

27. Real Essences

27.1. Metaphysical Chaos

This and the following two chapters describe the slow slide of post-scholastic thought toward metaphysical chaos. In place of the entrenched Aristotelian ontology of complete, individual substances, composed out of parts of various kinds organized by a governing substantial form, the seventeenth and eighteenth centuries spin off wildly in all directions. Ordinary objects are rejected as mere phenomena and replaced, variously, with world-sized substances or microscopic substances or no substances at all. For those with purely historical interests, or who delight in train wrecks, such chaos can serve only to enliven the subject, and indeed this period in the history of philosophy has been the subject of massive scholarly attention. By contrast, although the Aristotelian worldview is metaphysically extravagant in its own ways – as we have seen in extensive detail – it ultimately arrives at a far less glamorous ontology, postulating substances of a sort that are both familiar and natural. Post-scholastic authors abandon the arcane metaphysical parts of scholastic thought, yet they thereby find themselves forced into theories that are, in their conclusions, every bit as extravagant.

As usual, it is beyond the scope of this study to consider the most spectacularly eccentric ontologies of Spinoza, Leibniz, and beyond. My focus is on what I conceive of (taking some chronological liberties [see §1.1]) as an earlier stage of development, during which the implications of rejecting the scholastic framework were first being worked out. For the connoisseur, this is in some ways the most interesting period of all. It puts on display in raw, inchoate form the tension between the allure of corpuscularianism and the need to make metaphysical sense of the world around us. No longer able to account for our

commonsense ontology in any straightforward way, the first generation of post-scholastic authors faces the choice between stridently departing from commonsense, or saving some vestige of it through other means.

As I will reconstruct the situation, the collapse of the Aristotelian consensus travels through growing doubt regarding four fundamental theses:

1. We have knowledge of substances and the kinds into which they fall;
2. Our ordinary kind-distinctions carve things up according to their true essences;
3. Ordinary substances (dogs, trees, stones) are real entities;
4. Substances naturally and ordinarily come into and go out of existence.

There is a natural progression here from (1) to (4): one might begin with doubts about how much we know about what substances are, then decide that we are wrong about how substances divide up into kinds, then further decide that we are wrong even about what things count as substances, and then finally one might throw off the very notion that things in the world come into and go out of existence. Proceeding in this way, an author who rejects all four of these Aristotelian theses arrives at a worldview that is deeply at odds with how things seem to be. Yet, despite this orderly reconstruction of the dialectical situation, the actual course of the debate during the seventeenth century was much more complex. Different authors are tempted more or less to deny one or another of these theses, and it is often hard to say what the direction of inference is. Indeed, as we will see (§28.?), it is surprisingly common to begin by denying (4) – and even to treat the denial of (4) as axiomatic. Even so, it will be useful to organize the discussion around these four theses, in this order. The present chapter will consider the first two, saving the remainder for the following chapter.

27.2. *The Unknown Essence of Things*

One very common strand of post-scholastic thought concerns our inability to grasp the essences of things. This is a prominent theme in one of the earliest systematic attacks on scholasticism, Gianfrancesco Pico della Mirandola's *Examen vanitatis doctrinae gentium* (1520). (Gianfrancesco is the nephew of the more famous Giovanni Pico.) The fifth of this work's six long books takes up the Aristotelian doctrine of scientific demonstration, arguing first against the reliability of the senses and then against the possibility of arriving at accurate definitions – two of the fundamental bases of Aristotle's theory as presented in the *Posterior Analytics*. Since a definition states the essence of a thing, Pico is in effect challenging our grasp of real essences. He pursues at particular length the question of how to define what it is to be human, remarking that “one is able to recognize easily how uncertain definitions are, by placing before one's eyes the definition of ‘human being’ ” (*Examen* V.8, II:1123). He then proceeds to canvass in great detail the various proposals that have been made, mocking them all for their disagreements among themselves and for their failure to get beneath the surface of what it is to be human.

More generally, Pico argues that Aristotelians are doomed to fail in their attempts to grasp the essences of things, because their approach requires working from the outside in, relying on the senses to grasp the accidents of things, and inferring from those accidents to a thing's essence. This is certainly fair enough as a sketch of the scholastic method. The general Aristotelian view that the senses serve as a foundation for the concepts of intellect is familiar enough, and we have seen how scholastic authors have a causal story that runs from sensory experience all the way to a thing's essence, inasmuch as sensation is produced by secondary qualities (see §21/22.?), which are in turn, like accidents in general, a product of

the substantial form (see §24.2). (The substantial form [or forms], recall, is the principal constituent of the essence of a material substance, perhaps along with common matter [see §24.1].) Given this sort of causal story, the scholastics might well suppose it possible in principle to go from sensory experience all the way to the thing's essence. But Pico casts doubt on every aspect of the story. He challenges the very reliability of the senses in grasping the essence of a thing (*Examen* V.1-6). He challenges our ability to learn anything substantive about the essence on the basis of those accidents (*Examen* V.10). And he questions whether in fact we grasp a thing's accidents before we grasp its essence, pointing to various passages where Aristotle himself suggests that substance is prior to accident even in the order of knowledge (*ibid.*, pp. 1137-38).

The methodology Gianfrancesco Pico describes and attacks – of working from the outside in, from accidents to essence – is distinctively scholastic only in its terminology. With respect to the actual content of the view, the scholastics are saying just what anyone with an empirically-minded realistic methodology must say of such inquiry: that it begins with the senses, arrives at a grasp of observable phenomena, and from there attempts to draw inferences about the underlying, unobservable nature of the thing. But although it would be well worth our time to investigate the prospects for this sort of approach, Pico himself does not afford a very attractive opportunity. Writing in the tradition of Italian humanism, his work is impressive more for its rhetoric and scholarship than for its philosophical acuity. Moreover, the criticisms that Pico is making are ones that scholastic authors themselves were well aware of, and often quite sympathetic to. One sometimes finds the scholastics under attack for being naïve and overly optimistic about their grasp of essences. Locke in particular harps on “the doctrine of substantial forms, and the confidence of mistaken pretenders to a knowledge that they had not” (III.8.2). Yet it was entirely commonplace, throughout our

four centuries, to question just how much we really know of the real essences of things. Moreover, we have already looked in some detail at this scholastic debate, not just in passing at the end of the previous chapter, but in considerable detail in Chapter 7. The discussion there concerned our knowledge of substances – that is, of the thin substance “beneath” the accidents (cf. §6.?). Inasmuch as that thin substance just is prime matter together with one or more substantial forms, to doubt our grasp of substance in effect just is to doubt our grasp of essence. (Hence it is not surprising that ‘substance’ – among scholastics as well as today – is often used synecdochically to refer to a thing’s essence.) All of the major scholastic figures can be found acknowledging the poverty of our understanding of the essences of things, and in Franciscans like Scotus, Ockham, and Francis of Marchia such doubts turn into out-and-out skepticism, with Ockham, for instance, remarking that “we can naturally cognize no external corporeal substance in itself” (*Ordinatio* I.3.2, II:412 see §7.?). Of course, not all the scholastics were so pessimistic. John Buridan and Nicole Oresme, among others, offered sophisticated accounts of how we might go from accidents to essences (see §7.?). Since this material was discussed at some length in that earlier chapter, I will not reprise it here.¹

Whereas doubts over our knowledge of essences were common among scholastic authors, they become virtually *de rigueur* during the later stages of our period. Francisco Sanches’s anti-Aristotelian treatise *Quod nihil scitur* (1576) begins with the charge that our names fail to map onto the true natures of things. Galileo regards it as an “impossible undertaking” to “penetrate the true and internal essence of natural substances” (*Third Letter on Sunspots* [*Opere* p. 949; tr. Drake, p. 123]). Marin Mersenne’s *La verité des sciences* (1625) puts into the mouth of the skeptic a withering attack on our pretenses to know the nature of things: “although the names and phrases that we use to indicate our concepts ought to signify the essence of each thing, there is in fact nothing more ridiculous. These names are

indeed assigned randomly, without any rhyme or reason” (I.3, p. 38). The philosopher who serves as Mersenne’s spokesman in the dialogue grants the point: names have indeed been “very badly imposed” (I.6, p. 69). Pierre Gassendi too gives particular weight to this issue, as in his objections to Descartes:

Besides the color, the shape, the fact that it can melt, etc., we conceive that there is something that is the subject of the accidents and changes we observe; but what this subject is, or what sort of thing it is, we do not know. This always eludes us; and it is only a kind of conjecture that leads us to think that there must be something underneath the accidents. (Fifth Objections, VII:271)

As we will see in §6 below, Gassendi accepts our familiar ontology of material substances, including the idea of an underlying essence that gives rise to the superficial properties of the thing – all cast in corpuscularian terms, of course. But he is adamant that we lack any knowledge of this essence. As he writes in his book-length response to Descartes, the *Disquisitio metaphysica* (1644), “God revealed to us whatever is necessary for us to know about things by granting them properties through which we could know them.... But he willed that the internal nature and, as it were, source be hidden because we do not need knowledge of it” (3:312b).

Francis Bacon might seem at first an exception to this general trend, with his rejection of “the received and inveterate opinion that the inquisition of man is not competent to find out essential forms or true differences,” and his claim to the contrary “that the invention of Forms is of all other parts of knowledge the worthiest to be sought” (*Advancement of Learning* II.7.5). (Here, in 1605, skepticism regarding essences is already a “received and inveterate opinion.”) But Bacon immediately goes on to dismiss inquiry into the essences of substances, remarking that “to inquire the Form of a lion, of an oak, of gold; nay, of water, of air, is a vain pursuit” and that we should instead pursue an understanding of the fundamental qualities that are the building blocks of all the rest. The leading example of

this would be his extended inquiry into the nature of heat (see §21.6).

Someone who actually is an exception to the trend is Descartes. As Gassendi's objections suggest, Descartes takes himself to have identified the essence of both mind and body: the essence of body is extension and the essence of mind is thought (see, e.g., *Principles* I.63). Descartes is, moreover, as confident about the particulars as he is about the broad outlines; he concludes his *Principles of Philosophy* (1644) by claiming to have “omitted no phenomenon of nature” (IV:199). His views in this domain have important and radicalizing implications for his broader metaphysics, or so I will argue in §28.5. But Descartes's position in this regard is quite eccentric to the general post-scholastic consensus, which insists on the impossibility of knowing essences. This consensus become, if anything, even more prominent in the second half of the seventeenth century, in authors such as Henry More, Robert Boyle, Newton, Locke, and a great many others. Casting his eyes over the situation at the turn of the eighteenth century, Pierre Bayle remarks that “I am quite sure there are very few good scientists of this century who are not convinced that nature is an impenetrable abyss and that its springs are known only to him who made and directs them. In this regard, then, all these philosophers are Academics and Pyrrhonists” (*Dictionnaire*, “Pyrrho” note B [tr. Popkin, p. 195]).²

¹ Most scholastic discussions of our knowledge of essence are couched in terms of our knowledge of substance – not because ‘*substantia*’ is being used to mean *essence*, although that usage is common enough, but because if the substantial form is unknown, then, given that everyone agrees on the unknowability of matter (cf. §7.?), it follows that the whole (thin) substance is unknown. Hence one can make the stronger claim.

Scholastic discussions do not generally focus on the problem of natural kinds, and whether our classification scheme is correct, though of course doubts over our knowledge of essences might well lead to doubts of this further kind. One example of such a discussion, however, is that of Blasius of Parma, who reaches a series of strikingly skeptical conclusions in this domain: “quod aliqua duo sint diversarum specierum non potest evidenter probari” (*In De an.* II.4 concl. 7, p. 93); “quod homo plus differat ab asino quam asinus ab asino non est per se notum nec deducibile ex per se notis” (ibid., concl. 8, p. 94); “quod homo formaliter et specificè distinguatur ab asino non est demonstrabile” (*In De an.* III.2, concl. 2, p. 124); “quod duo animalia, quaecumque sint, specificè ab invicem differant, non est evidens” (ibid., concl. 4, p. 125).

Doubts over our knowledge of essences have implications for a wide range of other issues in scholastic thought. Discussions of alchemy, for instance, often turn on questions over just how much we actually know

about the inner essences of things, the worry being that if we do not know what it is to be, say, gold, then we will hardly be in a position to convert other things into gold (see Newman's introduction to Paul of Taranto, *Summa perfectionis*, pp. 27-29).

² For Sanches, see *Quod nihil scitur* p. 95: "A nomine rem ducamus. Mihi enim omnis nominalis definitio est, et fere omnis quaestio. Explico: rerum naturas cognoscere non possumus, ego saltem. Si dicas, te bene, non contendam. Falsum tamen est. Cur enim tu potius? Et hinc nil scimus. Quod si non cognoscamus, quo pacto demonstrabimus? Nullo. Tu tamen diffinitionem dicis esse quae rei naturam demonstrat. Da mihi unam. Non habes. Concludo ergo. Amplius, rei quam non cognoscimus quomodo nomina imponemus? Non video. Hinc circa nomina dubitatio perpetua et multa in verbis confusio et fallacia."

For Mersenne, see also *La vérité des sciences* p. 212: "il ne faut pas penser que nous puissions pénétrer la nature des individus, ni ce que se passe intérieurement dans iceus, car nos sens, sans lesquels l'entendement ne peut rien connoître, ne voyent que ce qui est extérieur...." See also Dear, *Mersenne and Learning* pp. 184-85, and the selections translated by Ariew et al., *Descartes' Meditations: Background Source Materials* pp. 151-65. On Mersenne's skepticism more generally, see Popkin, *History of Skepticism* pp.113-20.

On Gassendi see the passage quoted in §7.?, as well as the Fifth Objections at VII:275 and VII:338 and the *Disquisitio metaphysica* <...>. For a helpful discussion, see Lolordo, *Pierre Gassendi* pp. 213-17.

Henry More, *Immortality* I.2 axiom 8: "the subject or naked essence or substance of a thing is utterly unconceivable to any of our faculties"; to Descartes, March 5, 1649: "cum radix rerum omnium ac essentia in aeternas defossa lateat tenebras, rem quamlibet necessario definiri ab habitudine aliqua" (V:299).

Newton, *Principia* General Scholium, tr. Motte p. 442: "in bodies, we see only their figures and colours, we hear only the sounds, we touch only their outward surfaces, we smell only the smells and taste the savours; but their inward substances are not to be known either by our senses or by any reflex act of our minds." The *De gravitatione* offers an interesting argument for why our knowledge in this domain is necessarily limited: that there are likely to be multiple, essentially distinct ways in which the same observable phenomena could be realized, between which we would be unable to discriminate: "Descripta extensione natura corporea ex altera parte restat explicanda. Huius autem, cum non necessario sed voluntate divina existit, explicatio erit incertior propterea quod divinae potestatis limites haud scire concessum est, scilicet an unico tantum modo materia creari potuit, vel an plures sunt quibus alia atque alia entia corporibus simillima producere licuit" (p. 105; tr. Janiak p. 27). (Boyle makes a similar argument in *The Usefulness of Natural Philosophy*, III:255-56). For a helpful discussion of Newton's views in this regard, see Van Leeuwen, *Problem of Certainty* pp. 111-17.

See also John Tillotson: "we do not know things in their realities, but as they appear and are represented to us with all their masks and disguises" (*Works* II:538); and Samuel Parker (quoted at greater length in §9.?): "the truly wise and discerning philosophers do not endeavor after the dry and sapless knowledge of abstracted natures, but only search after the properties, qualities, virtues, and operations of natural beings" (*Free and Impartial Censure* [1666], p. 64).

27.3. Damage Control: The Scholastics

Essences are utterly fundamental to most philosophical schemes during our period. They define what a thing is, and so determine its identity conditions, and they serve as a causal explanation for many of a thing's non-essential properties. So given that, as Bayle puts it, the philosophers "are all Pyrrhonists" in this regard (as above), it is surprising that such doubts did not cause more widespread damage. We might here distinguish two kinds of issues. First, there are questions concerning our grasp of natural kinds. If we cannot know the essences of things, then it might seem we cannot know what the fundamental kinds are

in nature: where we have genuine differences in species, versus where we have merely accidental differences. Most immediately, this raises questions of biological taxonomy, but it also raises more general metaphysical questions about identity through change. For if we suppose that things do persist through change, then we should want some account of what sorts of changes are and are not consistent with persistence. To know this, it would seem that we have to have at least some information about the essences of things, since that will determine which properties are contingent and accidental and which are necessary.

A second issue concerns our grasp of the metaphysical structure of reality. Even the very most fundamental scholastic division among things, between the *thin substance* and its accidents (see Ch. 6), would seem to be called into question by the pervasive doubts we are considering. Most of the authors during our four centuries, however, want not only to embrace that distinction in some form but to go still further and make claims about the underlying *thin substance*, describing it either in *hylomorphic* or *corpuscularian* terms. One might suppose that, given the prevailing skepticism regarding our knowledge of essences, authors would be generally loathe to commit themselves one way or another in this regard. As we have seen, however, this is far from being the case. *Aristotelians* are adamantly *Aristotelian*; *corpuscularians* are adamantly *anti-Aristotelian*. Whatever their view, almost all parties to this dispute seem quite certain that they are right. But if our knowledge is limited to the superficial appearances of things, what business does anyone have entering into such obscure metaphysical controversies?

With respect to natural kinds, scholastic authors employed various recourses to save the conventional taxonomy of species and genera. One approach just enjoying its final flourishing at the start of our period was to invoke *divine illumination*. This is most notable in *Henry of Ghent* – the last great scholastic proponent of that venerable *Augustinian* theory

– who distinguishes between our ability to know something true about the world (for which no special illumination is required), and our ability to grasp the “pure truth” about things:

It should be said absolutely, therefore, that there is nothing concerning which a human being can have pure truth by acquiring a grasp of it through merely natural means. Such truth can be had only through the divine light’s illumination. (*Summa quaest. ord.* 1.2, f. 8rM)

Unlike earlier, more idealistic versions of illumination theory, Ghent does not locate the pure truth solely in some incorporeal realm. Fusing Augustine’s more Platonic version of the theory with thirteenth-century Aristotelianism, Ghent recognizes pure truth in the physical world around us, in the *essences* of things:

It is one thing to know of a creature what is true in respect to it, and another to know its truth.... For the senses even in brutes grasp well enough concerning a thing what is true in it. But still they do not grasp or cognize the truth of things, because they cannot judge regarding any thing what it is in actual truth – concerning a human being, for instance, that it is a true human being, or concerning a color, that it is a true color. (*ibid.*, f. 4vC)

Relying on the tacit assumption that of course we do manage to grasp the nature of what it is to be a human being, or a color, but appealing to the common doubts over how we could ever manage to get from sensory experience to essences, Ghent offers the theory of divine illumination as a solution to this Aristotelian impasse.

Ghent’s attempt to find new work for a venerable old theory was much discussed but quickly fell out of fashion. Its hostile reception by Scotus ensured that even later Franciscans – who had hitherto been the leading scholastic supporters of the theory – would no longer give the theory a prominent place in their epistemology. Consequently, the theory of divine illumination plays only the most marginal of roles during our four centuries. But what then? If we cannot get from sensory inputs to a grasp of natures – as Scotus himself insisted quite forcefully (see §7.?) – then what reason do we have for thinking we understand

the structure of the physical world at all? One reason scholastic authors were less concerned about this than we might think they should be is that they took themselves to have supernatural guidance of another sort – not immediately from God, as the Augustinian theory had it, but mediately, through Adam’s original imposition of names. According to the creation story of Genesis, even before Eve was created, Adam gave a name to all living things:

And the Lord God having formed out of the ground all the beasts of the earth, and all the fowls of the air, brought them to Adam to see what he would call them: for whatsoever Adam called any living creature, the same is its name. And Adam called all the beasts by their names, and all the fowls of the air, and all the cattle of the field.... (Genesis 2:19-20)

In this pre-fallen state, Adam was supposed to have possessed cognitive abilities vastly superior to us fallen human beings: hence, as Ghent puts it, Adam would have gone about his naming “as the ideal (*optimus*) metaphysician, knowing perfectly the essences and quiddities of things, imposing various names on just those species in keeping with the various essences and corresponding to those very essences of the things” (*Lectura super sacram Scripturam* 206). We fallen descendants of Adam have lost that talent for metaphysics, among much else, but the one legacy we retain from Adam is a language that truly cuts the world at its joints. The name that Adam gave “*is* its name,” according to Genesis (line 3), suggesting that although we no longer speak the language of Adam we can still be confident that our vulgar tongue bears some correspondence to Adam’s Ur-language.

Even if this guarantee of linguistic isomorphism was too thin to account for the sort of knowledge Ghent took us to have, still it seems to have been enough to keep at bay the sort of metaphysical chaos that would engulf the seventeenth century. Although the fourteenth century would see outbursts of doubt regarding the standard Aristotelian story regarding generation or corruption (see §28.?), it would take centuries more for such doubts

to take hold in any serious way. With the increased secularism and scholarly sophistication of the sixteenth century, it became possible for Sanches to remark that although Adam named all things according to their natures, that does not help us, given that he left no record of his efforts. And by the later seventeenth century – as we will consider in the next section – authors like Boyle and Locke could express outright scorn for the received taxonomy of natural kinds.¹

What of the metaphysical structure of substances? (This was the second way in which skepticism regarding essences threatens to infest other domains.) Here the standard scholastic way of proceeding was to treat both substantial form and prime matter as theoretical postulates. No one – not even those who are most optimistic about our grasp of the natures of things – thought that our knowledge of these metaphysical parts is anything other than highly schematic. It was a scholastic commonplace, for instance, to remark that we do not know the nature even of a fly. Scotus memorably remarked that “with respect to substances we have a vocal disposition, just as someone blind is naturally able to syllogize about colors” (*In Meta.* II.2-3, n. 119; see §7.?). The analogy is worth reflecting on, because it allows that we in fact *do* talk about the essences of things, and perhaps even do so successfully, in the way that someone blind can have quite a lot of knowledge about color. But just as the blind might be said to be inevitably ignorant about what colors essentially are, so we inevitably lack anything more than a schematic story about both prime matter and substantial form. We postulate such metaphysical entities, as explanations of phenomena that we are familiar with, but we can say almost nothing about their actual nature. This is how the Coimbrans, for instance, defend substantial form.

Natural things are not composed solely out of matter, because if the same common matter belonged to a human being, a stone, and a lion, then there would be the same essence and definition for each.

Therefore beyond matter they have their own proper form, by which they differ from one another. (*In Phys.* I.9.9.2).

The argument is simple – perhaps even simplistic – but it usefully highlights the standard scholastic strategy of appealing to some evident phenomena and then invoking some metaphysical entity as the only plausible explanation. We have seen this strategy deployed over and over in previous chapters, in defense of metaphysical prime matter (chs. 2-3), real accidents (chs. 10, 14, 15, 19), and substantial form (chs. 24-25). In every case, such arguments proceed without anything more than the most schematic sketch of what such entities actually are. Form and matter are bare theoretical posits, known only for what they do, and in their own right unknowable.

The schematic character of these scholastic accounts is of course part of what attracted the wrath of their critics. Descartes complains over and over that the workings of substantial forms and real qualities are “unintelligible” (e.g., *Principles* IV.198), and Locke likewise thinks the “corpuscularian hypothesis” more defensible “as that which is thought to go farthest in an intelligible explication of the qualities of bodies” (*Essay* IV.3.16). There is considerable truth in these complaints, provided that ‘unintelligible’ is understood not in the sense of *incoherent*, but in the sense of *unexplained*. The scholastics are in no danger of incoherence, by and large, precisely because they explain so little of the details of form and matter. Substantial forms and other metaphysical parts are simply black boxes that perform certain functions in ways that scholastic authors never even attempt to discern, seemingly treating such knowledge as impossible in principle.

I will return in Chapter 30 to the weight intelligibility should be given in one’s explanatory scheme. For now, however, we should keep in mind that corpuscularian authors are not clearly in any better shape as far as these issues are concerned. They, too, generally

despair of being able to say anything substantive about the inner essences of substances, and hence their own accounts tend to have the same sort of black-boxish quality. In place of metaphysical prime matter and substantial form, they postulate actual corpuscles with distinctive geometric and kinetic properties. But even if these principles are quite clear and intelligible, it is quite unclear why we should suppose them adequate to explain the phenomena at issue. The Coimbrans, for instance, in the above passage, claim that substantial forms are required to account for natural kinds. Might a purely geometric, corpuscularian account serve just as well? No seventeenth-century author actually succeeded in giving a satisfactory account in these terms, for any material substance, and indeed the failure of this program was embarrassingly obvious by the end of the century. The young Newtonian John Keill begins the preface to his *Introductio ad veram physicam* (1702) with the remark that “although the mechanical philosophy is today celebrated in name, and in our era its practitioners have attained fame, nevertheless in most of the writings of the physicists one can find hardly anything mechanical beyond the name itself.” Inasmuch as developments in the eighteenth century and beyond turn away from both scholastic Aristotelianism and strict corpuscularianism, one might wonder whether all parties to the dispute across our four centuries would have been better off taking more seriously their skepticism regarding the essences of things.

An interesting feature of the quick Coimbran argument considered above is that it leverages one problematic issue regarding real essences – the individuation of natural kinds – to settle another problematic issue: that of substantial form. This was a common scholastic strategy. Scotus, for instance, considers a view on which form would be nothing over and above matter, and responds that on this view there would be no distinctions in species but only grades of matter. He takes for granted that such an outcome is unacceptable. Now, to

be sure, the corpuscularian might agree with Scotus and the Coimbrans that natural kinds must be saved, and might insist that this can be done through strictly geometric–kinetic properties, in terms of particles variously interlocked. This was a common response, to be sure, but what makes the seventeenth century so fascinating is that this was not the only response. A great many post-scholastic authors were willing to concede that their corpuscularianism could not save the commonsense Aristotelian worldview of substances and natural kinds. They were prepared, nevertheless, to overthrow that worldview, beginning with the Aristotelian taxonomy of species membership. It is quite remarkable how much ground such critics of scholasticism were willing to yield. What authors who reply in this way are effectively granting is that there is something importantly right about the scholastic project: that if one wants to defend the commonsense ontology of the Aristotelian worldview – an ontology that to this day, after all, remains entrenched in our ordinary patterns of thought – then one needs to embrace something like the sorts of metaphysical entities that are anathema to post-scholastic thought. The corpuscularian agenda, in rejecting such entities, entails radical revisions to commonsense ontology. Thus we move, for the remainder of this chapter, to the second stage of metaphysical chaos described in §1.²

¹ I discuss Henry of Ghent’s conception of divine illumination at length in “Twilight of Divine Illumination.” For a translation of the key texts, see my *Cambridge Translations*, vol. 3. Although Ghent strikes me as distinctive in his focus on our natural inability to grasp the essences of things, one can find hints of this idea in earlier figures. See, e.g., Bonaventure, *Itinerarium mentis in Deum* 2.9: “... et ideo nec certitudinaliter iudicari possunt nisi per illam quae non tantum fuit forma cuncta producens, verum etiam cuncta conservans et distinguens, tanquam ens in omnibus formam tenens et regula dirigens, et per quam diiudicat mens nostra cuncta quae per sensus intrant in ipsam.”

For Scotus’s attack on Ghent, see *Ordinatio* I.3.1.4 (transl. in *Phil. Writings* pp. 96-132).

On Adam’s naming, see Dahan, “Nommer les êtres.” For another instance, see Aquinas, *Summa theol.* 1a 94.3sc: “ipse imposuit nomina animalibus, ut dicitur *Gen.* 2. Nomina autem debent naturis rerum congruere. Ergo Adam scivit naturas omnium animalium et pari ratione, habuit omnium aliorum scientiam.” The idea can be found into the seventeenth century, in, e.g., the anti-skeptic Jean de Silhon, *De l’immortalité de l’ame* (1634): “Mais bien que Adam connoissant par une clarté surnaturelle des especes que Dieu lui avait infuser, l’être de toutes les bestes, et les formes essentielles qui les distinguoient l’une de l’autre...” (pp. 160-61). Silhon takes our own language to have been formed by this initial Edenic act of naming.

Sanches accepts Adam’s knowledge of natures; he doubts only whether it has left any imprint on our own

languages: “Si unam solum dicas linguam pro rerum natura impositam esse, cur non item aliae? aut quae illa? Si dicas Adami primam, verum quidem est: poterat enim, quia rerum naturas noverat, ut testatur author Pentateuchi: et tunc sane desiderandum esset ut philosophia sua, aut quam habemus, suo etiam idiomate conscripta esset” (*Quod nihil scitur* p. 120).

² On our inability to grasp the nature even of a fly, see Roger Bacon, *Opus maius* I.10 (quoted in §23.5); Thomas Aquinas, (*In Symbolum Apostolorum* prol. [*Opuscula theol.* II n. 864]).

Descartes attacks the explanatory vacuity of the scholastic account of substantial form at *Principles* IV.201, and in correspondence to Morin (II:199-200), to Regius (III:506), and to Voetius (VIII B:26).

An argument just like the Coimbrans is mocked by Boyle, at *Origin* V:344 (ed. Stewart pp. 58-59).

For Scotus’s appeal to natural kinds in defense of substantial form, see *Lectura* II.12 n.23: “Opinantur quod materia non est alia realitas absoluta a forma...”; n. 27: “si forma esset terminus intrinsecus materiae, generabilia et corruptibilia non distinguerentur specie sed isti gradus sunt essentialiter idem tertio, scilicet materiae...” For discussion of this argument and related issues, see Cross, *Physics of Duns Scotus* pp. 34-41. I can see no evidence, however, that Scotus’s opponent here is Richard of Middleton, as Cross, following the lead of Scotus’s editors, contends.

For another discussion of what happens to generation in the absence of the hylomorphic framework, see Albert the Great, *In De gen. et cor.* I.1.9.

The scholastics need essences not only for their taxonomy of species and genera, and for their hylomorphic metaphysics, but also for their account of the substantial unity of the human composite. For, as was suggested in §25.?, a crucial move in the argument for rational soul and human body as *unum per se* is to claim that the soul by itself is an incomplete, partial substance, a notion that often depends on the link between substance and species membership. See, e.g., Aquinas, *Summa theol.* 1a 75.2 ad 1: “hoc aliquid potest accipi dupliciter: uno modo, pro quocumque subsistente; alio modo, pro subsistente completo *in natura alicuius speciei*. . . . Secundo modo, excludit etiam imperfectionem partis.”

27.4. Natural Kinds

The second stage of metaphysical chaos, as described in §1, concerns whether our ordinary kind-distinctions carve things up according to their true essences. This stage can be usefully separated into two components: worries about kinds, and worries about essences. This section addresses the first of these. To worry about whether we are getting the kinds right is not the commonplace worry we considered in §2, regarding our knowledge of the essences of things, but the further doubt regarding whether we are even dividing the world up according to its most natural divisions. As noted in the previous section, doubts of the first sort might well lead to doubts regarding the second, but this was by no means inevitable, or even usual. One might agree little or nothing about what it is to be gold, or to be a fly, and yet think that surely ‘gold’ and ‘fly’ pick out natural (as opposed to purely conventional) kinds. And in practice it was usually supposed, at least tacitly, even in the

seventeenth century, that our taxonomic schemes are basically correct.

In the later seventeenth century, however, serious doubts began to arise, most prominently in Boyle and Locke. Here is Boyle:

It was not at random that I spoke, when, in the foregoing notes about the origin of qualities, I intimated, that it was very much by a kind of tacit agreement that men had distinguished the species
 3 of bodies, and that those distinctions were more arbitrary than we are wont to be aware of. For I confess that I have not yet, either in Aristotle or any other writer, met with any genuine and sufficient diagnostic and boundary for the discriminating and limiting the species of things, or to speak more
 6 plainly, I have not found that any naturalist has laid down a determinate number and sort of qualities, or other attributes, which is *sufficient* and *necessary* to constitute all portions of matter, endowed with them, distinct kinds of natural bodies. And therefore I observe, that most commonly men look upon
 9 these as distinct species of bodies, that have had the luck to have distinct names found out for them; though perhaps diverse of them differ much less from one another, than other bodies which (because they have been huddled up under one name) have been looked upon as but one sort of bodies. But
 12 not to lay any weight on this intimation about names, I found, that for want of a true characteristic, or discriminating notes, it has been, and is still, both very *uncertain* as to divers bodies, whether they are of different species or of the same, and very *difficult* to give a sufficient reason, why diverse bodies,
 15 wherein nature is assisted by art, should not as well pass for distinct kinds of bodies, as others, that are generally reckoned to be so. (*Origin* V:356; Stewart pp. 72-73)

It is by “tacit agreement” (line 2) rather than any “true characteristic” (line 12) that we distinguish species. Boyle certainly does not suggest that our distinctions are wholly conventional, but they are at least “more arbitrary” (line 3) than we suppose, and in part a matter of “luck” (line 9). Boyle’s charge is not the unexceptional one that we cannot describe the essence itself, but the much stronger claim that we cannot even produce any “sufficient and necessary” attributes (line 7) – even in terms of accidental “qualities” – to sort things into kinds. And it is not just that he thinks the folk have been stupid about this. Implicitly relying on his extensive research into chemistry (a connection he makes explicit elsewhere),

he contends the task is genuinely “difficult” (line 14), although evidently not impossible. Accordingly, he is doubtful that our conventions have in fact gotten thing right. It is at least eminently possible that various substances conventionally falling into different kinds “differ much less from one another” (line 10) than do other bodies that are regarded as belonging to the same kind. The status of our conventional taxonomy is, in short “very uncertain” (line 13).

Locke follows Boyle’s lead in this regard, and if anything paints a more dire picture regarding our grasp of natural kinds. His worries in this regard go back to early drafts of the *Essay* (from 1671), and become only more elaborate in the first printed edition (1689); indeed, his discussion of the “Names of Substances” (III.6) is the second longest chapter of the *Essay*. Much of it consists in the familiar idea that we are incapable of grasping the true natures of things, and he rails at length against the scholastics in this regard, as if they supposed otherwise. But Locke goes much farther than this. Coining the terminology of ‘real essence’ and ‘nominal essence,’ he contends that we have hitherto classified substances only according to whatever superficial properties have been convenient for us to rely on, and so framed for each thing a merely nominal essence. This would be a new idea only in its terminology, if Locke thought that these nominal essences at least tracked the underlying real essences. But he makes it quite clear that he does not. Our classifications, he holds, are “seldom adequate to the internal nature of the things they are taken from” (III.6.37). Consequently, “we find many of the individuals that are ranked into one sort, called by one common name, and so received as being of one species, have yet qualities depending on their real constitutions, as far different one from another as from others, from which they are accounted to differ specifically” (III.6.8; cf. III.10.20). The language here is strongly reminiscent of Boyle (lines 10-11 above), and indeed Locke goes on to invoke the experience

of the chemists in support of this claim. But Locke seems often to want to go farther than Boyle in this regard. For whereas Boyle's overall position is one of hesitance and doubt regarding just how well we are tracking the true natures of things, in Locke that thesis seems to have hardened into a positive conviction regarding our own ignorance. :

We in vain pretend to range things into sorts, and dispose them into certain classes, under names, by their real essences, that are so far from our discovery or comprehension. A blind man may as soon sort things by their colours, and he that has lost his smell, as well distinguish a lily and a rose their odors, as by those internal constitutions which he knows not. (III.6.9)

The metaphors, if taken seriously, suggest that it would be a matter of blind luck if our classificatory schemes mapped onto the real divisions of nature.¹

Often Locke is taken to have embraced a still stronger claim: that there are no real divisions in nature or, in other words, that there are no natural kinds. This seems to me a misreading, but to get clear about the situation we need a somewhat sharper account of what a natural kind is. Since the term is a modern one, not in use during our period, and since even now it is used in a range of different ways, it is important to stipulate what exactly one means. To endorse natural kinds, then, on my usage, is to maintain that material substances cluster into a small number of cohesive classes, and that there is an objective fact about what these classes are. Such natural kinds are, of course, in the context of our debate, the species of things, and so the proponent of natural kinds holds that there is a unique system of species (and higher genera) that best captures the similarities and differences among individuals. So conceived, the doctrine of natural kinds is not a metaphysical doctrine, in the sense that it prescind from questions of whether individuals belong to a kind in virtue of sharing numerically the same immanent universal form, or participating in some sort of Form or Divine Idea. An atheistic nominalist might endorse natural kinds just as much as a Christian Platonist. This doctrine of natural kinds is consistent with supposing that our

current taxonomy does not capture these natural kinds, and it is also consistent with a high degree of skepticism regarding whether we can know what these kinds are. To be sure, such skepticism is likely to create some tension with a belief in natural kinds. As we saw in the previous section, however, various reconciliation strategies were available. And quite apart from the sorts of supernatural stories on which the scholastics often relied (usually tacitly), one might simply think the apparent commonalities among the superficial properties of individuals makes for an overwhelming *prima facie* case that material substances are indeed clustered into natural kinds, whether or not we can say in any detail what those kinds are.

Embracing natural kinds is not all or nothing. The most extreme rejection would take material substances to be distributed along a smooth continuum so as to lack any sorts of non-random similarity clusters at all. The most extreme embrace would treat these clusters as composed of substances that exactly resemble each other with respect to their essential properties, and would suppose that all substances fall into some such well-defined cluster. Neither position is at all plausible, and so far as I know neither was defended during our period. Certainly, scholastic authors never supposed that members of a species would be exactly alike, even with respect to their essences. This is most clear in the human case, since the essence of a human being consists (at least principally) in its rational soul, and no one would have supposed that any two human beings have exactly identical souls. More generally, the causal role of substantial form precludes the possibility that essences might be exactly similar from individual to individual. For, as we have seen (§24.?), substantial forms are responsible not only for those features of an individual that necessarily belong to all members of the species, but also for an individual's intrinsic accidents, which are of course likely to be unique from individual to individual, even within a species. Because the explanatory role of scholastic essences goes so far – extending even to things like hair color,

sex, and height – scholastic authors cannot possibly embrace the most extreme version of natural kinds. Still, as we have seen, the scholastics do generally accept that the world divides into natural kinds, and moreover they generally accept that our ordinary classifications get those kinds right. Where one finds skepticism, it holds only at the margins, as when Nicole Oresme raises worries about our ability to say precisely when generation and corruption happens, or whether it counts as a change in species, rather than merely accidental change, when freshly pressed grapes turn into wine, or wine into vinegar.

Although the seventeenth century witnesses a growing suspicion of natural kinds, authors of this period do not reject them altogether – not if that means embracing the extreme position that variation among material individuals is smoothly distributed without clustering. It is fairly clear, for instance, that Boyle – even if he thinks that our standard taxonomy is highly “arbitrary” (line 3 above) – does not wish to deny that there are natural kinds. To be sure, he thinks that we have not adequately captured the real clusters that are to be found in nature, and that there are likely to be many more such clusters than we presently recognize. But this is not to deny that individuals do cluster. After describing the vast range of variables in arrangement and motion that a corpuscularian can recognize, he concludes that “it will not be hard to conceive that there may be an incomprehensible variety of associations and textures of the minute parts of bodies, and consequently a vast multitude of portions of matter endowed with store enough of differing qualities to deserve distinct appellations...” (*Origin*; Stewart p. 49). To be deserving of “distinct appellations” is equivalent to belonging to different kinds, since throughout our period it is taken for granted that the names of things will ideally correspond to their kinds. So Boyle evidently thinks that, contrary to our relatively simple taxonomy, there is a “vast multitude” of natural kinds. Yet to say that there are a great many kinds is not to deny kinds entirely. Boyle makes that quite

clear in what he immediately goes on to say: "... though for want of heedfulness and fit words men have not yet taken so much notice of their less obvious varieties as to sort them as they deserve and give them distinct and proper names." These are not the words of someone who thinks that names are inevitably imposed out of pure convention. If we take heed, there are kinds in nature on which we might impose "distinct and proper names."

Locke's views in this regard are no different from Boyle's. Like Boyle, he thinks that the real nature of the material realm shows there to be a vast and bewildering variety of substances, such that our nominal essences are woefully inadequate when it comes to capturing the actual richness and complexity of nature: "we shall find everywhere that the several species are linked together, and differ but in almost insensible degrees" (III.6.12). This describes what has come to be known as the Great Chain of Being, an idea that was perfectly familiar to the scholastics, but that Locke advances in a strikingly bold form. Credulously accepting various dubious reports of mythical creatures at the boundaries of our recognized species, he takes the space of variations among material substances to be almost completely filled in, so that the differences between kinds are "almost insensible" (as above). But this is not to say that there are *no* kinds, if that means no clusters at all. Locke repeatedly admits that, as a purely factual matter, the natural world does admit of objective clusterings of individuals: "Nature makes many particular things, which do agree one with another in many sensible qualities, and probably too, in their internal frame and constitution" (III.6.36); "I do not deny, but nature, in the constant production of particular beings, makes them not always new and various, but very much alike and of kin one to another" (III.6.37); "those [names] of substances are not perfectly so [arbitrary], but refer to a pattern, though with some latitude" (III.4.17). Accordingly it is not out of the question that we might replace our crude taxonomic scheme with something objectively much better, if we were willing to put

enough effort into this task: “it requires much time, pains, and skill, strict enquiry, and long examination, to find out what, and how many those simple ideas are, which are constantly inseparably united in nature, and are always to be found together in the same subject” (III.6.30).²

On my usage, then, both Boyle and Locke count as defenders of natural kinds, inasmuch as they both think that material substances fall into objectively definable clusters. If confronted with our sophisticated modern taxonomies, in either biology or chemistry, they would surely take themselves to be entirely vindicated, judging this richly complex scheme to be precisely the sort of thing they predicted. Their complaints, then, are not with the very idea of a natural kind – as I am understanding it – but with taxonomic schemes that are insufficiently sensitive to the complexity of the natural world. Thus Locke charges his opponents with a “crude” version of the idea that material substances are ordered according to “certain regulated established essences, which are to be the models of all things to be produced” (III.6.15). This nicely situates his disagreement not only with the scholastics but also with many of his contemporaries, who hold all-too-naïve conceptions regarding boundaries between species. Following Boyle, Locke thinks that reality is far more chaotic than has been commonly recognized.

Yet even if there is a clear distinction between them and their opponents, it is good to keep in mind there is no all-or-nothing question here, just a continuum of views between two indefensible (and undefended) extremes. The scholastics tend toward a more orderly picture; Boyle and Locke toward a less orderly picture, but these are simply differences of degree. One can read in Walter Charleton’s *Exercitationes de differentiis et nominibus animalium* (1677) that there are nine kinds of unguiculate viviparous wild quadrupeds: the lion, the leopard, the lynx, the tiger, the bear, the wolf, the glutton (wolverine), the hyena, and the fox

(pp. 14-15). Perhaps Boyle thinks there are actually one hundred such kinds; perhaps Locke thinks there are a thousand. Perhaps Boyle thinks that five percent of individuals diverge significantly from their cluster; perhaps Locke thinks that twenty percent do. The differences here are merely matters of degree.

Moreover, what disagreements there are are entirely descriptive and empirical, with only indirect bearing on metaphysics. As we will see shortly, Locke combines his guarded embrace of natural kinds with some radical and innovative metaphysical claims about essences. But his views regarding natural kinds are not, in and of themselves, metaphysical. Similarly, although scholastic authors are generally more sanguine about our success in carving nature at the joints, this has nothing to do with their metaphysics. One might well suppose, after reading Locke, that it is the doctrine of substantial forms that is to blame for the scholastics' uncritical approach to taxonomy. But in fact substantial forms have nothing to do with it. There is no reason why substantial forms might not vary continuously from individual to individual, without there being any joints to carve at all. Conversely, there is nothing in corpuscularianism that precludes supposing that nature is rigidly divided into a small number of kinds, nor is that outcome even less *likely* on corpuscularian grounds. To be sure, the quantitative character of the geometric–kinematic framework makes it is easy to *picture* how corpuscularian structure might vary smoothly over individuals without clustering. There is no reason whatsoever, however, why substantial forms could not be smoothly distributed in this way. These issues become really interesting – from a metaphysical point of view – only when they are connected with disputes over essentialism.

¹ An interesting precursor to Boyle's and Locke's doubts about our getting species right is George Dalgarno. His *Ars signorum* (1661) attempts to construct a universal language on the basis of a logical analysis of how the things we talk about ought to be carved up. But Dalgarno refuses to extend his account down to more than a selective sample of the *infimae species*. To try to do more would be an endless task, because "quodlibet

genus vel species dividi potest per infinitas differentias” (ch. 4 p. 35) and, moreover, the task would be ultimately arbitrary: “censeo tamen omnes viros vere doctos mecum in hoc consensuros: nullam harum quaestionum determinari posse sine multo arbitrii” (ch. 4 pp. 35-36).

Dalgarno offers an anti-essentialist metaphysics to go with these skeptical remarks about taxonomy: “tendendum [est] in rerum nominibus componendis non esse necessarium ut differentia generi superaddita sit tota rei forma, quam docent philosophi esse unum aliquid simplex, occultum (ipsi nesciunt quid) latitans invisibiliter (et etiam inintelligibiliter) in rebus, ad quam inveniendam nullum acumen penetrare potest. Verum hoc est commentum absurdum: omnium enim rerum quarumcumque formae sunt inadaequate cognitae: nam quicquid cognoscimus de re aliqua est pars eius formae. Dico est pars formae: forma enim nihil est aliud quam aggregatum omnium accidentium alicuius rei. Sunt etiam formae omnes inadaequate nobis incognitae, nam multa sunt accidentia, qualitates, potentiae, respectus, etc. in rebus (etiam iis quarum naturae sunt nobis maxime notae) quae a nobis non intelliguntur. Satis igitur est si differentia superaddita generi sit tale accidens quod distinguat speciem ab omnibus aliis” (ch. 5 pp. 44-45). Dalgarno here dismisses as “absurd” the commonplace doctrine of the “philosophers” that the forms of things are hidden from us. On the contrary, whenever we grasp any aspect of a thing we are grasping part of its form, inasmuch as “the form is nothing more than the aggregate of all its accidents.” Given this picture, it immediately follows that there will be practically an infinite number of *infimae species*, because any difference in accidents will entail a partial difference in form. It also follows that any attempt to classify will be arbitrary, because it will require privileging one or another accident.

For further discussion of Dalgarno’s views see Slaughter, *Universal Language* pp. 141-53. Although she does not recognize Dalgarno as a precursor to Boyle and Locke, her work nicely situates Dalgarno’s views in the essentialist context of its time. It is particularly interesting to compare Dalgarno to the highly influential work of John Wilkins, whose own universal language is predicated on a thoroughgoing realism (see Slaughter pp. 162-63). It is very plausible to think that Locke’s views about essence were written under the influence of both Dalgarno and Wilkins (see Slaughter pp. 198-99).

Boyle (seemingly unlike Locke) is well aware that the scholastics commonly express their own doubts about our grasp of essences – indeed, he quotes some representative passages at the head of a section of *Origin* (V:339 [printed as a footnote in Stewart p. 54]). That his own distinctive doubts about our conventional taxonomies are grounded in his chemical research can be seen in the following passage: “And indeed by reason of the unsettled notion and almost arbitrary use of the word, *Form*, I have observed it to be so uncertainly applied to the constituting of the distinct *classes* or kinds of bodies, that I have doubted whether diverse of those forms by which such kinds are constituted be not a kind of *metaphysical conceptions*, by virtue of which bodies very differing in nature are comprised in the same denomination, because they agree in a fitness for some *use*, or in some other thing that is common to them all (as whether a bullet be silver, or brass, or lead, or cork, if it swing at the end of a string, it is enough to make it a *pendulum*), and whether a burned body be chalk, or rag-stone (which is very hard and coarse) or alabaster, which is a soft and fine stone, or an oyster-shell, or a cockle-shell, or a piece of coral; yet if it have been calcined to whiteness it is lime, rather than such true *physical forms*, as are said to make the bodies that have forms of the same denomination to be of the same specific nature. However, these forms seem to be very generical things, and more such than is commonly heeded. And I have also sometimes questioned, whether some of those things, upon whose score men constitute bodies in this or that species or classes, be so properly the true and intrinsic forms of those Bodies, as certain states of matter, wherein bodies very differing in nature may agree. As water, wine, and I know not how many other differing liquors may each of them apart be made by congelation to pass into that sort of body we call ice. And not only the tallow and grease of animals, and the expressed oils and spirits of fermented vegetables (some whereof differ exceedingly among themselves), but also (as I have tried) diverse mineral and even metalline concretes may be made (some of them without destruction of their nature) to pass into that class of body we call flame” (*Origin* V:472 [not in Stewart]).

Locke’s views about how we classify substances into kinds go back to a long discussion in the B Draft of 1671 (§§72-87), which lacks the terminology of real and nominal essences but sets out all the core ideas of what he would eventually publish. See also entries in Locke’s journal from 1676 (ed. Aaron and Gibb, p. 83) and 1677 (*ibid.*, pp. 98-99).

By far the longest chapter of the *Essay* is II.21, “Of Power.”

Locke signals that he is coining the terms ‘real essence’ and ‘nominal essence’ at *Essay* III.6.2, when he speaks of using “a peculiar name.” See too Leibniz, *Nouveaux essais* p. 293, who complains about Locke’s “very novel mode of expression. People have certainly spoken of ‘nominal’ definitions and ‘causal’ or ‘real’ ones, but so far as I know they have not until now spoken of essences other than real ones.”

² According to Hacking (“Tradition of Natural Kinds” p. 111), the term ‘natural kind’ arises in the nineteenth century, in the work of Mill, Whewell, and Venn.

Oresme's discussion of generation and corruption is striking for its skeptical orientation: he takes seriously the worry of whether we can have any knowledge in this domain in a way that occurs to neither earlier nor later scholastics. Even so, the skepticism is ultimately quite limited, e.g.: "licet sit certum et evidens secundo modo [viz., per experientiam] that aliqua generantur et corrumpuntur, tamen saepe dubium est de hora, sicut patet experientia de corruptione hominis, et similiter de generatione" (*In De gen. et cor.* I.1, p. 7); "Correlarium tertium: quod sunt aliqua de quibus dubium est utrum sit corruptio vel non, sicut de mutatione musti in vinum et vini in acetum, et ideo dubium est utrum ista nomina sint de genere substantiae vel accidentis" (*ibid.*). Marsilius of Inghen's discussion of this material (*In De gen. et cor.* I.2) follows Oresme quite closely.

On Boyle's willingness to embrace natural kinds, see Jones, "Boyle, Classification." The earlier passage from *Origin* that Boyle alludes to in the long passage quoted in the main text occurs at V:322-23 (Stewart pp. 37-39). It focuses mainly on scholastic substantial forms, and the gap between such forms and accidents, and only hints at Boyle's conventionalism regarding our ordinary taxonomy itself.

For a good discussion of Locke's views regarding natural kinds, which usefully distinguishes between the empirical question of clustering and the metaphysical question of essences, see Stuart, "Locke on Natural Kinds." See too Conn, "Locke on Natural Kinds," which similarly stresses the sense in which Locke does endorse natural kinds.

Locke's commitment to natural kinds comes out particularly clearly in the zeal he expresses for the project of refining our nominal essences in a more satisfactory way. In particular, he proposes a "Dictionary of Natural History" (III.11.25). On this see Ayers, "Locke versus Aristotle" pp. 264-65, as well as Shapiro, "Toward Perfect Collections."

27.5. *Anti-Essentialism I: Hobbes and Conway*

For scholastic authors, the metaphysical doctrine underlying natural kinds is the thesis of substantial form. One can believe in natural kinds without endorsing substantial forms, of course, and one can endorse substantial forms without supposing that material substances cluster into natural kinds at all. But in fact the standard scholastic view held that bodies cluster into natural kinds because they have similar substantial forms, which in turn account for the superficial similarities that we in practice use to demarcate species and genera. Scholastic substantial forms are similar but, as stressed in the previous section, they are not exactly alike. The differences among individuals within a species precludes that possibility. *A fortiori*, substantial forms are not universals. Although readers sometimes take the pervasiveness of nominalism among post-scholastic authors as an important point of difference with their scholastic rivals, in fact it was rare for scholastics to depart from nominalism, if by that term we mean simply the rejection of real universals: forms or properties that exist wholly in more than one individual. (On nominalism in the broader

scholastic sense, see §4.?) For the vast majority of scholastics, including Aquinas, Scotus, and of course Ockham, only concepts are universal, and they are so only in the sense that they stand for many things. Hence the scholastic doctrine of substantial form, or of essences, is a doctrine of property instances: non-repeatable attributes of individual substances.

To deny substantial forms – as nearly all of our seventeenth-century post-scholastic authors do – is to deny that material substances are individuated and sustained by a real physical entity, with its own causal powers, not supervening on the geometric–kinetic features of the matter it informs. Our present interest is not precisely in that issue, however, but in the broader issue of whether material substances have essences at all. This is a broader issue because having a substantial form is just one way in which a thing might have an essence. Now, to be sure, the term ‘essence’ gets used in many different ways. During our four centuries, however, there are two senses in particular that are of overwhelming importance: a *defining* sense and an *explanatory* sense. A defining essence, as I will use that phrase, is that which makes a thing be what it is – that in virtue of which it is a thing of a certain kind. An explanatory essence is the most basic intrinsic principle accounting for the distinctive character of the substance. Here one might want to introduce a further distinction on the side of the defining essence, between the essence as what makes a thing exist, and the essence as what makes a thing be of a certain kind. In fact, however, it is an important feature of our period that these two senses never come apart. A thing’s nature, in the sense of its kind or species, is always treated as essential to the thing’s existence. Since the possibility of treating species membership as non-essential was not regarded as an open possibility, both existence and existence-as-a-kind can be lumped together.

For scholastic authors, substantial forms count as essences in both the defining and the explanatory sense. (Here I set aside the possible role of common nature in a thing’s

essence [see §24.?).) It is, first, in virtue of having a certain substantial form that a given substance is the kind of thing it is – horse, human being, oak tree, etc. Even if in practice we lack access to substantial forms, and so sort material substances on the basis of their accidents, still what makes it the case that a given substance is a thing of a given kind is its substantial form. Second, the reason we can use accidental properties to track the substantial forms of things is that this form serves as an explanatory essence as well, serving as the internal principle that accounts for those accidents. It is crucial to the scholastic theory that substantial forms be essences in each of these senses. Without the explanatory role, the underlying epistemic picture would be jeopardized, because there would no longer be any causal route by which we might get from accidents to essence. Also jeopardized would be the theory's underlying realism: that there is a fact of the matter about what a thing is. The reason the defining essence of a thing is not chosen simply as a matter of convention is precisely that it is the substance's most basic intrinsic explanatory principle (see §24.?).¹

Given the close connection between these two notions of essence, it is easy one short way around the scholastic account: one might simply deny that material substances have this sort of basic intrinsic principle. Without an explanatory essence, it becomes unclear what would justify belief in some defining essence, and the whole theory would collapse. This is how Thomas Hobbes argues against scholastic essentialism. As we have seen (§7.1), Hobbes categorically rejects the notion of accidents, and with it rejects the substance–accident distinction. According to Hobbes's ontology, there are only substances, some larger and some smaller. Nothing else has a place in his ontology: no forms, no accidents, no modes, and – in particular – no essences. When we use such metaphysical language to talk about bodies, we are speaking of nothing more than “the manner of our conception of body” (*De corpore* 8.2). Talk of essences is simply one more manner of conception:

Now that accident for which we give a certain name to any body, or the accident which denominates its subject, is commonly called the ESSENCE thereof; as rationality is the essence of a man; whiteness, of any white thing, and extension the essence of a body. And the same essence, inasmuch as it is generated, is called the FORM. Again, a body, in respect of any accident, is called the SUBJECT, and in respect of the form it is called the MATTER. (*De corpore* 8.23).

Hobbes is systematically deconstructing scholastic terminology, as no more than various ways of conceiving of body. When we conceive of that by which a body possesses “a certain name” – that is, as it falls under some kind – we use the term ‘essence.’ If we focus on that essence as something generated or corrupted, we use the term ‘form.’ If the body is conceived of as the possessor of the form, then we use the term ‘matter.’ Hobbes’s point is that these are all just ways of talking about one and the same body, variously conceived. As he puts it even more starkly in his exchange with Bishop Bramhall (1668), “essence and all other abstract names are words artificial belonging to the art of logic, and signify only the manner how we consider the substance itself” (IV:308).

Hobbes rejects essence in both the defining and explanatory sense. Because all his ontology recognizes is substance, he has no way to make sense of some intrinsic explanatory principle. The only thing an essence could be, in the explanatory sense, would be some sort of dominant corpuscle or organ, governing the whole – perhaps not an absurd view, but not one Hobbes is sympathetic to. He is equally adverse to postulating any sort of defining essence. Leibniz would later criticize Hobbes for supposing that all definitions are nominal, none real. It is indeed an alarming position to take, because if there is no objective fact about what a thing is, then it is very difficult to resist sliding still farther into what I am calling metaphysical chaos. Without real defining essences, our familiar ontology of substances is thrown into doubt, because it would no longer seem to be an objective fact that *this* is a human being, and *that* is an oak tree. These become merely ways of conceiving things. It

becomes hard to see even how we can understand the notion of things going into and out of existence, since that too would seem to require some grasp of what things objectively are.

Although we might conventionally speak of generation and corruption, there would seem to be no objective basis to ground such claims. Amazingly – as we will see in the following two chapters – Hobbes embraces these consequences.²

Another instance of Hobbes’s approach can be found in Anne Conway. Her *Principles of the Most Ancient and Moral Philosophy* (written early 1670s; publ. 1690) is even more explicit than Hobbes in rejecting defining essences. Or, more precisely, she accepts just three defining essences: God, Christ, and Creature:

The first reason is derived from the above mentioned order of things. I have already proved that there are only three such things: namely, God as the highest, Christ in the middle, and creature as the lowest order of all. This creature is just one entity or substance in respect of its nature or essence, as demonstrated above, so that it varies only according to its modes of existence. (7.1)

All creatures, then, including not only material substances but also human minds and angels, belong to the same kind, and so have the same essence. Indeed, more than that, creatures are merely modes of the “one entity or substance” (line 3) that Conway describes in the singular as “creature” (line 2). Hence there literally are only three things (*res*): God, Christ, and creature. Conway here refers back to the previous chapter, where she had set her view out in more detail:

The second thing to be considered is whether one species of things can be changed into another.

Here it must be observed as accurately as possible what accounts for the species of things being

3 distinguished from each other. For there are many species of things, which are commonly so called, but which differ from one another not in substance or essence but only in certain modes or

characteristics (*proprietas*). When these modes or characteristics are changed, that thing is said to

6 have changed its species. It is not its essence or entity that so changes, however, but only its mode of being – as when water does not change but remains the same, even when the cold coagulates that

which before had been fluid. When water changes into stone, there is no reason why we should
 9 suppose a change of substance to have occurred here any more than in the previous example of water
 changed into ice. Furthermore, when a stone is changed into softer, pliant earth, there is here too no
 change of substance. And so in all other changes that we are able to observe in things, the substance
 12 or essence always remains the same, and there is change only to its modes, so that a thing ceases in
 this mode and begins in some other mode. (6.3)

Conway's ontology is less austere than Hobbes's inasmuch as she accepts modes as distinct
 explanatory principles. But she is just as eager as Hobbes to resist giving special status to
 apparent differences in species. Where we take there to be a difference in essence, in fact
 there is only a difference in "modes or characteristics" (line 4). When water changes to ice,
 or stone to earth, there is no change of substance or essence, but only a change to the mode
 of the enduring stuff, and according to Conway the point can be generalized to "all other
 changes that we are able to observe in things" (line 11).

Quite strikingly, Conway applies this claim not only to bodies but also to minds. Her
 thesis that there is just one "creature" extends both to human minds and also to angels,
 because she takes both corporeity and spirituality to be modes rather than defining essences,
 and indeed regards the difference between them to be one of degree. Thus the first passage
 quoted above immediately continues with the remark that "among these modes one is
 corporeity, of which there are many grades, so that a thing may more or less approach to or
 recede from the condition and state of a body or spirit" (7.1). Aspects of reality are thus
 capable of becoming more bodily or more spiritual, from which Conway infers that there is
 no fundamental difference in kind here:

And indeed every body is a spirit, and nothing else, and differs not at all from a spirit, but in that it is
 darker. Therefore the grosser (*crassius*) it becomes, the more it becomes remote from the grade of
 spirit, so that the distinction here is only modal and gradual, not essential or substantial. (6.11)

In marked contrast to Descartes, then, who at least recognizes two essences in the created

realm – thought and extension – Conway thinks of body and spirit as mere modes. As she later remarks, this aspect of her view marks her as an “anti-Cartesian” (9.2). In refusing to see any fundamental divide between mind and body, her view is again reminiscent of Hobbes (see §16.?). But whereas Hobbes treats minds as bodies, Conway instead treats bodies as much more like minds. The “great error” of Cartesianism is to treat body as “a mere dead mass that not only lacks life and perception of every kind but also is entirely incapable, for all eternity, of acquiring these” (9.2). Conway – following the lead of her mentor Henry More – rejects Descartes’s mechanistic approach and insists that life and perception are everywhere in the natural realm.

Many interesting issues arise here regarding what it means to ascribe life and perception to all aspects of the created realm, and what it means for an aspect of creation to become “darker” or “grosser” and so less spiritual (as above). Reluctantly setting those issues aside, and focusing again on Conway’s anti-essentialism, we might identify two sorts of motivations for her radical view. First, although Conway is far from being an orthodox corpuscularian, she shares that movement’s suspicions regarding there being anything in the created realm that could play the role of an essence, either explanatory or defining. Just as nothing is gained or lost when water turns into ice, so nothing is gained or lost when water turns into stone (lines 7-10 above). Every body “is nothing other than an innumerable multitude of bodies”; every spirit “is likewise an innumerable multitude of spirits united together in a given body” (6.11). Although these multitudes are organized in a certain way, there is no further thing, an essence, that serves to define these aggregates. Second, Conway holds that anything in the material realm can be converted into anything else, without thereby ceasing to go out of existence. Everything is wholly mutable, and nothing ever goes out of existence, no matter how it changes. There is then no need to invoke essences to

serve as the boundary markers of a thing's persistence conditions.

Conway is not denying natural kinds, no more than Hobbes is. There is nothing in their thought that requires supposing the variation among creatures to be smoothly distributed without clustering. Indeed, for all they say, they might embrace the sort of naïve, highly regimented view of kinds that Boyle and Locke criticize. Their interest lies elsewhere: on the metaphysical or causal underpinnings of standard natural kind talk. What both want to insist on is that our talk of species and essences admits of no intrinsic explanation beyond the simple fact that one aspect of reality has this mode of being and another aspect of reality has another mode of being. For both, the created world is a fluid and homogeneous realm – not without variation from region to region, of course, but without any *essential* differences from one part to another.³

¹ It is very common to suppose that Locke's rejection of universals (e.g., at *Essay* III.3.1) is playing an important role in his attack on Aristotelianism, even if Locke himself does not treat that issue as part of his disagreement. See, e.g., Ayers, "Locke versus Aristotle" p. 254: "his argument hinges on the denial of real universals and on the intuitive ontological principle that everything that exists is particular. That, if accepted, is enough to refute Aristotelianism...."

For the scholastics against universals, see e.g. this characteristic remark of Aquinas: "universalia secundum quod universalia non sunt nisi in anima" (*In De an.* II.12.144). On Aquinas's view, see Leftow, "Aquinas on Attributes." For Scotus, see Noone, "Universals and Individuation," p. 111: "the community of the common nature is not at all universality in the robust sense." For an overview of scholastic views, see Klima, "Medieval Problem." Genuine realism, in the sense of a full-blooded defense of universals *in re*, can perhaps be found in Walter Burley, and in John Wyclif and some of his followers, although even then these universals are generally regarded as not really distinct from particulars (see Conti, "Realism" and "Categories and Universals").

² Hobbes attacks the scholastic doctrine of essences at *Leviathan* 46, and at *De corpore* 3.4. See also *Six Lessons*, which refers back to *De corpore* 8.23, "where I define what it is we call essence, namely, that accident for which we give the thing its name" (VII:221).

Leibniz criticizes Hobbes as follows: "et hac ratione satisfacit Hobbio, qui veritates volebat esse arbitrarias, quia ex definitionibus nominalibus penderent, non considerans realitatem definitionis in arbitrio non esse, nec quaslibet notiones inter se posse coniungi" (*Schriften* IV:425; *Essays* p. 26).

³ Conway's *Principles* was written in English, probably between 1271 and 1275. It was translated into Latin (perhaps by Henry More), after which time the original English version was lost. The Latin version was published in 1690, and then retranslated back into English, in which form it was republished in 1692.

For More's anti-mechanistic vitalism, see Gabbey, "Henry More and the Limits of Mechanism." On the relationship between More and Conway, see Hutton, *Anne Conway*.

Conway is aware of the close relationship between herself and Hobbes regarding essences: "I grant that all creatures are originally one substance, from the lowest to the highest, and consequently convertible or changeable from one of their natures into another. And although Hobbes says the same, that does not prejudice its truth" (9.4).

Here one might wonder whether Conway really intends the very strong view I ascribe to her in the main

text: that the entire created realm is just a single substance. For what she says in the passage just quoted is that “all creatures are *originally* one substance,” a claim that seems to imply they are no longer one substance. Since she uses this same expression elsewhere – e.g., at 8.5: “spirit and body are originally of one nature and substance” – this worry has to be taken seriously. Still, I am inclined to put more weight on the passages in the main text, which seem to be quite clear in their claims. So far as I can find, no one has made a careful study of Conway’s views in this area.

27.6. *The Resilience of Real Essences*

The anti-essentialism of Hobbes and Conway was not the dominant post-scholastic view. This might seem surprising, given the dominance of corpuscularianism. But even though seventeenth-century critics of scholasticism generally reject the reality of substantial forms, they nevertheless often hold onto the idea of essences, in very much the scholastic sense. One finds the notion of a defining essence, for instance, in authors who are thoroughly committed to a corpuscularian account of body. Antoine Arnauld and Pierre Nicole, for instance, hold that “the form is what renders a thing such and distinguishes it from others, whether it is a being really distinct from the matter, according to the opinion of the School, or whether it is only the arrangement of the parts. It is by the knowledge of this form that one must explain its properties” (*Port-Royal Logic* III.18, p. 240). This passage begins by invoking form as a defining essence, and ends by alluding to its role as an explanatory essence, as that which accounts for the various properties of the thing. Both can be understood in a corpuscularian context, as the passage makes clear, as nothing above “the arrangement of the parts.” Such an arrangement counts as a real essence provided it make a thing be what it is, as a thing of a certain kind (defining essence) and/or accounts for (enough of) the various further characteristics of a thing.

Gassendi is another example of a corpuscularian who takes for granted that there will be something that plays the functional role of substantial form:

... the form, which through generation arises in matter and which, remaining in the generated thing,

accounts for its being constituted in a certain genus of things and being denominated by that genus, for its being distinguished from other things, for its having these and not other properties, and for its eliciting these and not other actions.... (*Syntagma* II.1.7.3, I:466b)

For Gassendi there is no question of whether material substances have such forms, but only of whether or not they are distinct substances, over and above his atomistic framework. His answer is that only the rational soul counts as a substantial form in the non-reductive scholastic sense. Although other material substances have a form – and if they are alive this form can be referred to as a soul – such forms are merely qualities or modes that can be understood in wholly corpuscularian–mechanistic terms.

The doctrine of real essences is in Boyle, too, again in a wholly corpuscularian sense: And so, though I shall for brevity's sake retain the word *form*, yet I would be understood to mean by it not a real *substance* distinct from matter, but only the matter itself of a natural body, considered with its peculiar manner of existence, which I think may not inconveniently be called either its *specific* or its *denominating state*, or its *essential modification* – or, if you would have me express it in one word, its *stamp*. (*Origin* V:324; Stewart p. 40)

Here Boyle shows himself willing to hold onto the notion of form as a defining essence, even if he prefers to give it the solidly Anglo-Saxon term ‘stamp.’ Elsewhere it is clear that he accepts explanatory essences as well:

And if upon further and exacter trial it appears that the whole body of the Salt-Petre, after its having been severed into very differing parts by distillation, may be adequately reunited into Salt-Petre
 3 equiponderant to its first self, this experiment will afford us a noble and (for ought we have hitherto met with) single instance to make it probable that that, which is commonly called the form of a
 6 concrete, which gives it its being and denomination, and from whence all its qualities are in the vulgar philosophy, by I know not what inexplicable ways, supposed to flow, may be in some bodies but a
 modification of the matter they consist of, whose parts, by being so and so disposed in relation to
 each other, constitute such a determinate kind of body, endowed with such and such properties;
 9 whereas if the same parts were otherwise disposed, they would constitute other bodies of very

12 differing natures from that of the concrete whose parts they formerly were, and which may again result or be produced after its dissipation and seeming destruction, by the reunion of the same component particles, associated according to their former disposition. (*Certain Physiological Essays* II:107-8)

Boyle rejects the “inexplicable” scholastic doctrine of substantial form, of course (lines 4-6), but he embraces the notion that there is *something* in a body that accounts for “such a determinate kind of body, endowed with such and such properties” (line 8). This thing, which he elsewhere calls the “texture” of a body, is wholly corpuscularian in character – it is Boyle after all who coined that term – but nevertheless it strikingly preserves the scholastic notion of essence.

That seventeenth-century authors would continue to postulate explanatory essences might seem particularly surprising, but as I have stressed the two notions of substance are closely connected: it is *because* bodies have an explanatory essence that we can speak of their having an objective defining essence. To be sure there might be other ways to ground the notion of a defining essence, but this was the leading strategy, throughout our four centuries. Although there were exceptional cases like Hobbes and Conway, the doctrine of real essences, in both the defining and explanatory senses, was generally taken for granted: one finds it in physicists like William Harvey, chemists like Boyle, and in philosophers like Descartes and Locke, who indeed coins the term ‘real essence’ precisely to distinguish between his theoretical commitment to genuine essences and his epistemological doubts over whether what we arrive at, nominal essences, corresponds to them in any way (see below). George Berkeley indicates that consensus on this score endured through the turn of the eighteenth century: “One great inducement to our pronouncing ourselves ignorant of the nature of things is the current opinion that everything includes within itself the cause of its properties: or that there is in each object an inward essence, which is the source whence its

discernible qualities flow, and whereon they depend” (*Principles* n. 102).

Even opponents of scholasticism by and large take themselves to need essences, and the reasons for this are clear. As the cases of Hobbes and Conway illustrate, the rejection of essences raises a host of extremely problematic metaphysical issues. For given the generally accepted linkage between a thing’s essence and its identity, the rejection of essences makes a complete mess out of questions of individuation. What makes this region of the corporeal realm one thing, and that region another? Without a theory of essence, it is hard to know what to say. Supposing we do arrive at an answer to that question, we then face diachronic questions: in virtue of what is this thing the same over time, and under what conditions does it cease to be the same thing? Both Hobbes and Conway reach the radical conclusion, regarding this second question, that in the strictest metaphysical sense nothing ever does cease to exist (for Hobbes, see §28.4). But that then makes all the more puzzling the initial question of synchronic individuation, because we now need to reconsider just what the basic entities are that we are trying to individuate. Conway seems again to take a very radical view, that strictly speaking there is only one created substance. Monism does indeed make these hard questions go away, but by most people’s lights that is quite a price to pay. Yet what is the alternative? The atomist might revert to his atoms, as the only true existents, but that seems an equally high price. And what if one does not postulate atoms? There is, in short, a veritable clusterfuck of problems here, and one might well say that the most interesting philosophical developments of the later seventeenth century – to be sketched over the following two chapters – revolve around the various attempts that were made to resolve them.

Boyle’s views on essences are influenced in a distinctive way by the explanatory holism considered in §26.?, according to which explanations must take into account not only the intrinsic features of a particular substance, but also the environment of that substance. Thus he writes: “I think it is a mistake to imagine (as we are wont

to do) that what is called the *nature* of this or that body is wholly comprised in its own matter and its (I say not *substantial*, but) *essential form*, as if from that or these only all its operations must flow” (*Free Enquiry* X:469; Stewart p. 190).

On the term ‘corpuscularian,’ see the notes to §1.2.

For Boyle’s use of ‘texture,’ see *Origin* V:316; Stewart p. 30: “And when many corpuscles do so convene together as to compose any distinct body, as a stone or a metal, then from their other accidents (or modes), and from these last two mentioned [viz., posture and order], there does emerge a certain disposition or contrivance of parts in the whole, which we may call the *texture* of it.” A good discussion of texture in Boyle can be found in Alexander, *Ideas, Qualities, and Corpuscles* pp. 60-88. The term goes back at least to Francis Bacon: “... veras corporum texturas et schematismos unde omnis occulta atque (ut vocant) specifica proprietas et virtus et rebus pendet” (*Novum Organum* II.vii). See also Gassendi, e.g., *Syntagma* II.1.7.4, I:472a – “textura” – and the discussion of texture in Lolordo, *Pierre Gassendi* pp. 157-58: “thus, texture plays more or less the same role in Gassendi’s atomism that form plays for Aristotelians.” Compare Jones, writing about Boyle: “all the functions of form are performed by natural corpuscular structure” (“Boyle, Classification” p. 182). As I stress in my “Form, Substance, and Mechanism,” Boyle uses texture not only as a defining and explanatory essence, but also as what we might call a unifying essence, inasmuch as it is meant to account for the unity and persistence of material substances (see esp. *Origin* V:343-44, 349-51; Stewart pp. 58, 65-66).

For Harvey’s commitment to explanatory essences, see his protracted discussion of when one should say that the soul comes onto the scene, in the development of egg into chick. He reasons: “si [anima] insit [ovo], proculdubio eorum omnium, quae naturaliter in ovo reperiuntur, principium et efficiens erit” (exerc. 47, p. 266). This presupposes that the soul will play the role of an explanatory essence.

On Descartes, see his disparaging remarks to Regius regarding substantial forms, followed by this: “Contra autem a formis illis essentialibus, quas nos explicamus, manifestae ac mathematicae rationes redduntur actionum naturalium, ut videre est de forma salis communis in meis *Meteoris*” (III.506). What he had done in the Third Discourse of the *Meteorology* was to give a detailed account of how the microstructure of salt (and salt water) gives rise to its various sensible properties. More generally, compare how *Principles* I.53 describes the principal attributes of thought and extension: “et quidem ex quolibet attributo substantia cognoscitur; sed una tamen est cuiusque substantiae praecipua proprietas, quae ipsius naturam essentiamque constituit, et ad quam aliae omnes [proprietates] referuntur.” This exactly describes both the defining and the explanatory essence.

Chauvin, speaking generally of how the “recentiores” define ‘forma,’ writes: “Unde porro inferunt quod licet nullae dentur formae *substantiales*, dantur tamen *essentiales*, quibus singulis singulae corporum species praeditae sint, quibusque singulae id ipsum sint, quod sunt, et a caeteris omnibus distinguantur.... [N]on incommode eam [formam] definere liceat, per id quo unumquodque corpus in certa specie constituitur, a caeteris omnibus distinguitur, et naturae suae convenienter operatur” (*Lexicon* p. 261a).

27.7. *Anti-Essentialism II: Locke*

Locke’s commitment to real essences in both the defining and the explanatory sense is well known. Since it had to be anticipated in some detail back in Chapter 9, I will describe it only briefly here. The theory of real essences encompasses both the defining and explanatory sense. As Locke explains, in distinguishing between real and nominal essences:

First, *essence* may be taken for the very being of any thing, whereby it is what it is. And thus the real internal, but generally in Substances, unknown constitution of things, whereon their discoverable qualities depend, may be called their *essence*. This is the proper original signification of the word....

(*Essay* III.3.15)

The passage specifically describes both the defining and explanatory sense of essence. Given Locke's empiricist scruples, one might suppose it unlikely that he wants to be read as having any great confidence in the existence of such real essences (or "real constitutions," as he sometimes calls them). And, to be sure, when he presents the theory, he often stresses its status as a widely accepted hypothesis:

That men (especially such as have been bred up in the learning taught in this part of the world) do suppose certain specific essences of substances, which each individual in its several kinds is made conformable to, and partakes of, is so far from needing proof, that it will be thought strange, if any one should do otherwise. (*Essay* II.31.6)

The particular parcel of matter which makes the ring I have on my finger is forwardly [\approx readily], by most men, supposed to have a real essence whereby it is *gold*; and from whence those qualities flow, which I find in it, *viz.* its peculiar colour, weight, hardness, fusibility, fixedness, and change of colour upon a slight touch of mercury, *etc.* (ibid.)

I know nobody that every denied the certainty of such real essences or internal constitutions, in things that do exist. (to Stillingfleet, IV:82)

Yet Locke appears to be quite in agreement with this consensus; he never shows any doubt that substances have such essences. He says as much to Stillingfleet: "I easily grant there is reality in them; and it was from that reality that I called them real essences" (IV:83). He says it to Molyneux: "This I do say, that there are real constitutions in things from whence those simple ideas flow, which we observed combined in them" (*Correspondence* n. 1592). And he says it even in the *Essay*: "'tis past doubt, there must be some real constitution on which any collection of simple ideas co-existing must depend" (III.3.15; cf. III.10.21).

Yet although it is clear that Locke embraces essence in the usual sense, his doing so makes for a considerable puzzle, given the radical anti-essentialism of the *Essay*. For at the same time that Locke embraces real essences, he dismisses the possibility of ascribing non-conventional essential properties to material substances. Thus, "to talk of specific differences

in nature, without reference to general ideas and names, is to talk unintelligibly” (III.6.5).

This is to say that we can place things in a species only according to our conventional nominal essences. The stunning consequences of that claim are brought out in this notorious passage:

That *essence*, in the ordinary use of the word, relates to *sorts*, and that it is considered in particular beings no farther than as they are ranked into *sorts*, appears from hence: that take but away the abstract ideas by which we sort individuals, and rank them under common names, and then the thought of any thing *essential* to any of them instantly vanishes: we have no notion of the one without the other: which plainly shows their relation. It is necessary for me to be as I am; God and nature has made me so. But there is nothing I have, is essential to me. An accident, or disease, may very much alter my colour or shape; a fever, or fall, may take away my reason or memory, or both; and an apoplexy leave neither sense nor understanding, no nor life. Other creatures of my shape may be made with more, and better, or fewer, and worse faculties than I have, and others may have reason, and sense, in a shape and body very different from mine. None of these are essential to the one, or the other, or to any individual whatsoever, until the mind refers it to some sort or *species* of things; and then presently, according to the abstract idea of that sort, something is found *essential*. (III.6.4)

The implications of this passage are staggering. As surely as either Hobbes’s or Conway’s versions of anti-essentialism, Locke’s view threaten the sort of metaphysical chaos described at the start of this chapter, and again at the end of the previous section, according to which we lose a grip on what material substances are and how they are individuated. Now it is one of the most remarkable and impressive features of Locke’s metaphysics that he proposes – in the second edition of the *Essay* – a bold and innovative strategy for blocking this chaos. I will turn to that famous account of identity in Chapter 29. In the last few pages of this chapter, however, I want to concentrate on how Locke arrives at the anti-essentialism that lies behind his theory of identity. For in contrast to so many discussions of these issues during our period – including not just essence-realists of all kinds but even anti-realists such

as Hobbes and Conway – Locke has an *argument* for his view. Moreover, it is quite a powerful argument, because it takes off from premises that the essence-realist is very likely to accept.

Given that Locke embraces real essences, one might well suppose that the only sort of anti-essentialist argument Locke could make is epistemic: that we are not *justified* in ascribing essential properties to individuals because we do not grasp their real essences.

Some passages suggest this sort of reading.

3 Fifth, the only imaginable help in this case would be, that having framed perfect complex ideas of the properties of things, flowing from their different real essences, we should thereby distinguish them into species. But neither can this be done: for being ignorant of the real essence itself, it is impossible to know all those properties that flow from it, and are so annexed to it, that any one of them being away, we may certainly conclude, that that essence is not there, and so the thing is not of that species.

6 We can never know what are the precise number of properties depending on the real essence of *gold*, any one of which failing, the real essence of *gold*, and consequently *gold*, would not be there, unless we knew the real essence of *gold* itself, and by that determined that species. (III.6.19)

This passage comes at a crucial juncture. Locke had just offered a series of conditions that would have to be satisfied – and cannot be satisfied – for our classifying substances into species in accord with their real essence. This is the fifth and last condition: we would have to grasp all the properties of things (lines 1-3). But, as Locke goes on to argue, we cannot do this without grasping the real essence itself (lines 3-5). And since we cannot do that, we cannot distinguish individuals according to their real kinds. Evidently, this ‘cannot’ denotes epistemic impossibility: it is not that there is no fact of the matter about such kinds, but only that we will never be able to grasp it.

This seems like a perfectly straightforward reading of what Locke is up to. But it does not seem to fit with the passages of the previous paragraph, according to which it is not

only beyond us to sort individuals into their real kinds, but positively “unintelligible,” because outside of our conventional classifications individuals simply have no essential properties: “there is nothing I have, is essential to me” (line 6 above). Those earlier passages would make good sense if Locke were an anti-essentialist of the Hobbes–Conway stripe. But given that he endorses real essences, it is hard to see what he is up to.

Locke does seem to be committed to the claim that real essences are objectively essential feature of things. By this I mean, more precisely, that Locke endorses the view that, necessarily, a given material substance exists if and only if its real essence exists. It is hard to see what else he could mean when he says, as quoted above, that “*essence* may be taken for the very being of any thing, whereby it is, what it is” (III.3.15). If that seems insufficiently clear, consider what he says four paragraphs later:

That such abstract ideas, with names to them, as we have been speaking of, are essences, may farther appear by what we are told concerning essences, viz. that they are all ingenerable and incorruptible.

3 Which cannot be true of the real constitutions of things, which begin and perish with them. All things that exist, besides their author, are all liable to change; especially those things we are acquainted with, and have ranked into bands, under distinct names or ensigns. Thus that which was grass today is

6 tomorrow the flesh of a sheep; and within few days after, becomes part of a man: in all which, and the like changes, it is evident, their real essence, i.e. that constitution whereon the properties of these several things depended, is destroyed, and perishes with them. (III.iii.19)

This is intended as an argument for treating our “abstract ideas” (line 1) as genuine, albeit nominal, essences. The point is that they satisfy a feature that “we are told” essences ought to satisfy: being “ingenerable and incorruptible” (line 2). For our purposes what is interesting is not this Platonic take on what an essence ought to be, but Locke’s insistence that real essences are not like this, because they “begin and perish” (line 3) with the “things” – that is, substances – to which they belong. In a case of change from grass to sheep-flesh to human-

flesh, we have a corresponding change of real essence as well. This commits Locke to a certain sort of realism: there are objective facts about what the substances are in the material realm, and when they come into and go out of existence. Our grasp of those facts may be quite limited, but because of Locke's confidence in real essences, he is committed at least this far to a realistic ontology of material substances.

This makes it all the harder, of course, to understand how Locke can regard it as “unintelligible” to speak of essences in any objective sense – that is, apart from our conventional scheme of nominal essences. For if the reading just offered is correct, there is a perfectly robust sense in which Locke is committed to real, non-conventional, essential properties. Here is where his interesting argument comes in. To understand that argument, one needs to keep in mind the doctrine of real essences as it was understood throughout our period. According to that doctrine, as I have stressed repeatedly, the essence of a given substance explains all of the intrinsic accidents of that thing (see esp. §24.?). This includes the *propria*, of course, which are those accidents distinctive of a given species, but it also includes accidents that are idiosyncratic of a particular individual (provided those accidents have an internal rather than external cause). It is clear that Locke understands the doctrine of real essence in this sense. For he describes real essences as the cause not just of the “properties” of a thing – by which he means the *propria* – but more generally of all a thing's “discoverable qualities” (III.3.5), or “sensible qualities” (III.10.21), or “simple ideas” (III.3.15). It is not at all surprising that Locke thinks this, because – as he himself stresses – this is the absolutely standard seventeenth-century notion of what an essence is.

With this understanding of essence in mind, Locke's argument can take shape. Suppose we are skeptical in the Boyle–Locke manner about whether our actual sorting into kinds has carved the world at the joints. In that case, we cannot help ourselves to these

“nominal” divisions in trying to determine what the essences of things are. We have to go individual by individual, and ask *What is the essence of that?* Locke himself puts this vividly in *Essay* III.6.19, the section quoted above where he allows that we *could* distinguish things into their true kinds if only we could grasp their real essences. Immediately after the text quoted above, he adds: “By the word *Gold* here, I must be understood to design a particular piece of matter; v.g. the last guinea that was coined.” One *must* speak this way, to satisfy Locke’s challenge, because otherwise one would be tacitly helping oneself to the nominal classifications that he is unwilling to depend on. So, take a particular “piece of matter.” Call that ‘gold,’ if you like. Ask yourself: What is its essence? To be sure, Locke agrees that it has a real essence, and so we always have that to go on, in principle, as the defining feature of the thing, without which it would not exist. But what else can we say? Supposing we set aside its various adventing dents and scratches, there is no ground whatsoever for focusing on some of the thing’s features as essential. Every such intrinsic aspect comes from its real essence, and so has an equal right to count as essential to the thing. The only way to discriminate between essential and non-essential features is by convention.

This reading of Locke’s argument might seem to clash with the notorious passage from *Essay* III.6.4 quoted above, where “there is nothing I have, is essential to me” (line 6). This seems like precisely the wrong thing to say, on my account. One can see, though, as Locke goes on, that this claim is shorthand for a more complicated thought that fits nicely with my understanding of his argument. For in the next section Locke presents the full thought on which the “nothing essential” remark rests:

For I would ask anyone, what is sufficient to make an essential difference in nature, between any two particular beings, without any regard had to some abstract idea, which is looked upon as the essence and standard of a species? All such patterns and standards, being quite laid aside, particular beings, considered barely in themselves, will be found to have all their qualities equally essential, and

everything, in each individual, will be essential to it, or, which is more true, nothing at all. (III.6.5)

This passage comes immediately after the sentence quoted earlier, that one speaks “unintelligibly” of specific differences independently of nominal essences. Here we get Locke’s argument for that claim: not that things in themselves have no essential qualities, but that they have *too many* essential properties to yield any sort of intelligible story about kinds. If we have to say that “everything” is essential, then we might as well say that “nothing” is essential (line 5), because we will have completely lost a grip on what it is we are trying to do with this talk of essences, which is to sort individuals into kinds.

That this is Locke’s argument is made fairly clear in III.6.39, where he offers an analogy to watches. Describing in detail the various design differences between individual watches, he remarks that, for most of us, they are all watches. Still, there are real differences here, analogous to real essences and their various derived qualities, and we might if we liked produce more fine-grained divisions:

It is certain, each of these has a real difference from the rest. But whether it be an essential, a specific difference or no, relates only to the complex idea to which the name *watch* is given. . . . But if anyone will make minuter divisions from differences that he knows in the internal frame of watches, and to such precise complex ideas give names that shall prevail, they will then be new species to them who have those ideas with names to them. . . .

Locke then applies the analogy to natural substances:

Just thus, I think, it is in natural things. Nobody will doubt that the wheels or springs (if I may so say) within, are different in a rational man and a changeling, no more than that there is a difference in the frame between a drill and a changeling. But whether one or both these differences be essential, or specific, is only to be known to us by their agreement or disagreement with the complex idea that the name *man* stands for.

The point is conceptual, not epistemic. Even if we knew the real essence of a particular drill (a baboon) – as the experts do in the watch case – there would be no non-arbitrary way to

say which of its features is essential to it, unless we want to say that *all* of its intrinsic features are essential. If we go down that road – which is the only objectively defensible road to go down – then not only will baboons be different from changelings (people with profound mental disabilities, esp. children), but baboons will not even be of the same kind as each other, unless we could find two baboons that were exactly alike in every respect.

This must count as one of the best arguments we have encountered in this entire study: it is a valid argument from premises that Locke's opponents ought to accept, for a stunning conclusion. The key idea is that essences explain more than just a few defining features of a thing; instead, they explain the character of a particular substance all the way down to the fine-grained, individual details. Given this background assumption, Locke's argument is devastatingly effective, because Locke is just flat-out right that – if this is what an essence does – then there is no non-arbitrary way to pick out certain of those features as essential and others as purely accidental. The distinction between *propria* and pure accidents collapses. Moreover, the key assumption is one that Locke's opponents are under considerable pressure to maintain, because – as stressed earlier – it is precisely this robust explanatory story that grounds the belief that material substances in fact have objective essences. Put in other terms, we can think of Locke's argument as a dilemma. If essences are robustly explanatory in this all-the-way down sense, then there is no way to discriminate between *propria* and pure accidents, and so the very notion of essential properties becomes incoherent or trivial. If, on the other hand, we deny that essences are robustly explanatory, and instead say that a thing's essence explains only a few select, essential features of the thing, then we need a story about why *that* should count as the essence, rather than some other aspect of the thing that explains various other, allegedly non-essential features. Again, such a decision would have to be conventional.

The dilemma does not block every possible theory of essences, only those that depend on the notion of an explanatory essence. Modern biologists, for instance, might advance quite different arguments for essentialism and species membership (such as, e.g., historical facts about reproductive communities). But for accounts based on the notion of an explanatory essence – which includes almost every author over our four centuries – the argument is devastating. The only way to resist it is to insist that our ordinary kind distinctions track the real essences of things. If – contra Locke – one supposes that this is so, then one can study what members of a species have in common and readily reach conclusions about what is and is not essential to the species – or, at least, know what the *propria* are and what the pure accidents are. Locke’s genius was to see that the prevailing theory of essentialism crucially depends on confusing nominal essences with real essences. Once one sees not just that in fact our nominal essences probably do not track the real essences, but that furthermore – given the variation among individuals – they *could not* exactly track those real essences, the standard doctrine of essentialism is revealed to be merely a matter of convention.

Locke’s theory is therefore an original mix of essentialism and anti-essentialism, in which the anti-essentialism emerges as a consequence of the underlying essentialism. He does believe that material substances have objective essences that serve to individuate them, even if we cannot know what those essences are. And given the existence of such essences, there are objective facts about when two individuals belong to the same real kind, or when a substance begins or ceases to exist. But the nature of those facts is such as to quash all of our pretenses to grasp the essential natures of things. The only case in which two individuals could objectively be placed in the same kind is if they were qualitatively identical. In all other cases – which is to say, at least for practical purposes, all actual cases – sameness of kind can

only be conventional. Similarly, although an individual has essential features, the only objective story to be told requires treating all of an individual's features – at least its intrinsic ones – as essential. Any more selective story requires making conventional choices about which features we care about most, and how we want to categorize things. The realistic underpinnings of the theory, then, yield so little of how we take the world to be that, for all practical purposes, we can count Locke's theory as anti-essentialist. To be sure, it is anti-essentialist enough to wreak havoc on his metaphysics of material substances. That, however, is a topic for the next two chapters.

I remarked in §5 that, for the entirety of our period, species membership is always treated as essential to a thing. One might wonder whether this is so for Locke. If one thinks it is not then one would have to read him very differently from how I do. There is a passage in the correspondence with Stillingfleet that has been read as committing Locke to the possibility that a thing could continue to exist through a change in its real essence. To Stillingfleet's remark that "these real essences are unchangeable" Locke replies: "Of what, I beseech your lordship, are the internal constitutions unchangeable? Not of any thing that exists, but of God alone; for they may be changed all as easily by that hand that made them, as the internal frame of a watch" (IV:90-91). What I take Locke to mean by this is that, of course, real constitutions change: grass, e.g., changes to flesh. Locke also certainly holds that, if one conceives of a thing under a given nominal essence, then that thing-under-a-sort might endure through change to its real essence. But the correspondence with Stillingfleet does not retract the *Essay's* claim that a thing's real essence is essential to that thing in its own right. For a very different reading, see Ayers, *Locke* II:69-70. Even though Ayers quotes the crucial passage from III.3.19, with its talk of real essences beginning and perishing with things, he nevertheless concludes that "in reality nothing substantial is created or destroyed, just structure" (II:70).

For evidence that 'property' has the technical sense of '*proprium*,' see *Essay* III.6.6: "properties belonging only to species, and not to individuals." Compare Porphyry: "species pre-subsist properties, and properties supervene on species. For there must be a man in order for there to be something laughing" (*Isagoge*, tr. Barnes, §14). The *Isagoge*, which is the *locus classicus* for the notion of a *proprium*, distinguishes four genera of *proprium*: (1) belonging to only members of that species but not all of them; (2) belonging to all but not only members of that species; (3) belonging to all and only members of that species, but only sometimes; (4) belonging to all and only members of that species, at all times. Most of what Locke describes as "properties" fall into the second genus. On Porphyry's taxonomy, accidents and *propria* are distinct. On the more common scholastic usage, however, substance and accident exhaustively divide all being, and so *propria* have to be regarded as accidents. (For the two usages, see e.g. Aquinas, *Summa theol.* 1a 77.1 ad 5.)

In setting out Locke's theory, I have ignored those places (most notably, *Essay* III.6.6) in which he treats the real essence as dependent on the nominal essence. (For a very clear discussion of this, see Owen, "Locke on Real Essence.") These passages *are* important, on my understanding, because they reflect a crucial move in Locke's argument: to an opponent who wants to use the real essence to carve out kinds in our ordinary way, Locke is replying that such a usage tacitly appeals to the nominal essence in making use of the real essence. As I set the argument out, however, this move need not be made because I insist at the start that we can talk about the real essence only in the context of an individual, independently of its nominal essence. My usage of real essence – as applying only to what Owen calls "unsorted particulars" – is certainly well-attested in Locke (e.g., at III.3.15 and III.6.19-20), and is indeed probably the prevalent usage.

There is a massive and quite impressive literature on real and nominal essences in Locke. It would be surprising if *no one* has understood the argument as I do, but I do not think that commentators have generally reached my interpretation, perhaps because – lacking the proper historical context – they have not entirely understood the theory of real essences. Phemister, for example, in "Real Essences in Particular," puts special

weight, as I do, on the claim that real essences ground both *propria* and pure accidents, but without realizing that this is the standard notion of essence, and so without seeing the argument as a whole. Ayers sometimes comes close to my reading (and he accordingly shares my enthusiasm for Locke here). In particular, Ayers stresses that for Locke it becomes arbitrary to distinguish between *propria* and pure accidents (see, e.g., *Locke* II:73). But Ayers seems at the same time to insist, as noted above, that Locke is a complete anti-realist with regard to essences and material substances. Moreover, Ayers and others often conflate the argument I have described with an argument from what Ayers calls the “anarchy” of nature: that anti-essentialism is forced on us by the empirical fact that kinds in the natural world are far too scattered and vague to admit of essential properties (see “Locke versus Aristotle” p. 257). If this were the argument, it would be much less interesting, because it appeals to empirical claims that Locke himself has to regard as rather uncertain and that Locke’s opponents would flatly reject, and probably with good reason, given that the extent of the anarchy is in fact less than what Locke supposes.