useful to others (pp. 11 f.). He then goes on to define method as 'a certain correct procedure (*ratio*) by which one pursues [both] an examination of the truth and the knowledge of every thing' (p. 13). When the correct method is applied, one comes to grasp the subject studied and then is capable of explaining (and teaching) what it consists in. Aconzio's discussion is rooted in Aristotelian terminology and he encourages the serious study of both Plato and Aristotle, but his main concern is to present his own views as straightforwardly as possible. He proposes certain rules or precepts (*praecepta*) which, with practice, one can apply to any enquiry and thereby turn it into a coherent system (pp. 89 ff.). In conclusion, he says that, by means of his brief account, he hopes to have given his readers a straightforward and 'methodological account of method' (p. 93).

At about the same time that Aconzio was composing his small, straightforward treatise, the Cambridge philosopher Everard Digby (1550–92) was constructing a rather long and obscure work on logic, *Theoria analytica*. According to Digby, he intends to show 'the way to the mastery (*monarchium*) of the sciences'.[38] To this end, he

[37] *De methodo, sive recta investigandarum, tradendarumque artium, ac scientiarum ratione*. I refer to the 1617 edn. See Gilbert, *Renaissance Concepts of Method*, 180 ff., for an account of Aconzio's views. Note also that, although Aconzio's text was probably not widely circulated, philosophers like Leibniz (A. VI. i. 280) do refer to it.

[38] *Theoria analytica* (London, 1579), title-page. For a discussion of Everard Digby, see Gilbert, 200 ff.; and Charles Schmitt's *John Case and Aristotelianism in Renaissance England* (Montreal, 1983), 47 ff.

weaves Platonic, cabbalistic, Hermetic, and many other ideas into a basically Aristotelian fabric. In book 1, he discusses the views of ancient (e.g. Socrates, Pythagoras, Lucretius, and Anaxagoras), medieval (e.g. Scotus, Avicenna, and Albertus Magnus), and early modern (e.g. Scaliger and Melanchthon) thinkers, discusses the zodiac (p. 32), and compares Plato to Aristotle. He says that he wants to save the truth of Aristotle, but also to add to it (p. 48). In his references and views he stands firmly within early modern occultism.[39] And his definition and account of analysis bear witness to his mystical bent. He writes that analysis 'claims for itself the simple perfection of the first principle, from which it lights its first flame, and displays the first certitude to the gaze of the inquirer' (p. 89). Obviously, this is not standard Aristotelianism, but an eclectic blend of ideas from a variety of sources within (what Digby considers) an Aristotelian framework.

Somewhere in between the streamlined simplicity of the Italian Aconzio and the arcane complexity of the Englishman Digby stands the German Bartholomew Keckermann (1572–1609). Keckermann's works were read throughout Europe and went through a number of editions.[40] In his *Praecognitorum logicorum tractatus III* he compares the 'Peripatetic and Ramist logics' and concludes that the former, especially as expounded by Zabarella, is superior and can be put to better use.[41] He then sets up strict guidelines for a proper logical system (*systema*) and asks: 'therefore, is Aristotle's *Organon* a full and complete (*plenum et absolutum*) logical system?' (p. 205). In answering the question, he notes that Aristotle's method is correct though incomplete, that Zabarella's account of Aristotle's views is surely the best, but that no current system meets his own strict requirements. He suggests that to give an accurate account of method one has to go beyond Aristotle in much the way Zabarella

[39] For a discussion of early modern occultism and its relation to science, see. A. G. Debus, *Man and Nature in the Renaissance* (Cambridge, 1988), 11 ff., 133 f., etc.; D. P. Walker, *Spiritual and Demonic Magic from Ficino to Campanella* (London, 1958); and Lynn Thorndike's massive *A History of Magic and Experimental Science*, 8 vols. (New York, 1923–58), *passim*. The latter has an extensive bibliography.

[40] On Keckermann and his influence and importance see Schmitt, *John Case*, *passim*; Gilbert, *Renaissance Concepts of Method*, 215 ff.; and Petersen, who notes that Keckermann gave the 'most detailed criticism of Ramist logic by an Aristotelian' (*Geschichte der aristotelischen Philosophie im protestantischen Deutschland*, 138).

[41] Hanover edn. of 1604, pp. 7 ff.

did. This he attempts to do. The result, as Gilbert writes, is 'one of the most original and constructive' discussions of method of the early modern period.[42]

There were a large number of other important works on method written during the sixteenth century, many of which were read throughout Europe (e.g. those of Pedro de Fonseca and Eustachio a S. Paulo). Indeed, as Keckermann notes at the end of the century, there has not been since 'the beginning of the world' such a flourishing of methodological studies as there has been in his time.[43] The debate about method continues well into the seventeenth century. Although the relations between the sixteenth-century works and the contributions to the debate by seventeenth-century philosophers like Bacon and Descartes are complex, Bacon's *Novum organum* of 1620 and Descartes's *Discours de la méthode* of 1637 are obvious extensions of the wave of methodological discussions in the early modern period. However much Bacon and Descartes may disagree with major parts of that fundamentally Aristotelian tradition, they stand firmly within it none the less.

Proper education and the role of philosophy

The serious critiques with which both the humanists and the Reformed theologians confronted the philosophy of the schools created a crisis of enormous proportions. One of the most important aspects of the difficulty involved the role of philosophy and theology in education. Both humanists and Reformers were highly critical of the secular focus of scholastic education and demanded a return to Christian values. Thinkers like Petrarca and Luther wanted to replace an education based on Aristotle with one centred around the teachings of Jesus, while other humanists simply wanted to make the writing and teaching of both philosophy and the other disciplines more practically organized. They insisted on an educational programme centred on the 'whole person' and rejected the 'useless disputations' of an education based 'around the syllogism'.[44]

[42] *Renaissance Concepts of Method*, 220.

[43] *Praecognitorum logicorum tractatus III*, 109 f. Quoted in Gilbert, *Renaissance Concepts of Method*, 77.

[44] The humanists differed a good deal about the details of their proposals. For a discussion of some of their views and concerns, see e.g. Jardine, 'Lorenzo Valla'. For some other references, see n. 34 above.

The scholastics responded in a variety of ways. The Jesuits, for example, constructed an educational programme along humanist lines with the philosophy of St Thomas as its centrepiece. Their *Ratio studiorum*, completed in 1586 but ratified (with some modifications) in 1599, was a rigid scheme for instruction in the humanities and sciences, neatly organized in accordance with humanist requirements. Although rooted in Thomistic philosophy, it was not the conservative programme it is often taken to be.[45] For example, besides its humanist emphasis on goal-orientated education, it included a large dose of mathematics.

For the Protestant Aristotelians, however, things were not so easy. Due to the often extreme anti-Aristotelianism of Luther and the early Reformers, the educators of Protestant universities had to decide between wholly rejecting and seriously reforming the traditional basis of the papist educational system.[46] The English Reformers chose the first option and, upon rejecting Rome, attempted to purify themselves of the scholasticism of the papists. The immediate results at Oxford, for instance, seem not to have been ideal: by the middle of the sixteenth century, an educational programme based on somewhat vague humanist ideals had replaced the fully articulated scholastic structure of the previous century. This educational system led, in the 1570s, to a re-evaluation of medieval Aristotelianism and its didactic role. The results were far-reaching. There developed an Aristotelian revival in which humanist and Reformation teachings were combined with an eclectic brand of Aristotelianism.[47]

[45] For a discussion of the Jesuit plan of study, see Schmitt, *Aristotle and the Renaissance*, 105; Gilbert, *Renaissance Concepts of Method*, 73 ff. For the influence that the Jesuits had on higher education in France, see Brockliss, *French Higher Education*, ch. 1. It is worth noting that, when Descartes was asked to recommend a course of study for a correspondent's son, he recommended a Jesuit education. He writes: 'there is no place on earth where philosophy is better taught' than at the Jesuit school which he attended; and he recommends the study of philosophy 'in the manner it is taught in Jesuit institutions' (AT ii. 378). Roger Ariew discusses Descartes's attitude toward his Jesuit education, the genuine benefits of that educational programme, and some of its central tenets in his 'Descartes and Scholasticism', ss. 1, 3.

[46] In what follows, I discuss some of the educational reforms in England and Germany during the early modern period. For a detailed discussion of the educational environment in France, see Brockliss's *French Higher Education*.

[47] For a discussion of 16th-century Aristotelianism at Oxford, see Schmitt, *John Case*, 17 ff., and James McConica's 'Humanism and Aristotle in Tudor Oxford', *English Historical Review*, 94 (Apr. 1979), 291–317. Both Schmitt and McConica emphasize the eclecticism of the Aristotelianism of the period.

Beginning in the last quarter of the sixteenth century and lasting well into the seventeenth, a large number of Aristotelian texts—textbooks, commentaries, and works by Aristotle—were published and republished. Aristotle again became the core of the curriculum at Oxford and remained so well into the seventeenth century. In other words, after re-evaluating the educational reforms which had been instituted a few decades earlier, the professors at Oxford opted for a revised curriculum built around the philosophy of Aristotle. But the new Aristotelian core was importantly different from that of a century before: it was much more eclectic with, among other things, a greater interest in moral philosophy and dialectic. As Schmitt describes the Aristotelianism of this period in England, it 'adapted a type of Peripatetic philosophy tempered by extraneous elements drawn from many different sources'.[48] Thus, during the years immediately following the Reformation in England, there was a diminishing of the influence of Aristotle. By the end of the sixteenth century, however, that influence had begun to increase and, as the statutes of the University of Oxford clearly indicate, the philosophy of Aristotle was dominant in 1636.[49]

Nor was the shift back to Aristotle a conservative one. Rather, as the Jesuits had done much earlier, the educators at Oxford were attempting to construct a coherent educational programme based on humanistic ideals. The eclectic Aristotelianism of Everard Digby belongs to this period. As we have noted, he collects ideas from a diverse group of sources and places them within a fundamentally Aristotelian framework. It is important that the philosophers of this period considered themselves Aristotelians despite the fact that they reformed and transformed the philosophy of the ancient in all sorts of ways.[50]

The German Reformers never went as far as their English cohorts

[48] See Schmitt, *John Case*, 163. This is the most complete work to date on English Aristotelianism in the early modern period. The book includes an excellent bibliography of related materials, including works on early modern Aristotelianism.

[49] See John Griffiths, *Statutes of the University of Oxford, 1636* (Oxford, 1888). For example, the description of the public lectures on natural philosophy lists as the materials to be discussed only the works of Aristotle. See 36.

[50] For other examples of this English eclectic Aristotelianism, see A. G. Debus's *Science and Education in the Seventeenth Century: The Webster–Ward Debate* (London, 1970), which includes facsimiles of 17th-century texts in which the goal and proper structure of education is debated; Schmitt, *John Case*, esp. chs. 1, 4; and McConica, 'Humanism and Aristotle'. The latter's discussion of the educational goals articulated by John Rainolds is especially interesting. See 312 f.

in purifying themselves of the papist philosophy. For them, a rejection of the educational structure that the Aristotelian system afforded was too extreme, and a compromise was sought. They almost immediately donned a critical eclecticism which allowed them to sort through the Aristotelian corpus, to discard the unacceptable parts, and to combine the rest with the teaching of Reformers like Luther. The debates which arose about education and the proper role of philosophy were important and widely influential: they often focused on the relative importance of metaphysics as opposed to theology as the core of a proper account of the world, and sometimes on method and the proper way of combining views from a variety of sources. The important sixteenth-century educational reformer Philipp Melanchthon (1497–1560) managed to forge a synthesis of the writings of Aristotle and those of Luther by carefully selecting those bits of Aristotle's writings which did not directly confront Reformed theology. Making a careful distinction between Aristotle and the 'barbarian' scholastics, Melanchthon proposed to replace 'the barbarous studies' of the schools 'with those which are true', that is, those based in Aristotle and the classics.[51] The result was an educational programme where theology replaced metaphysics as the central point of focus and where unthreatening Aristotelian works (e.g. the *Ethics* and the logical works) were retained. As Max Wundt has argued, Melanchthon's teachings and writings began a new German educational tradition in which the Aristotelian philosophy and the Christianity of the Reformers are combined.[52] The writings and proposals of Melanchthon were widely known throughout Europe and formed the educational basis for many Protestant universities. What Melanchthon mainly taught his fellow Protestants was that Aristotle, whatever his former papist associations, was too valuable to be rejected.

One of the most important results of the reformed Aristotelianism effected in Germany was its promotion of critical eclecticism. By the next century, for example, when Aristotle's *Metaphysics* had resurfaced at Protestant centres of learning, new attempts were

[51] *Corpus reformatorum*, xi. 15 f.

[52] M. Wundt, *Die Philosophie an der Universitaet Jena* (Jena, 1932), 23 f. Wundt documents the importance of Melanchthon's thought at Jena and other German Protestant universities and presents the views of many of his immediate followers. See 8 ff. Also see Gilbert, *Renaissance Concepts of Method*, 108 ff., for a discussion of the German's views on method.

made to construct a coherent Aristotelian metaphysical system which made use of the new science. Following in the footsteps of Zabarella and other humanist Aristotelians, philosophers like Johann Christoph Sturm (1635–1703) discussed how to combine the truth in Aristotle with that of other thinkers. In his *Philosophia eclectica*[53] Sturm argues that the only way to find what is 'most true' is to rid oneself of the dogma of any particular philosophical sect and to acquire knowledge of all the significant intellectual traditions: 'all of Nature and Reason' is available to those 'few people' who practise the proper critical eclecticism (pp. 5 ff.). Sturm cites a variety of sources on the superiority of eclecticism and notes that the goal of philosophy 'is the Truth, as Aristotle taught' (p. 127). In order to discover the truth, one must understand the philosophy of Descartes, Aristotle, and the other geniuses (p. 189). According to Sturm, once a proper understanding of the thought of such philosophers is acquired, their views can be combined into a coherent and true system. For example, he analyses the views of Aristotle, Democritus, Zabarella, and Descartes on matter and concludes that these apparently diverse views can be made to cohere. Like Sturm, other German Protestant Aristotelians applied the critical eclecticism which had flourished among the sixteenth-century educational reformers to metaphysics. As we shall see in section IV, by the mid-seventeenth century Aristotelians all over Europe were perfectly capable of accepting many of the new developments in natural philosophy and conforming Aristotelian ideas to them. It was common for people to call themselves Aristotelians and borrow heavily from non-Aristotelian ideas and even from the new science.

These three examples of Aristotelian discussions and debates in the early modern period bear witness to the fact that the Peripatetic philosophy of the time was hardly a unified and static whole. Rather, it was full of transformations, re-evaluations, and a good deal of

[53] *Philosophia eclectica*, (Altdorf, 1686). For a discussion of the role and use of Aristotle by Protestant German philosophers, see Josef Bohatec, *Die cartesianische Scholastik in der Philosophie und reformierten Dogmatik des 17. Jahrhunderts* (Leipzig, 1912); Wundt, *Die Philosophie an der Universitaet Jena* and *Die deutsche Schulmetaphysik des 17. Jahrhunderts*; and Petersen, *Geschichte der aristotelischen Philosophie im protestantischen Deutschland*. Sturm's works were widely read. For instance, Leibniz refers to them throughout his life. See e.g. A. VI. i: 186 and G. iv. 399. 504.

sophisticated philosophy. It was highly sensitive to its intellectual environment, quite willing to respond to outside criticisms, and very successful at making important contributions to the evolving philosophical debates of the period. Sometimes the catalyst for change came from without (e.g. humanist and Reformation criticisms), sometimes from within (e.g. new commentaries on Aristotle). Whatever the source of change, the Aristotelian philosophy of the early modern period evolved in a variety of ways, many of which had important repercussions for decades to come.

IV. The Diversity and Resilience of Aristotelianism in the Early Modern Period: Natural Philosophy

The Aristotelians of the seventeenth century are best understood in the context of Renaissance humanism and eclectic Aristotelianism with the additional variable of the new natural philosophy. Like the early humanists, they were inclined to look at Aristotle himself, to distinguish him from his scholastic followers, and to combine Aristotelian ideas with their own. But, unlike their predecessors, they had had time to digest fully the new natural philosophy and to face squarely the abundance of new discoveries (e.g. sun spots) which often seemed to contradict their cherished Aristotle. Many Aristotelians were attracted by the new natural philosophy, especially the mechanism proposed by Descartes and Gassendi, but they were not prepared to put it in the place of the Aristotelian system.[54] For many seventeenth-century thinkers, the mechanism of the new natural philosophers was not only a first step towards atheism, it was unacceptable just because of its total rejection of traditional philosophy, most particularly of Aristotle. Nor did they see any problem in attempting to combine parts of the Aristotelian system with the new mechanical philosophy: they knew all too well that the philosophy of the ancient allowed for many diverse interpretations and a whole range of eclectic combinations. Enticed by the new natural philosophy, many Aristotelians insisted that the Peripatetic philosophy did not need to be rejected, it just needed to be

[54] For a very interesting discussion of the difference between the Aristotelians and the Cartesians in their attitude toward the new experimental findings, see Brockliss, 'Aristotle, Descartes and the New Science', s. 6.

reformed. Not surprisingly, there evolved in this intellectual climate a whole new genus of highly original interpretations of the philosophy of Aristotle. Some examples will help to reveal something of their range.

At one end of the spectrum are those philosophers who, though interested in the new natural philosophy, remained fully committed to the metaphysics of Aristotle as traditionally interpreted. For example, Jean Baptiste du Hamel, author of several books on natural philosophy, adhered firmly to Aristotelian principles throughout his life, but also took the new mechanical philosophy very seriously. His courses and books consider the principles of mechanism and ask how they can help to explain the physical world. In the preface to one of his books,[55] Du Hamel expresses the extent of his open-mindedness. He writes that there is much to learn from both the new and the ancient philosophy, that the condemnation of any philosophy is the result of 'limited ambitions', and that 'the best philosophy will result' from the free use and consideration of every type of philosophy.

Although Du Hamel invariably gives priority to Aristotle, he does take seriously the ideas of the 'recent philosophers'. He often presents, for example, doctrines of Gassendi and Descartes and is happy to acknowledge the usefulness of certain mechanical notions. He insists however that these mechanical explanations can only go so far. Because they do not 'convey the physical principles beneath', we must turn to Aristotle for the ultimate explanation of things. The best the moderns can do is help 'to illuminate the ancients'.[56] But he is perfectly willing to use the new philosophy to explain (at least some) natural phenomena. For example, Du Hamel goes into detail about how Descartes's views about fire can 'help us better understand its nature.[57] In other words, the successful natural philosophy will put the new mechanism to good use, but only so

[55] My discussion of Jean Baptiste du Hamel is based on his *Philosophia vetus et nova ad usum scholae accommodata; Astronomia physica, De meteoris et fossilibus libri duo*, and *De consensu veteris et novae philosophiae*, published together in 1681. The preface to which I here refer clearly states his aims and belongs to the third book in this last volume, 542 f. It is worth noting that Leibniz writes about one of Du Hamel's books: 'in it he brilliantly explains the hypotheses of some of the best-known ancient and recent thinkers and often criticizes them with discernment' (A. II. i. 15; *PPL* 94).

[56] See *Philosophia Vetus et Nova*, 323 f.

[57] *De consensu veteris et novae philosophiae*, 718.

long as it remains consistent with Aristotle. Natural bodies are still composed of matter and substantial form (as traditionally interpreted) and their attributes ultimately have to be explained in such terms. Du Hamel remains committed to the *ratio* of Aristotle although he is willing to confirm it by 'experience and observation'.

Jean-Baptiste Morin, Professor of Mathematics at the Collège de France (1629–56), appears to be an Aristotelian who is less sympathetic than Du Hamel to the new philosophy. For example, he wrote a pamphlet in which he attacks a group of moderns who dared deny the foundations of the Aristotelian system (e.g. that there are three principles of physics). He subtitled the work 'where the true principles of bodies and numerous other nice points of nature are eruditely treated and the solidity of the doctrine of Aristotle is proven'; and he claims in his letter of dedication that 'there is nothing more seditious and pernicious than a new doctrine'.[58] Such comments suggest that he is a conservative scholastic who staunchly rejects the new philosophy. But his harangue against the moderns does not constitute the whole story. In other writings, Morin describes himself as more like Descartes than like the scholastics. He writes to Descartes, whose *Discours* and *Essais* he had seen, that 'like you . . . I seek the truth about things in nature alone, and I no longer put my trust in the schools, which serve me only for terms'. The schoolmen are 'more occupied in speculation directed toward the search for terms' than 'in the search for the truth itself about things through good experiments' (AT i. 541).[59] Besides the experiments of the moderns, Morin is also keen on their mathematical method. In the preface of his *De vera cognitione Dei*, for example, he praises their 'geometrical method', which he defines as 'that excellent mode of arguing by axioms and theorems' and from which, he says, 'greater success' can be expected than 'from the vulgar logic, or wrangling sophistry of the Schools'. In other words, Morin distinguishes between the scholastics and Aristotle, sides with the latter, but is also committed to the 'method' of the moderns,

[58] *Refutation des theses erronees d'Anthoine Villon* . . . (Paris, 1624), 3.

[59] For an interesting account of Morin's relation to Descartes, see Daniel Garber's 'Descartes, the Aristotelians, and The Revolution that Did Not Happen in 1637', 479 ff. Garber notes that Morin 'seems to have placed himself and Descartes in the same category', namely as open-minded traditionalists. As Garber suggests, Morin was apparently taken in by Descartes's use of some scholastic terminology in the *Discours* and *Essais* (e.g. AT vi. 239).

In his *De vera cognitione Dei* Morin also complains about atheistic tendencies of the moderns. He writes in his preface that the atheists are those who (among other things) explain the 'beauty and harmony of the world . . . by curious motions of dancing atoms'. According to Morin, the extreme position of those moderns who reject the philosophy of Aristotle is neither necessary nor wise: the principles of the ancient system do not need to be discarded, they only need to be combined with modern ideas about experiment and method. Therefore, when he writes that there is 'nothing more seditious and pernicious than a new doctrine', he does not have in mind just any doctrine, e.g. an opinion based on the results of an experiment; rather, he means to deny the acceptability of replacing Aristotle's 'true principles' of nature with other less well-proven ones. The suggestion is that the results of the new science are important and lead us closer to the truth, but that even they must be placed within the framework of the Aristotelian system. Thus, like Du Hamel, he is quite willing to use the modern ideas and methods as long as they are firmly based on the correct, i.e. Aristotelian, foundation.[60]

It is exactly this kind of stance that many seventeenth-century Aristotelians seem to share. That is, they accept some part of the new science, usually its experimental method and findings; they reject that part of the scholastic tradition which they think has stood in the way of such science; and they insist that the Aristotelian philosophy offers the only true and secure foundations for an accurate account of the world. The most important way in which they differ is in the extent to which they are willing to put to use the new science and to transform the philosophy of Aristotle to conform to it.

Many Aristotelian philosophers were willing to mould the philosophy of the ancient to make it fit more readily with even a larger part of the new mechanism. For example, the German philosopher Erhard Weigel combines parts of the philosophy of Aristotle with that of Euclid, Gassendi, and Descartes. Like Morin, he is deeply committed to the new experimental science and to the philosophy of the ancient, the soundness of the Aristotelian project, and the fact that Aristotle has been 'corrupted' by his followers. Weigel is especially fascinated by the mathematical method of the moderns, which he says can be

[60] In ss. 3 and 4 of his 'Aristotle, Descartes, and the New Science', Brockliss offers several examples of professors of physics at the University of Paris who, like Du Hamel and Morin, are prepared to accept the new philosophy as long as it does not conflict with fundamental Aristotelian principles.

reconciled with the Aristotelian philosophy on whose foundations the truth of Gassendi and Descartes can be placed. His proposed reconciliation rests on a reinterpretation of Aristotelian notions. According to Weigel,[61] prime matter fundamentally consists in extension which has parts outside of parts so that it fills space. It therefore 'coincides with space', is indeterminate and hence pure potential (p. 193). Form on the other hand is the substantial determination of extension that comes about through motion (see especially pp. 193 f.). By such means, Weigel thinks he has clarified the meaning of the Aristotelian first principles and made them more determinate (p. 194). As these examples suggest, Weigel's analysis of Aristotle often consists in a redefinition of the most crucial Aristotelian terms. With this accomplished, he goes on to make a synthesis of Aristotle (understood in this way), Euclid, and the new philosophy. What Weigel ingeniously does is to keep the original structure of Aristotle's physical principles, while reconstruing its content in a way that allows them to accommodate the mechanical physics.

Nor is Weigel unusual in his creative interpretation of Aristotle's philosophy. The early modern period was swarming with philosophers in search of the real Aristotle. Many seventeenth-century thinkers were prepared to claim that, once the philosophy of the ancient was properly understood, it would be seen to have much more in common with the new natural philosophy than with the interpretations offered by the scholastics. Throughout Europe, especially in Protestant areas, philosophers were offering new and highly original interpretations of Aristotle which maintained that his thought was perfectly consistent with their favourite new ideas. They differed as to which of the new natural philosophies was most like the philosophy of the ancient, but they were all quite sincere in their attempt to uncover the 'real' Aristotle.

For example, among the early atomists many wanted to forge a synthesis of atomism and the Aristotelian philosophy.[62] Daniel

[61] My discussion of Weigel is based on his *Analysis Aristotelica ex Euclide restituta* (Jena, 1658).

[62] This was especially true of those philosophers whose inspiration came from the ancient atomism of Democritus, whose views were only available in the writings of Aristotle. For a brief history of atomism in the early modern period and a basic bibliography, see Marie Boas, 'The Establishment of the Mechanical Philosophy', *Osiris*, 10 (1952), 422–33; for the influences on Sennert, see Kurd Lasswitz's 'Die Erneuerung der Atomistik in Deutschland durch Daniel Sennert und sein Zusammenhang mit Asklepiades von Bithynien', *Vierteljahrsschrift für wissenschaftliche Philosophie*, 3 (1879), 408–34.

Sennert, the founder of the German school of atomism, is an important example. In his *Physica hypomnemata* he neatly combines the two philosophies within a Christian context. For example, using the Bible and Aristotle as his sources, he writes: 'For when God first created the heaven and earth, he first separated the elements and distinguished [the element] earth from [the element] water, and so gave the elements their forms.'[63] Sennert distinguishes between the scholastics who misinterpreted Aristotle on these matters and the real views of the ancient himself (pp. 18 f.), and then goes on to turn the four Aristotelian elements into atoms of earth, air, fire, and water whose combinations form more complicated particles (pp. 85 ff.). In their combinations 'atoms retain the forms of things',[64] and hence allow for an Aristotelian account of natural change. Sennert's works were widely circulated and had considerable influence in the acceptance of atomic theory, especially in Germany.

The English philosopher Kenelm Digby combines atomism and Aristotelianism in a way reminiscent of Sennert, but unlike the latter he also interweaves Platonic, Gassendian, and mechanical principles into his Aristotelian tapestry. Digby published his two treatises, one on the nature of body and the other on the immortality of the soul, together in 1644.[65] These two works constitute an extended argument for the immortality of the soul based on an exhaustive account of the nature of bodies and their properties. Digby is explicit about his high esteem for Aristotle and his unstinted scorn for the scholastics. In fact, he uses principles of the former to argue against the latter (see e.g. pp. 341 ff.) and is quite explicit about the fact that his discourses 'are built upon the same foundations' as the Philosopher. He describes the latter as: 'the greatest Logician, Metaphysician and universal scholar . . . that ever lived . . . [His] name must never be mentioned among scholars, but with reverence, for his unparalleled worth; and with gratitude for the large stock of knowledge he hath enriched us with' (p. 346).

[63] *Physica hypomnemata* (Lyons, 1637), 17. During creation, these are not the only forms God handed out. Sennert writes: 'God in the first creation gave to things their forms through whose generation the order [of nature] is maintained' (15).

[64] Ibid. 102 ff. As its title suggests, in his *De chymicorum cum Aristotelicis et Galenicis consensu ac dissensu* (Wittenberg, 1619) Sennert gives an even more detailed account of natural and chemical change. See esp. 212 f.

[65] For a discussion of Digby's position on immortality, see s. III. I refer here to the London edn. of Digby's *Two Treatises* of 1644.

Digby is equally explicit in maintaining that for the true science we must inform Aristotelian principles with the new discoveries. What he does is ingenious in its structure but obscure in its details. He gives an Aristotelian account of the four elements in quantitative terms (in terms of their rarity and density) so that the qualities of the resulting elements are explicable. These he says are 'the proper notions of the four elements . . . which are, the notions of Quantity' (p. 30). He then goes on to apply the principles of force and velocity to the elements from which he 'deduces' the principles 'which govern Mechanics' (p. 66). The result of this is a strange mingling of atomism and corpuscular theory with Aristotelian elements. Although Digby does acknowledge (and even apologizes for) his departure from Aristotle on a 'few points', he insists that he follows in the steps of that 'great oracle of nature' and that 'the way we take is directly the same solid way, which Aristotle walked before'. He asserts that his fundamental principles are Aristotle's: 'all the difference between us is, that we enlarge ourselves to more particulars then he hath done' (p. 343).

As a final example of an Aristotelian philosopher who wants to combine the truth in Aristotle with that of the new mechanical philosophy, it may be helpful to turn to one of our seventeenth-century philosophical heroes. Throughout his long life, Leibniz referred to and made use of the philosophy of Aristotle. The index of almost any collection of Leibniz's works bears witness to this persistent interest in the ancient. In the confines of this discussion, it is impossible to attempt anything like a general account of the role of Aristotle's philosophy in Leibniz's intellectual development. Instead, I would like to focus on his very early years and the role that Aristotle played in his original philosophy. This will be sufficient to show that one of the standard-bearers of early modern natural philosophy must be seen as playing a part in the history of early modern Aristotelianism.

I have already noted in section III that not only does Leibniz distinguish between Aristotle and the scholastics, he finds it important to sort the good scholastics out from the bad.[66] Throughout his youth he refers to Aristotle as 'the most profound philosopher' and

[66] In the present collection, Stuart Brown's 'Leibniz: Modern, Scholastic or Renaissance Philosopher?' (ch. 10) discusses the importance that certain scholastics had for Leibniz's metaphysics.

himself as a follower of the ancient. In his first publication on a contemporary metaphysical topic, he writes:

> For the most part Aristotle's reasoning about matter, form, privation, nature, place, infinity, time, and motion is certain and demonstrated, almost the only exception being what he said about the impossibility of a vacuum and of motion in a vacuum . . . For the rest, scarcely any sane person will question the many other arguments of Aristotle in his eight books on physics and in the whole of his metaphysics, logic, and ethics. (A. VI. ii. 434; *PPL* 94).

Leibniz goes on to construct what he called a 'reformed philosophy', that is, a philosophy that places the mechanical philosophy on firm Aristotelian foundations. By taking from 'Aristotle's philosophy another idea than the common [i.e. scholastic] one',[67] the youthful Leibniz came to see that 'the very views which the moderns are putting forth so pompously flow from Aristotelian principles' (A. VI. ii. 435; *PPL* 95). In this and other works of the period, Leibniz constructs his own version of an Aristotelian conception of substance. In doing so, he (like Weigel and Digby) is willing to change and redefine some of Aristotle's principles. For example, he defines prime matter as continuous mass 'which fills the world . . . from which all things are produced by motions and into which they are reduced through rest'. Although, contrary to Aristotle's account, matter has a definite nature, Leibniz assigns it the same *role* as Aristotle's matter: it is that 'from which all things are made' (A. VI. ii. 435; *PPL* 96). Like the Aristotelian notion, Leibniz's matter is indeterminate and must be made into something by form. Thus, on Leibniz's original conception of substance, an incorporeal substantial form or mind organizes matter into an individual corporeal substance which is the cause and explanation of its attributes. That is, Leibniz constructs a conception of substance which has *res extensa* as a part. Accordingly, Leibniz's conception of substance is consistent with a version of mechanical physics: the substantial form of each substance is the cause of the movement of its matter so that corporeal attributes are reducible to matter in motion. 'A reading of the recent philosophers does in fact show sufficiently', he writes, 'that everything in the world can be explained in these terms alone, and my exposition above, of the possibility of reconciling Aristotle with them is thereby confirmed (A. VI. ii. 441; *PPL* 100). By such

[67] Foucher de Careil's *Mémoire sur la philosophie de Leibniz*, 7.

means, Leibniz happily concludes, the mechanical philosophy 'can be reconciled with Aristotle's' (A. VI. ii. 435; *PPL* 95).[68]

In presenting the views of these seventeenth-century natural philosophers I have hoped to display something of the range of Aristotelian options in natural philosophy within the period. All of these philosophers are wedded to the philosophy of the ancient; they differ, however, concerning the extent to which they reinterpret his ideas. Like Du Hamel and Morin, many natural philosophers thought that the new philosophy should help to illuminate and support the ancient truths. Like Weigel, many believed that mathematics was the key to understanding natural phenomena and that the new emphasis on mathematics could be conformed to the thought of Aristotle. And like Weigel, Sennert, and Leibniz, many thought that an adequate understanding of the *real* Aristotle would reveal that his philosophy could comfortably accommodate the new natural philosophy. In order to combine Aristotle's system more completely with the new findings and method, many were prepared to mould the thought of the former to the views of the latter. However freely these thinkers interpreted Aristotle, they were quite sincere in their belief that the resulting eclectic philosophy was perfectly consistent with the thought of the ancient.

In 1665, John Sergeant, wrote a poem about the treatises of Kenelm Digby which nicely captures the attitude of many early modern intellectuals toward the scholastics, Aristotle, and the new philosophy. Whereas the Dryden poem of 1662 (quoted in section 1) claimed that 'the *Stagirite*' has hidden Reason away from Truth and Nature and, hence, made 'his *Torch*' a 'universal Night', Sergeant maintains that it was the scholastics who, 'by their dark wordiness', concealed 'The Truth'. Indeed, '[t]hese Authors yet, voluminously-vain Stuffe Libraries with Monsters of their brain'. According to Sergeant, by distinguishing the 'dark wordiness' of the scholastics from the insight of Aristotle, Digby has managed to unearth 'the secret gins, the springs and wires Which the vast Engine's motion requires'. In other words, with the help of Aristotle,

[68] Leibniz's reconciliation of Aristotelian metaphysics (as he interprets it) and mechanical physics is a complicated matter. For a more complete account, see my *Leibniz's Metaphysics: Its Origins and Development* (forthcoming); for a summarized version, see C. Mercer and R. C. Sleigh, 'Metaphysics: The Early Period to the *Discourse on Metaphysics*', in N. Jolley (ed.), *Leibniz: Cambridge Companions to Philosophy* (forthcoming).

the new science, and his own reason, Digby has shown us 'Clear-faced Truth' about 'Nature's work'. As Sergeant writes:

> [Now] She through your Amber words doth brighter shine;
> Like those in Heav'n, at once both nak't and fine.[69]

V. The Truth about Aristotle's Torch

Now that we have surveyed some of the more progressive discussions and debates among Aristotelian philosophers of the sixteenth and seventeenth centuries, we can ascertain how well this material conforms to the interpretation of early modern Peripateticism suggested by our anti-Aristotelian critics. As presented in section I, the story that the anti-Aristotelians would have us believe includes at least the following four claims about the Aristotelian philosophy of the early modern period: that it (1) constitutes a monolithic whole; (2) contributes nothing of importance to the intellectual changes unfolding in the early modern period; (3) is the staunch enemy of everything new; and (4) is philosophically inferior to the new philosophy then developing.

From the brief survey offered here, it should be clear that the Aristotelian philosophy of the sixteenth and seventeenth centuries was not a uniform anti-progressive tradition. The new natural and mechanical philosophies did eventually come to dominate European thought and in that sense the new philosophy was victorious over Aristotelianism. But this fact does not imply that all things modern were original and intellectually progressive while all things Aristotelian were the opposite. Indeed, as our examples in section III indicate, Aristotelian debates about the immortality of the soul and philosophical method offer an abundance of original and provocative ideas about these topics, ideas which influenced the debates in these areas for decades to come. It is, therefore, simply not true that the Aristotelian tradition had nothing to contribute to the intellectual changes unfolding in the early modern period.

Even in the area of natural philosophy, where the new ideas of Galileo, Hobbes, Descartes, and others clearly did eventually win

[69] Sergeant's poem appears as part of a preface in an edition of Digby's *Two Treatises* (London, 1665).

the debate, the contribution of the Aristotelian natural philosophers was not insignificant. In the same way that most 'modern' philosophers (e.g. Gassendi, Descartes, and Spinoza) combined the old with the new, many Aristotelians concocted their own combination of the traditional and untraditional. In some cases, they inserted new ideas into their fundamentally Aristotelian system (e.g. Du Hamel and Morin); in others, they made a fascinating mixture of ancient and modern ideas (K. Digby); and in still others, their synthesis of the best of the old and the new evoked a radical transformation of Aristotelian doctrines into highly original ideas which contributed significantly to the modern movement (e.g. Sennert and Leibniz). Clearly, then, it is wrong to suppose that the early modern Aristotelian tradition either was the staunch enemy of everything new or was philosophically inferior to the nascent natural philosophy. Early modern Aristotelianism not only shows an impressive vitality and resilience, it also contributes to the intellectual debates at the centre of the philosophical revolutions of the period. It was a major force in early modern thought and one that has gone unexamined for too long.

Of course, we should not go too far in our proclamations of the virtues of the Aristotelians. Many followers of Aristotle in the early modern period were conservative and reactionary. When the new philosophers complain bitterly about the backwardness of the Aristotelians, they are not pretending. But they *are* exaggerating: early modern Aristotelianism was simply not the uniform evil empire which its enemies portray. If we are to understand the history of sixteenth- and seventeenth-century philosophy at anything other than the most superficial level, we must begin to comprehend the variety of Aristotelian options and the range of roles those options played in that history. Not only was Aristotle not a tyrant, his torch was both more luminous and more varied than Dryden and many of his contemporaries allow.