

Metaphysical Themes

1274–1671

ROBERT PASNAU

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The most ancient opinions are often returned to as if new, and many delight in resurrecting them because—having been forgotten—they seem to say new and marvelous things. And so it is that the young listen to them with pleasure, because it is natural for what is new and marvelous to delight the senses.

Buridan, *In De an.* III.11

But Aristotle, that supreme dictator of human wisdom, what did he think about this?

Vanini, *De admirandis* dial. 2, p. 7

There is nothing more seditious and pernicious than a new doctrine

Morin, *Refutation* p. 3

History neglects nearly all these particulars, and cannot do otherwise; the infinity would overwhelm it.

Hugo, *Les Misérables* I.3.1

1

Introduction

1.1. Four Centuries

The present study seeks to learn something about the metaphysics of substance in light of four rich but for the most part neglected centuries of philosophy, running from the late medieval period to the early modern era. At no period in the history of philosophy, other than perhaps our own, have metaphysical problems received the sort of sustained attention they received during the later Middle Ages, and never has a whole philosophical tradition come crashing down as quickly and completely as did scholastic philosophy in the seventeenth century. My hope is to understand the nature of the late medieval project, and the reasons for its demise.

The very first thing that must be done, in pursuing such a project, is to find a better way to talk about these four centuries. Apart from the ever growing absurdity of referring to the seventeenth century as the modern era, the labels ‘medieval’ and ‘modern’ carry connotations that I wish to eschew, and make assumptions that I do not wish to take for granted. It is, moreover, entirely a matter of taste and perspective regarding when one wants to situate the start and close of the “classical era,” the “Middle Ages,” the “Renaissance,” or “modernity.” For William Ockham, near the start of the fourteenth century, the moderns were his flat-footed contemporaries, whose views he demolished; a century later, the *via moderna* was Ockhamism. For Kenelm Digby, in 1644, the moderns are recent scholastic authors; forty-nine years later, Locke takes “the Corpuscularians” to be the moderns, and to have “possessed the Schools” in place of “the Peripateticks.” Ours is still a different perspective. One might like to follow Hobsbawm’s suggestion that, for 80 percent of humanity, the Middle Ages ended only in the 1950s. Given my own rather more parochial historical interests, I tend to think of modernity as coming in the late twelfth century, with Averroes’s magisterial commentaries on Aristotle. With respect to all such judgments, there can be no fact of the matter.¹

¹ I might as well confess from the start that I aspire, perhaps quixotically, to nothing less than a reform our philosophical usage of the term ‘modern.’ Although it is admittedly useful to have a ready label for seventeenth- and eighteenth-century philosophy, we can perfectly well talk about it this era in just those terms: as the philosophy of a certain century. Moreover, by retaining ‘modern’ to talk about truly modern thought—beginning *circa* 1900—we gain something much more valuable: a handy way of talking about this more recent transformation in philosophy, without having to resort to the misleading label ‘analytic philosophy,’ which in turn leads to the pernicious distinction between

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In what follows, I set aside all such talk of modernity, renaissances, and middle ages. My subject is simply four centuries in the history of philosophy. Naturally, I have had to pick and choose. In many areas, where seventeenth-century philosophy was largely barren, it would have been a tedious and depressing exercise to watch the insights of the scholastic era fall into neglect and disrepute. For this reason, I have set aside language, logic, and natural theology, and instead focused on that area where the contrast among views is most striking and illuminating: the domain of metaphysics. It is, however, no part of my agenda to decide on winners and losers, advances and retreats. If nothing else, the diversity and complexity of views precludes any such global pronouncements. We can speak in general of the *scholastics*, referring to those philosophers from the thirteenth century well into the seventeenth (and beyond) who taught philosophy and theology in a university setting, in accord with a common Aristotelian method, vocabulary, and set of assumptions. It will very quickly become apparent as we proceed, however, that scholastic philosophers agree among themselves no more than does any group of philosophers from any historical period. The superficial similarities of style and vocabulary conceal enormous differences of doctrine, just as great as those that divide philosophers today.²

The variety of philosophy during the seventeenth century is better known, but even so it gets understated by our selective attention on a handful of the most original and interesting thinkers—Descartes, Hobbes, Spinoza, Locke, Leibniz. There are of course tremendous differences even among these thinkers, but these are as of nothing when compared to the full spectrum of seventeenth-century views, all the way from Spinozistic monism to the most doctrinaire and conservative scholasticism, and all points in between. Needless to say, I have not managed to cover all points in between, neither for the seventeenth nor for any century. It would in fact be quite impossible to cover

the “analytic” philosophers and that grab-bag of modern historical figures who are not analytic and so get called “continental” philosophers.

On the moderns, see Ockham, *Quod. V.22 (Opera theol. IX:564–5)*: “moderni ponant quod in omni praedicamento sunt multa ordinabilia secundum superius et inferius, . . . et dicunt quod istis abstractis semper correspondent decem parvae res distinctae primo . . .”. For the *via moderna*, see e.g. Gilbert, “Ockham, Wyclif”; Gabriel, “Via Antiqua”; Courtenay, “*Antiqui and Moderni*.”

Digby invokes the moderns at *Two Treatises* I.6.1: “it will not be amiss to express what we mean when we reject qualities, and how, in some sense, we are content to admit them. According to that description that Philosophers ordinarily do make of them (and especially the modern), we can by no means give way to them.” See also Locke, *Some Thoughts*, sec. 193: “Only this may be said, that the Modern Corpuscularians talk, in most things, more intelligibly than the Peripateticks, who possessed the Schools immediately before them.”

On the beginnings of modernity, see Hobsbawm, *Age of Extremes*, p. 288. Compare Johnson, *The Birth of the Modern*, whose dates are 1815–30, Himmelfarb, *The Roads to Modernity*, which focuses on the late eighteenth century, and Barzun, *From Dawn to Decadence*, who shares my predilection for the twelfth century: “if any renaissance ever did occur, it was in the twelfth century, leading to the high medieval civilization of the thirteenth” (p. 47). Walter Map, the twelfth-century English courtier, argued that the span of human life ensures that the scope of ‘modernity’ will be roughly a century (*De nugis curialium* I.30).

² The term; *scholasticus*; in its present sense, is in common use from the sixteenth century on: see e.g. Fonseca, *In Meta. VII.1.1 (II:200bB)*; Vasquez, *In Summam theol. 3a 194.2 n. 11*; Suárez, *Disp. meta. 50.5.3*: “hanc opinionem nullus fere Scholasticorum secutus est . . .”; Scipion Duplex, *Metaphys. II.3.1*. Something like its present usage can be found in Dietrich of Freiberg (*circa* 1280): “Cuius rei consideratio [de natura accidentium] non modicam ingerit difficultatem scholastice inquiringibus, compugnantibus ad invicem rationibus ad rationes et auctoritatibus ad auctoritates . . .” (*De accidentibus* 1.2 [*Opera* III:55]). It appears even before the era I recognize as scholastic, in Peter Lombard in the twelfth century: “De hoc enim sancti doctores subobscuri locuti sunt, atque scholastici doctores varia senserunt” (*Sent.* II.30.6.1). The term itself appears frequently in Augustine in the late fourth century (see *Confessions* VI.9.14 etc.). For a detailed investigation, see Quinto, *Scholastica*.

it all, even in a lifetime. The human mind tends to suppose that what it does not know about does not exist, and for our four centuries this fallacy is especially misleading. The almost unknown era of philosophy between 1400 and 1600 gave rise to vast quantities of material, much of which still survives. Although the fifteenth century is practically *terra incognita* to modern scholars, we have more philosophical texts from that century than from the previous two centuries combined, and more studies of Aristotle from the sixteenth century than we have from the whole prior history of Latin Aristotelianism, all the way back to Boethius.³

This vast and disparate material complicates any attempt to generalize not only about the relative merits of the different periods, but also about the extent to which developments in the seventeenth century can be regarded as novel. There is no temptation greater, for the medievalist, than the urge to hold a text triumphantly aloft and announce to the world that an allegedly modern idea had already been had, back in the year 1283. Although, as will be clear already, I am sympathetic to scholastic thought, I have tried to resist such triumphal moments. Indeed, from a certain vantage point it seems clear enough that post-scholastic thought represents a radical inversion of the prevailing Aristotelian paradigm, turning inside-out the characteristic scholastic conceptions of form, matter, and substance. If these seventeenth-century ideas were not exactly new—having been anticipated not just by scholastic authors but also by Islamic and ancient Greek thinkers as well—they were nevertheless pursued with a sophistication and thoroughness that makes that century well worth the massive amount of attention it has received from historians of philosophy. Even so, as we will see in many domains, much of what is most interesting about seventeenth-century metaphysics flows quite naturally from scholastic thought, and looks much less original when considered in that light. I have accordingly come to think of the progress of ideas over these four centuries as analogous to the famous Necker Cube, the different faces of which assume a greater or lesser prominence depending on how one looks at it.

The chapters that follow work through various fundamental metaphysical issues, sometimes focusing more on scholastic thought, sometimes on the seventeenth century. Although the organization is not chronological, it may be helpful to know from the start something about the scope of my research. I begin with the first challenges to what I call classical scholasticism, the scholasticism of Bonaventure and Thomas Aquinas among others. Both died in 1274, a date that furnishes the book's nominal starting point. Those classical authors naturally disagree on many fronts, but here I treat that period largely as background, and pick up the debate with the first generation of critics of classical scholasticism—especially Peter John Olivi (who began his magnum opus *circa* 1274), John Duns Scotus, and, later, William Ockham. From there I pick and choose among various scholastic authors of the fourteenth through

³ For the proliferation of philosophy texts in the fifteenth and sixteenth centuries, see Schmitt, "Towards a History" p. 9. On the varieties of seventeenth-century philosophy, see Mercer, "Vitality," Schmitt, *Aristotle and the Renaissance*, and Ariew, "Modernity," which begins: "There is very little content to the concept of Modernity except as a term of contrast with Antiquity and the Middle Ages, and what is signified as "modern" changes, depending upon the specific contrast one wishes to make" (p. 114). For reflections on Descartes as a "modern" philosopher, see Sorell, "Descartes's Modernity." For a powerful argument against dividing up our four centuries into medieval–Renaissance–modern, see Schmitt, "Recent Trends." For a recent example of my strategy of thinking of the period simply in terms of a series of centuries, see Perler, "Introduction."

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sixteenth century, and then begin to track the rise of post-scholastic, non-academic philosophy—philosophers working outside the university context, who often mounted the most thoroughgoing challenges to the scholastic tradition. I stop in the seventeenth century with what I see as the end of the first stage of developments in post-scholastic philosophy: on the continent, with Descartes and Gassendi, and in England, with Boyle and Locke. The first drafts of Locke’s *Essay Concerning Human Understanding*, dating from 1671, furnish the nominal closing date of this study. Although it would not be until December 1689 that Locke finally published the *Essay*, many of his central ideas date from those initial drafts, and I believe that the overall character of his thought was largely fixed around this time. Insisting on this admittedly somewhat artificial terminus has the considerable advantage of allowing me to exclude what I regard as a second generation of post-scholastic thought, arriving after 1671—in particular, Spinoza, Malebranche, and Leibniz, to say nothing of Berkeley and, still later, Hume. I discuss these figures only in passing. Of course there is inevitably something arbitrary about such decisions regarding where to start and stop, and I hope these lines of demarcation will not be taken too seriously. The truth, if you like, is that I pursued the issues as far as I could.

In terms of *historical* influence, the most prominent philosophical trends during this period are scholastic Aristotelianism and the rise of the mechanical philosophy. The first remained dominant within the universities for the entirety of our period, and the second brought about a philosophical and scientific revolution that began outside the universities but ultimately conquered all. In my view, these two trends are also the most *philosophically* interesting developments during this period. This is not an assumption I made from the start; it is the conclusion of a great deal of research. Readers whose interests lie elsewhere—aficionados of humanism, or the wild and woolly ideas of Renaissance Platonism—will want to find another guide to these centuries.⁴ Even where my interest is greatest, however, my enthusiasm is not unalloyed. Scholastic authors were bound by threat of ecclesiastical censure to a rigid orthodoxy, even in many philosophical domains (Ch. 20). This gives their work, at least superficially, a veneer of stultifying conformity that, among many lesser figures, in truth goes all the way down to the core. When seventeenth-century authors were able to break free from this imposed orthodoxy, wide vistas opened up, but the path most often taken was a dry and barren reductivism (§14.2, §19.7). This would eventually be replaced by more philosophically interesting and scientifically fruitful theories, at the hands of figures like Leibniz and Newton, but it would take most of the seventeenth century to achieve such results. These later developments are, to my mind, the second-generation fruits of the metaphysically reductive tendencies of the earlier seventeenth century. Scholastic philosophy first had to be destroyed, before anything else could be built in its place.

⁴ On the humanists, Hankins writes that “the humanist movement called for a radical change in the conception of what philosophy was and what it was for. For humanists philosophy was demoted to the position of one branch of literature among several. The emphasis was placed on moral philosophy, the only part of philosophy deemed useful to human life. Metaphysics, psychology and natural philosophy were neglected when not openly mocked for their obscurity and triviality. Logic was subordinated to rhetoric and reshaped to serve the purpose of persuasion” (“Humanism” p. 45). He goes on to say, on the next page, that “it did not produce great philosophers.”

On Aristotelianism remaining “the predominant philosophical tradition,” see Bianchi, “Continuity and Change” pp. 49–50, and the data he offers there.

Even so, that process of destruction, like the collision of atoms at high speed, is in many ways the most illuminating place to conduct research.

1.2. The Metaphysics of Substance

The subject of this book is four centuries of debate over metaphysics, in our modern sense of that term. Although we now think of metaphysics differently from how the field was defined during our period, I will not attempt, here or later, to grapple with the question of what metaphysics is or was taken to be. Instead, I will take for granted our current sense of what a metaphysical question is, and I will pursue such questions over a range of historical contexts, including not just treatises on metaphysics, or commentaries on Aristotle's *Metaphysics*, but also works on logic, physics, biology, psychology, and theology.

I do not try to survey all of metaphysics, but confine my attention to the metaphysics of substance. This is to say that I take as my principal focus various questions concerning the unity, persistence, and change of those features of reality—substances—that we regard as existing in the most proper sense. Within this broad field, my principal interest is material substance, and accordingly my starting point, in Part I, is the thesis that all change requires an enduring material substratum of change. This leads, in Part II, to a discussion of how matter, suitably informed, yields the substance itself—the dog, cat, or stone that comes into existence, endures through various sorts of changes, and ultimately goes out of existence. Part III then takes up the general character of the properties or accidents that come and go while that substance persists, and parts IV and V consider the two principal kinds or categories of such properties—Quantity and Quality. Finally, with all these ingredients in mind, Part VI turns to the question of how substances persist as unified beings through time.

If this study shows nothing else, I think that it shows how little we yet understand these issues. Even with respect to what is most central to the Aristotelian project—prime matter (Chs. 2–3), sensible qualities (Chs. 21–2), and substantial forms (Chs. 24–5)—we have a woefully poor understanding of what exactly the scholastics thought. The situation becomes even worse when we turn to more peripheral issues such as modes (Ch. 13), successive entities (Ch. 18), powers (Ch. 23), and integral parts (Ch. 26). And these are as nothing compared to the really obscure problems of metaphysics during our period, such as the nature of inherence (Ch. 11), extension (Chs. 14–16), location (Ch. 17), and persistence (Chs. 28–30). It is emblematic of the poverty of our knowledge in these areas that even with regard to our topic's central organizing concept—substance—scholars have labored under the most grievous misunderstandings, even with respect to the canonical figures of the seventeenth century (Chs. 6–9).

Most authors during our period worked under rigid ideological constraints that made certain theses impossible—on pain of death—to maintain. One can nevertheless find, on most topics, an extremely wide range of views. Even on so fundamental a question as how substances persist through time, one finds authors taking seriously theses that run the full gamut of possibilities, from the view that nothing truly persists, and that instead all entities are *entia successiva* (Ch. 18), to the opposite extreme that all entities are permanent (Ch. 28). It is, moreover, not just in the seventeenth century that such

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views emerge; they are indeed discussed in detail, as we will see, all the way back in the fourteenth century.

At the same time, there is a great deal of commonality among authors. Everyone during our four centuries accepts the reality of substances, as the things that exist in the most proper sense. Everyone accepts that there are permanent, enduring entities—that not everything is successive (Ch. 18). Nearly everyone accepts a distinction between material and immaterial entities (Ch. 16). Nearly everyone accepts that everything that exists is particular (§5.3, §27.4), and is located at a particular time and place (Chs. 16–17). These are points of agreement among both scholastic and post-scholastic authors.

Despite the enforced orthodoxy of much of scholastic thought, and despite the tedious reductionism of much of post-scholastic thought, these four centuries mark some of the highest points in the history of philosophical thought. When studied in conjunction they put on display what is perhaps the fundamental issue in metaphysics: the choice one faces between either pursuing ontological parsimony or vindicating our ordinary ways of conceiving the world. The usual program of the Aristotelian scholastics is to pursue the second at the expense of the first, and so one finds among the Aristotelians a vast and exotic ontology of actualities and potentialities, all designed to allow us to make sense of the world as it seems to be—a world of extended, finite substances, cohering and enduring through time, variously colored and shaped, capable of interacting in complex ways with other substances. The usual post-scholastic program, in contrast, pursues parsimony at the expense of explanatory adequacy, and so dismantles large segments of the Aristotelian framework. The result is an austere reductive ontology of bodies in motion—an ontology that makes it nearly impossible to account for much of our commonsense worldview of enduring substances. Such choices create the principal tension that motivates this study.

1.3. Metaphysical Parts

Suppose, at least for a while, that there are enduring substances of familiar sorts—dogs, cats, stones, and the like. Suppose these substances come into existence at a time, exist for some time, and then go out of existence. Eventually, we will be in a position to reconsider this hypothesis (Chs. 18, 28–30), but let us start, at least for now, the way a good Aristotelian should. A good Aristotelian believes that the common wisdom of the folk is not to be despised. This means, in the domain of metaphysics, taking seriously the notion that what exist most properly are the ordinary, enduring substances of everyday experience.⁵ This substance-based ontology lies at the foundation of scholastic metaphysics. To study the decline of scholasticism in the seventeenth century is, in no small part, to witness the collapse of this foundation. In the chapters to come, a ready way to gauge this book's progress toward its conclusion will be to measure how much of that substance ontology still remains intact.

⁵ For Aristotle's use of the received opinions of others (*ἐνδοξα*), see *Topics* I.1. See also *Meta.* VII.3, 1029a33–34: "Since it is agreed that there are some substances among sensible things, we should look first among these. For it is an advantage to advance toward that which is more intelligible."

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In order to explore this substance-based ontology, and eventually to test its cogency, we should consider what such substances are composed of. A natural answer to that question—and one that should by no means be despised—is that a plant, say, is composed of branches, leaves, parts of leaves, and so on. These are the *integral parts* of a substance; set them aside for now. It is not perfectly evident that a substance has any other kinds of parts. But suppose we could show that something about a substance changes independently of its integral parts, or endures after all its integral parts have ceased to exist, or simply cannot be explained in terms of its integral parts. Then we would have reason to suspect there are constituents of substances that are not any of its integral parts. These are what I will call the *metaphysical parts* of a substance. To call them parts at all is potentially misleading, in that such parts are utterly different from integral parts. But this is the customary Aristotelian usage, reflecting the idea that such entities do indeed belong to the substance, without being identical to the substance. The term ‘metaphysical’ is my label, one that seems apt inasmuch as such parts can be identified not by the usual empirical methods, but only by abstract, metaphysical arguments—arguments whose very abstruseness makes them vulnerable to dismissal if not derision.⁶

The Aristotelian tradition recognizes two main kinds of metaphysical parts: form and matter. If there is one overarching tendency that characterizes the seventeenth-century critique of scholasticism, it is the tendency to reject metaphysical parts in favor of an analysis solely in terms of integral parts. On this rests the rejection of substantial forms, real accidents, and unactualized prime matter. Out of this arise the characteristic disputes of the post-scholastic era, over the mind–body problem, causality, substance, identity over time, and the appearance–reality gap—issues brought to the forefront of philosophical discussion in the seventeenth century because of the immense difficulty in dealing with these matters without appealing to metaphysical parts. These problems remain with us today. Although we now tend to speak not of form and matter but instead of properties, functions, dispositions, and the like, the issues are much the same.

⁶ The term ‘metaphysical parts’ is not scholastic. Scholastic authors do regularly speak of integral or (often equivalently) quantitative parts, which are standardly contrasted with essential (or qualitative) parts. See, e.g., Ockham, *Tract. de corp. Christi* 12 (*Opera theol.* X:112–13); Aquinas, *Summa theol.* 1a 8.2 ad 3: “Est autem duplex pars: scilicet pars essentiae, ut forma et materia dicuntur partes compositi, et genus et differentia partes speciei, et etiam pars quantitatis, in quam scilicet dividitur aliqua quantitas.” Metaphysical parts, on my usage, include not only these essential parts, but also accidental forms and perhaps other accidental, metaphysical entities (if there be others). McMullin, “Matter as Principle,” considers at length the status of such parts (which he calls “M-Principles”) in Aristotle and in twentieth-century philosophy. The fundamental source for the scholastic distinction between kinds of parts is Aristotle, *Meta.* V.25, 1023b12–25, which explicitly speaks of form and matter as parts. For a fine recent overview, see Arlig, “Mereology” and also Clemenson, *Descartes’ Theory of Ideas* p. 17. For a late scholastic treatment, see Goclenius, *Lexicon* pp. 788–99. For a survey of Scotistic usages, see Fernández García, *Lexicon* pp. 464–5. See also Burley’s brief treatise, *De toto et parte*, and Buridan, *Summulae* 6.4.4, which discusses integral parts in detail.

The distinction endures into the seventeenth century, but not always intact. Locke, for instance, seems not quite to grasp it when he remarks: “integral parts, in all the writers I have met with, besides [his adversary], are contradistinguished to essential; and signify such parts, as the thing can be without, but without them will not be so complete and entire as with them” (*Second Vindication* sec. XII, p. 246). He thus goes on to treat the head as an essential rather than integral part of the body. Leibniz, without using the language of parts, gets at something like the distinction I wish to draw in his early letter to Thomasius: “Nam etsi utraque explicatio et scholasticorum et recentiorum esset possibilis, ex duabus tamen possibilibus hypothesis semper eligenda est clarior et intelligibilior, qualis haud dubie est hypothesis recentiorum, quae nulla entia incorporalia in mediis corporibus sibi fingit, sed praeter magnitudinem, figuram et motum assumit nihil” (*Phil. Schriften* IV:164–5; tr. Loemker p. 95).

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It is indeed hard to think of any problem in philosophy more profound and far-ranging than the status of metaphysical parts.

It will be useful to have a shorthand expression for talking about the movement away from metaphysical parts, toward a theory couched entirely in terms of integral parts. I will therefore deploy the term ‘corpuscularian’ to refer to theories that postulate only integral parts within bodies, rejecting all metaphysical parts. I will also use the closely related term ‘mechanistic,’ but for a different thesis: that the causal relationships between bodies can be explained entirely in terms of local motions produced through contact. Both of these terms date from the seventeenth century, and have been used more or less loosely since that time in something like the way I will use them. Throughout this volume, I will use these terms more precisely than usual, in accord with the definitions just given, so as to be able to refer directly to these two sets of fundamental issues.⁷

The great forerunner of corpuscularianism was the Presocratic atomist Democritus, whose views were familiar throughout the scholastic era thanks to Aristotle’s detailed reports. Albert the Great remarked back in the middle of the thirteenth century that there was something right about Democritus’s appeal to atoms: in analyzing any body, such as a piece of flesh, there is a point at which one cannot divide further without that body ceasing to be the kind of thing it is, with its characteristic operations. If these are what atoms are, then Democritus is right to say that they compose all bodies. That is, “he did not err, if he was thinking of quantitative, physical composition. He did err, however, in that he did not see the first essential composition, which is of form and matter. For a minimal part of flesh is composed of matter and form” (*In Gen. et cor.* I.1.12). Albert was not particularly well informed about the atomist project, but what matters for now is the way he criticizes Democritus. Atoms cannot be basic entities, according to Albert, because they themselves are subject to another, more fundamental, metaphysical sort of composition, that of form and matter. Hence “quantitative, physical composition” is not ultimate.

Later authors commonly made this same point in the context of the four Aristotelian elements—Earth, Air, Fire, Water (§21.2). Giles of Rome, a generation after Albert,

⁷ On the term ‘corpuscularian,’ see Boyle, *Certain Physiological Essays* (*Works* II:87) and *Excellency and Grounds of the Corpuscular or Mechanical Philosophy* (*Works* VIII:103–4; Stewart pp. 138–9): “When I speak of the *Corpuscular* or *Mechanical* Philosophy, . . . I plead only for such a philosophy as reaches but to things purely corporeal. . . .” For the details, see *Origin*, passim, which he describes as “an introduction into the elements of the Corpuscularian philosophy” (p. 4). See also Locke, *Essay* IV.3.16: “I have here instanced in [\approx invoked] the corpuscularian hypothesis, as that which is thought to go farthest in an intelligible explication of the qualities of bodies, and I fear the weakness of human understanding is scarce able to substitute another which will afford us a fuller and clearer discovery of the necessary connection and coexistence of the powers which are to be observed united in several sorts of them.” Later authors recognized Boyle as having coined the term ‘corpuscular’ in this sense—see, e.g., Leibniz, *Confessio naturae* pt. I (*Phil. Schriften* IV:106; tr. Loemker p. 110).

For a typical statement of what I am calling *mechanism*, see Boyle’s *Excellency*: “the *Mechanical* Philosopher being satisfied that one part of matter can act upon another but by virtue of local motion, or the effects and consequences of local motion” (*Works* VIII:109; Stewart p. 145). See also Locke: “The next thing to be considered is how bodies operate one upon another, and that is manifestly by impulse, the only way which we can conceive bodies operate in us” (*Essay* II.8.11). And see Thomas Sprat in 1667: “generation, corruption, alteration, and all the vicissitudes of nature are nothing else but the effects arising from the meeting of little bodies of differing figures, magnitudes, and velocities” (*History of the Royal Society* p. 312).

For an extended recent overview of the rise of corpuscularianism and mechanism in the seventeenth century, see Gaukroger, *Emergence of a Scientific Culture* ch. 8.

traced the levels of composition from the whole human body down to hands and feet, and then to flesh and bones, and then to the four elements. Just as those higher levels are not fundamental, “so nor is a human body composed firstly, absolutely, and unconditionally out of the four elements, because such elements are resolved into matter and form. Therefore matter is prior in the composition of a mixed body to the so-called elements” (*In Gen. et cor.* II, f. 248rb). Hence although one might be tempted to take at face value the Aristotelian doctrine of the four elements as *basic*, in fact these are “elements” only relatively speaking. The most basic Aristotelian elements are form and matter.⁸

Although the paradigm cases of integral and metaphysical parts are easily enough distinguished—limbs, organs, left half, right half, as contrasted with form and prime matter—it is less obvious how to give a general account of the distinction. I suggested above that metaphysical parts can be so-called because our grasp of them depends on abstract, metaphysical arguments, whereas integral parts can be grasped empirically. But this cannot be the criterion for the distinction. Most obviously, it cannot be right for integral parts at the microscopic level. The debate over atomism, even when viewed in its narrowest, least interesting guise, as a debate over the divisibility of bodies (§5.4), is every bit as metaphysical as is any debate over metaphysical parts. Nor will this serve as a criterion even at the macroscopic level, because even there the status of a body’s integral parts turns on extremely difficult metaphysical questions (Ch. 26).

It also helps not at all to mark the integral–metaphysical distinction in terms of materiality versus immateriality, or concreteness versus abstractness. Although there might at first glance seem something immaterial about metaphysical parts, that characterization hardly fits prime matter, a paradigmatically metaphysical part. And inasmuch as forms inhere in prime matter, they are to that extent *material* forms, and fundamentally a part of the physical, material world. When scholastic authors distinguish between the material and the immaterial, they intend a distinction that cuts across the different sorts of forms, so that some forms—in particular, the human soul—are immaterial, whereas most others are material (§16.1). Metaphysical parts also do not seem to be especially abstract. Like integral parts, metaphysical parts are located in time and space, and have causal powers. Indeed, I will be arguing that one of the most important tendencies of later scholastic metaphysics is to conceive of metaphysical parts in increasingly concrete, physical terms, not just as formal or material causes, but also as efficient causes. When Aristotelianism comes under attack in the seventeenth century, it is almost always conceived of in these terms, as a physical hypothesis about the causal structure of the natural world (see esp. §6.1, §10.5, §24.3).

But pointing to materiality gets us into the right neighborhood for drawing the distinction. What we want to say is not that the integral parts of a body are its *material* parts, but that they are the parts of a body that are themselves *bodies*. Metaphysical parts, in contrast, are not bodies but are instead the ingredients of bodies. This further entails that, for the Aristotelian, integral parts are always themselves composed out of further metaphysical parts—in particular, out of form and matter.

⁸ For Giles of Rome on hylomorphic composition as ultimate, see also *In Gen. et cor.* II, ff. 242rb–243ra. Similar discussions appear in a trio of later *Gen. et cor.* commentaries: Nicole Oresme (II.3), Albert of Saxony (II.3), and Marsilius of Inghen (II.3).

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The great question that animates philosophical disputes during our four centuries is just how many metaphysical entities must be postulated. If one focuses on the paradigm cases—prime matter, substantial form, and real accidents—then the answer we now associate with the seventeenth century is *zero*. René Descartes was not the first but he was the most influential proponent of this view. Writing in 1638, he invited a correspondent to “compare my assumptions with the assumptions of others: that is, compare all their real qualities, their substantial forms, their elements, and almost infinitely many other such things, with my single assumption that all bodies are composed of various parts” (II:200). In place of this near infinity of metaphysical parts, Descartes offers mere bodies and their parts—their integral parts, that is. This same reductionist program was already in place in his early, unpublished *The World* (1629–33):

If you find it strange that in explaining these elements I do not use the qualities called Hot, Cold, Wet and Dry—as the philosophers do—I shall say to you that these qualities themselves seem to me to need explanation. Indeed, unless I am mistaken, not only these four qualities but also all the other [qualities], and even all the [substantial] forms of inanimate bodies, can be explained without the need to suppose for their effect any other thing in their matter besides the motion, size, shape, and arrangement of its parts. (XI:25–6)

Ultimately, Descartes would not limit his rejection of substantial forms to the case of inanimate bodies (line 4), but would famously include the forms of living bodies: souls. The reductive strategy, however, remained the same: in place of the obscure metaphysical parts of the scholastics, Descartes put an account of the body’s integral parts, variously shaped and variously moved, according to the laws of nature.

Corpuscularianism is practically definitive of seventeenth-century thought, at least in its main current, appearing in various forms in Francis Bacon, Isaac Beeckman, Sebastian Basso, Galileo, Pierre Gassendi, Kenelm Digby, Henry More, Walter Charleton, Robert Boyle, Locke, Newton, and Leibniz—among many others. We will have many occasions, in the chapters that follow, to consider the strategy in its variations and intricacies. One general historical puzzle that arises for our four centuries, however, is why this view became so commonplace during the seventeenth century and yet was practically undefended before then. As we will in Chapter 19, the view *had* been defended, in particular by Nicholas of Autrecourt in the 1330s. It was, however, condemned in 1347, and subsequently forbidden among later scholastics. Only once the Church’s authority had weakened in the seventeenth century could these unspeakable ideas, bottled up for centuries, burst onto the scene, generating a ferment of philosophical activity that makes it not entirely ridiculous to speak, even now, of this period as the dawn of modern philosophy.

All the same, even if the scholastics were unable to give the sorts of answers characteristic of the seventeenth century, they nevertheless almost always asked the same questions. The corpuscularian strategy, in particular, was on the table from early in the fourteenth century, in large part because of the influence of William Ockham. As we will see, Ockham held a more-or-less orthodox scholastic view with respect to prime matter (Chs. 2–3), substantial form (Chs. 24–5), and qualities (Ch. 19). But Ockham took the startling view that these were the only sorts of metaphysical parts. His fame and notoriety among later scholastics arose in large part from his powerful and persistent

attempts to eliminate from his ontology every vestige of metaphysical commitment that could not be reduced to one of these kinds of entities. Ockham deploys over and over (esp. §14.3, §19.2) the following test in assessing the proper degree of ontological commitment: for any new characteristic that we might ascribe to a given body, consider whether that new claim can be accounted for solely in virtue of facts about the spatial location of that body and its integral parts. If such facts are sufficient to account for the claim in question, then it is superfluous to introduce any further ontological items. Ockham regards this kind of argument as decisive against the reality of a great many alleged entities, and it is this that drives his famous Razor. Although he by no means counts as a corpuscularian, he brings into play the sort of argument that would be invoked throughout the seventeenth century against all kinds of metaphysical parts. As will become steadily more apparent, the seventeenth-century rejection of scholasticism grows naturally out of trends that date back to the beginning of the fourteenth century.

Usually, in discussing the metaphysics of substance, I will tacitly set to one side the extensive ontology of immaterial entities—souls, angels, and God—that nearly all parties to the debate accept, no matter how reductively corpuscularian their views otherwise are. The most notable exception to this consensus was Hobbes, the most thoroughgoing corpuscularian of all the figures under discussion. On his austere picture, the only things there are—the only things in the universe—are bodies (§16.2). To say that bodies are subject to accidents is just to say that those bodies move about and act on other bodies. Any supposedly spiritual substance, such as an angel or even God, must itself be a body.

Hobbes's unqualified corpuscularianism is exceptional, both in its rejection of immaterial entities and in the rigor with which he applied it to bodies (§7.1, §10.2, §28.4). More often, corpuscularianism comes in degrees. Would-be corpuscularians nearly always find themselves obliged to appeal to metaphysical parts at one point or another in their attempts to explain reality. This is true even for Descartes, whose ontology includes not just substances but also modes (§13.5)—thus the passage quoted above concludes by invoking the reality not just of matter but also of “the motion, size, shape, and arrangement of its parts.” Postulating modes further leads Descartes to a conception of substance as something surprisingly indeterminate and metaphysical (§13.7). As we will see repeatedly, much of what is interesting in seventeenth-century philosophy comes not from attempts to give corpuscularian accounts of various physical phenomena, but from the way corpuscularian philosophers felt forced to diverge from the strictly corpuscularian at various junctures, in order to save some vestige of the commonsense ontology of substance defended by the scholastics. Much of what follows will be devoted to studying these episodes, and attempting to determine, in individual cases, whether and why the corpuscularian philosophy had to be compromised.

1.4. Sources

Four centuries may look like too much territory to cover in anything other than a superficial way. It is, however, essential to my purposes to try. If one picks up the story only from the end of the sixteenth century, one can give a passable account of which

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scholastic authors directly influenced which post-scholastic authors. There is little doubt, for instance, that most of what Locke knew about scholasticism came from minor textbook authors from around the start of the seventeenth century. One can learn quite a lot, then, by comparing these textbooks to later figures like Locke, and many recent scholars have done just this. The approach is of limited value, however, if one wants not just to connect the historical dots, but also to understand the philosophical issues. Late scholastic textbooks are wholly dependent on earlier scholastic material, and the ideas in these later textbooks, superficially sketched for the edification of an undergraduate audience, cannot be adequately appreciated apart from those traditions. To understand these traditions in turn requires going back all the way to the late thirteenth and early fourteenth centuries. It is here that one finds the original and most powerful statements of the various scholastic ideas that ground the mainstream of philosophical thought all the way until nearly the end of our period. Compared to this earlier material, the later textbooks are as shadows on a cave wall.

As I visualize the terrain of this study, it takes the rough shape of two plateaus divided by a trough. The plateaus—those periods of greatest philosophical flourishing—correspond to the initial and final hundred years of our period, leaving the trough in between for the two hundred intervening years. Such is my provisional impression, but the reader should keep in mind, here and on every page to come, just how vast a corpus of material is extant from these four centuries, and just how little of it, in absolute terms, I have managed to read.

To read these texts means, in most cases, to read them in Latin, and usually to read them in centuries-old editions, if not in manuscript. Almost none of the works I will be talking about have been translated into English or any other modern language. Most have not been edited in modern times, and indeed I suspect that some have not been read at all, by anyone, in centuries. It is perhaps no wonder, then, that scholars have almost never attempted to tell the sort of continuous story I am purporting to offer, across the entirety of this period. Accordingly, I have for the most part not had the benefit of a well-developed secondary literature. Many of the topics that I discuss have received almost no attention from modern scholars, and often I have had to construct my own taxonomy of positions and attendant nomenclature.

I have not, however, been without helps of various sorts. One feature of the scholastic period that makes it more tractable is the scholarly, reference-laden nature of these writings. Then as now, university professors cite their sources, and talk about the views of others, often at great length. So even if I have read only a fraction of philosophical texts from our four centuries, I have read enough to know which works were generally regarded as the most important, and I have managed to read those. One can also learn a great deal about the scholastics from reading their seventeenth-century critics. Although I will periodically complain that one or another criticism is misguided, I think in general that the famous figures of the seventeenth century get their scholastic forebears largely right, and that indeed they know this material better than we know it today. After all, they grew up with it. For this reason, just as I hope to shed light on seventeenth-century thought by considering its scholastic context, so I hope to illuminate scholastic thought by considering its ultimate rejection. One of the best ways to appreciate the Aristotelian approach to metaphysics is to consider why it was abandoned, and what came of that.

The first-generation critics of scholasticism—Bacon, Descartes, Hobbes, etc.—were not professors, and their writings are popular today in part just because they are not scholarly. They rarely mention scholastic authors by name, and it is usually impossible to know exactly which sources might have been influential on them. In the chapters that follow I almost never engage in speculation regarding which scholastic texts an author like Descartes or Locke might have had foremost in mind. Although such historical detective work may afford a veneer of scholarly precision, it can in fact be nothing more than speculation, and is accordingly of negligible value for my purposes. The most important avenue for understanding the historical context of post-scholastic thought is not to look for direct lines of influence between one text and another, but simply to understand the spectrum of scholastic views that would have been broadly familiar to anyone in the seventeenth century with a tolerably good philosophical education. As modest a goal as that may seem, it has never come anywhere close to being realized, in any area of scholastic thought.

This is not to deny, of course, that there has been some excellent scholarly work done on the history of metaphysics over these four centuries. Such work is scarce for the scholastic era, and especially the later scholastic era. But when one manages to cross the great Sahara of the fifteenth and sixteenth centuries into the era of the mechanical philosophers, there suddenly appears on the horizon a magnificent oasis, in the form of a massive, highly sophisticated secondary literature on every aspect of the period. Readers making the journey with me will perhaps come to share my puzzlement over why this oasis appears when and where it does, since it accompanies at most a modest increase in the philosophical sophistication or interest of the primary texts. Even so, weary travelers must take refuge where they can, without complaint. So although the main focus of my attention is on the texts themselves, I have tried to learn as much as I could from this brilliant body of scholarship on later seventeenth-century authors, especially Descartes and Locke. I try to indicate all of this—the scholarly lacunae, my debts, and my areas of disagreement—in the notes. These notes are, however, very much intended for specialists. The main text is written with the hope and expectation that most readers will ignore the fine print.

Readers at all familiar with the recent flourishing of interest in metaphysics will recognize that I owe a significant debt to this body of work as well. Indeed, without the example set by this literature, it is hard to imagine my having written this book—both hard to imagine my understanding the issues well enough to have written it, and hard to imagine my thinking it worth the many years of effort. This is a debt, however, that I do not spend any time acknowledging in the pages that follow, and quite deliberately so. Although there is undoubtedly much to be learned by comparing the metaphysics of my four centuries with metaphysics today, there is also a considerable risk in so doing. As soon as one begins to apply modern templates to older texts, one forecloses the possibility of finding those texts to be doing things that do not simply, boringly, anticipate modern ideas, but actually do something interestingly new. So although each and every chapter to come is tacitly indebted to recent work in philosophy, I have kept that material out of the text, both for my sake and for the reader's. If others think this material worth bringing into dialogue with contemporary debates, I will be very glad, but I see that as a further step best left for others.

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Taking all of these resources together gives us not just 400 years of work on metaphysics, but over 700—stretching from the thirteenth century all the way into the twenty-first, taking into account not just the scholastics and their first generation of critics, but also the subsequent ways in which readers have understood these four centuries of thought. In looking closely at the original sources, and then the many subsequent iterations of interpretation, my impression is not of a field coalescing around some increasingly well-defined truth, or fluctuating between two well-defined alternatives. Instead, the history of philosophy appears to me to display much the same pattern that Harold Bloom has found to characterize the history of poetry—a pattern of ongoing traditions occasionally punctuated by innovations, where the innovations turn out, on close inspection, to be often a product of misinterpretation. Scholastic authors misinterpret other scholastic authors; their critics misinterpret them all the more. Modern scholars misinterpret the scholastics and their critics. Throughout, even when philosophers are not trying to do something new, the obscurities of our subject often ensure that we do so anyway, unwittingly. As the chapters to come will show repeatedly, many of the important metaphysical ideas of our period—the defining character of substance (§6.2), the idea of a substratum (§9.1), the nature of immateriality (§16.3), the notion of a power (§23.5)—are in fact a product of one of these episodes of Bloomian Interpretation. Such episodes are indeed so rife, for so much of the history of philosophy, that with respect to that history we might well be said to be living in a dark ages of our own.