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MECHANISM, SUPERADDITION, AND THE PROOF OF GOD'S EXISTENCE IN LOCKE'S ESSAY

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I. God and Nature, Mechanism and Gravity

"Mechanism" was the view that the laws of physics can be explained, in principle if not by us, by being deduced from the attributes possessed essentially by all bodies *qua* bodies; i.e., from the nature or essence of the uniform substance, matter, of which all bodies are composed. It is a central tenet of mechanism that essential attributes are actual and perspicuous; i.e., they comprise no powers or occult qualities defined by their effects. For if occult qualities were included in the essence, any deduction of laws would be circular, explaining nothing. For mechanism, to treat a power as an essential and therefore irreducible attribute is to revert to Aristotelian pseudo-explanation.

For Descartes, the chief or essential attribute of matter from which its other necessary properties flow was simply extension or occupancy of space, an attribute entirely free from the taint of mere potentiality. Gassendi, however, argued agnostically that space-occupancy cannot be explained as bare extension since, for example, empty space is possible and that, too, is extended. Locke combined agnosticism with a qualified inclination to favor the claims of *solidity* to be the simple space-filling attribute, perspicuous to sense, which distinguishes matter from empty space and from which the laws of motion and mechanical interaction flow.

Any version of mechanism tends to promote a certain conception of the relationship between God and his material creation. As Berkeley complained, it encourages believers to hold "the world to be a machine like a clock, made and put in motion by God, but afterwards continuing to go of itself."[1] On such an account God had, first, to create the matter of the universe and,

[1] *The Works of George Berkeley*, ed. A. A. Luce and T. E. Jessop (London, 1949), II, 280.

secondly, to choose its initial "modifications" (i.e., the initial determinate shapes, sizes, and spatial relations, including directed motions, of its parts). Thereafter, however, the state of the material world at any particular time is wholly determined by the nature or essence of matter together with its determinate modifications at the immediately precedent time.

Although such a model for the division of labor between God and nature may seem implicit in Descartes' physics, it is one which, for purely theological reasons, he himself made some effort to avoid. His resource was the doctrine that God must continue to act quasi-creatively simply in order that the matter and motion in the universe should be conserved. This view of natural necessity is consonant with his wider voluntarism: with his doctrine that all the eternal truths, including the truths of mathematics and logic, are arbitrary creations upheld by God. It is given a certain role even in his deduction of the laws of motion, e.g., the law that a body at rest will remain at rest unless impelled by another body. For such laws are formally deduced, not directly from the nature of body, but from the immutable nature of God who necessarily acts invariantly.[2] Nevertheless, they might well seem directly deducible from the passive mobility of matter itself. It seems to be this latter conception of an intelligible law whose necessity could in principle be grasped without recourse to the nature of God, which lies behind Locke's assertion that "Bodies operate one upon another . . . by impulse, and nothing else." For Locke, the very being or space-occupancy of bodies, even so far as we understand it, entails their "mutual Impulse, Resistance, and Protrusion."[3]

The question I want to consider is whether, as some have thought,[4] Locke also envisaged another kind of "law of nature" —a brute, "Humean" regularity dependent only on the *fiat* of God and having none of the intrinsic perspicuity which was

[2] *Principia Philosophiae*, II, xxxvi ff.

[3] *An Essay concerning Human Understanding*, ed. P. Nidditch (Oxford, 1979), II.viii.11 (1st ed.), II.iv.5. Cf. II.iv.2: solidity is "the *Idea* belongs to Body, whereby we conceive it *to fill space*."

[4] Cf. G. J. Warnock, "Hume on Causation," in *David Hume: A Symposium*, ed. D. F. Pears (London, 1963), pp. 56 ff.; M. Wilson, "Superadded Properties: The Limits of Mechanism in Locke," *American Philosophical Quarterly* (1979).

ascribed to the principles of mechanical interaction. Cartesians had suggested such arbitrary universal conjunctions in order to deal with the seeming interaction of matter and spirit, but at least one case at issue, that of gravity, is confined to the material world. In the intelligible universe of pure mechanism there is no action at a distance and bodies behave, very crudely speaking, like billiard balls colliding in a state of absolute weightlessness. How, then, is gravity to be grafted onto such a model? The difficulty is illustrated in Locke's own brief "Elements of Natural Philosophy." The work begins with a statement of some familiar laws of mechanism, deduced from matter's space-occupancy and passivity. For example,

> A body in motion will always move on in a straight line, unless it be turned out of it by some external cause; because a body can no more alter the determination of its motion, than it can begin it, alter or stop its motion itself.

Newton's inverse square law, however, is introduced in rather different terms:

> It appears, as far as human observation reaches, to be a settled law of nature, that all bodies have a tendency, attraction, or gravitation towards one another . . . Two bodies at a distance will put one another into motion by the force of attraction; which is inexplicable by us, though made evident to us by experience, and so to be taken as a principle in natural philosophy.[5]

There are four basically different ways in which a mechanist might regard such an "inexplicable" law (he might also, of course, refrain agnostically from choosing between two or more of them):

(i) He might argue that the appearance of action at a distance can only be an appearance, arising from unknown circumstances.

[5] *The Works of John Locke* (London, 1823), III, 303 ff. Published posthumously, this piece seems to be Locke's attempt to set out the corpuscularian principles and explanations which he can accept. His commitment appears from Chapter Twelve, which is a resumé of his own epistemology.

"Attraction" must really be due to the action of a medium too fine for us to observe.

(ii) He might take the law as evidence that we do not, after all, know or understand the nature or essence of matter *qua* matter. For he might hold that, even if *we* are not in a position to deduce the law or power of gravity from that actual essence, it must in fact be so deducible.

(iii) He might conclude that, although mechanical laws are deducible from the known essence of matter, the law of gravity, since it is not, must depend on nothing but God's direct, continuous, and systematic interference with the natural course of events. Since gravity operates universally and continuously, it would follow that nothing ever happens naturally, as it would happen if matter were left to itself.

(iv) He might hold that attraction is a force or power which is itself, as such, a part of the essence of matter. This is to give up "mechanism," for the reason indicated in my opening paragraph. For law and power are now no longer taken to derive from the fully actual nature and constitution of substances as, on the mechanists' favorite analogy, the specific powers and regular motions of clocks visibly derive (to a large extent) from their fully actual structure.

Locke's other pronouncements on gravity do not readily reveal which of these attitudes he adopted, although it seems clear that, like Newton, he rejected the last. In the *Second Reply to the Bishop of Worcester* he withdraws the assertion made in the first edition of the *Essay*, that bodies operate only by impulse. Newton's "incomparable book" has convinced him that "God can, if he pleases, put into bodies powers and ways of operation above what can be derived from our idea of body, or can be explained by what we know of matter."[6] This whole passage suggests (ii), or the disjunction of (i) and (ii), rather than (iii), for several reasons. First, what is said agnostically to be impossible is

[6] *Works*, IV, 467 f.

the deduction of gravity from *our* idea and knowledge of matter. It is not, then, dogmatically asserted that gravity cannot be deduced from the real nature of matter. The change in the second edition of the *Essay* has a similar tendency: impulse is "the only way which *we* can conceive Bodies operate in."[7] Moreover, (i) and (ii), rather than (iii), best fit the suggestion of the *Reply* that God has arranged gravity "by ways inconceivable to me." Finally, for God to push bodies around by his direct and continuous volition, however universally, would hardly be for him to "put into" them "powers and ways of operation," but rather to frustrate or distort the exercise of the powers which they possess. Nevertheless, Locke could here have been talking loosely, and these considerations by themselves do not rule it out that he had position (iii) in mind.

Another passage may at first seem an unequivocal expression of position (iii). In this Locke remarks that "the study of bodies" can encourage total materialism,

> . . . when yet it is evident, that by mere Matter and Motion, none of the great Phaenomena of Nature can be resolved, to instance but in that common one of Gravity, which I think impossible to be explained by any natural Operation of Matter, or any other Law of Motion, but the positive Will of a Superiour Being, so ordering it.[8]

Here it may seem beyond doubt that Locke holds that in gravity the division of labor between God and nature has broken down, and that it is God's continuous and quasi-miraculous interference with the natural course of events which bears witness to his existence. Yet it is just this eminently natural interpretation which I wish to challenge. By placing gravity among "the great phenomena of nature" which cannot be explained by the nature of matter alone, but which we can only make intelligible by postulating divine control, Locke is here in effect advocating, not position (iii), but something like position (i). If it seems certainly

[7] *Essay*, II.viii.11 (2nd ed.).

[8] *Some Thoughts concerning Education*, 1st ed. (London, 1693), §180 (§192 in *Works*, IX). The context offers further ground for the interpretation given here: Locke speculates that the Flood was due to "God's altering the Centre of gravity in the Earth for a time (a thing as intelligible as gravity it self, which, perhaps a little variation of Causes unknown to us would produce) . . . "

otherwise, that is because the expression "natural operation" and the ascription of a state of affairs to the "positive will" of God had in Locke's time certain technical senses quite different from the senses which it is natural for us to ascribe to them today. The same is true of the language of his much fuller discussions of those other relationships which it has come to be thought were for him brute conjunctions.

Before we move on, however, something should be said about the general context of his remarks about gravity. The interpretation I wish to refute would associate Locke with the Boyle lectures delivered by Richard Bentley in 1692 and published in the same year as the *Education*. Bentley argued that the physical world as we know it could not have arisen on purely mechanical principles from a material chaos. Much of the argument has to do with the need to postulate an immensely skillful architect, but in one argument he claims that gravity must be regarded as a nonmechanical force, not innate or natural to matter, which "could never supervene to it, unless impress'd and infused into it by an immaterial and divine Power."[9] Bentley is opting for position (iii), for he argues in detail against both (iv) and the speculation consonant with (i) that gravitation is mechanical action through the medium of the aether. With respect to a possible connection with Locke, it must be admitted that Bentley is prepared to gloss the postulated intervention of God in terms both of his having arbitrarily set a law to bodies which they necessarily obey, and of his having "indued Matter with a Power of Gravity not essential to it."[10]

As a Newtonian, however, Bentley was somewhat heretical. Newton himself is polite enough about the argument, but less than definite in agreement: "Gravity must be caused by an Agent

[9] *A Confutation of Atheism from the Origin and Frame of the World* (London, 1693), Part II, p. 29. Reprinted in *Isaac Newton's Papers and Letters on Natural Philosophy*, ed. I. B. Cohen (Cambridge, 1958). The argument is anti-Cartesian: cf. Descartes, *Discours de la Méthode, Oeuvres de Descartes*, ed. C. Adam and P. Tannery (Paris, 1897–1913), VI, 41–45; and Boyle, *The Origin of Forms and Qualities*, 2nd ed. (Oxford, 1667), pp. 102 f.

[10] Bentley, p. 38 and p. 37 respectively. For Newton's rejection of (iv), see Cohen (pp. 302 f.), a famous outburst in a letter to Bentley: "That Gravity should be innate, inherent and essential to Matter . . . is to me so great an Absurdity, that I believe no Man who has in philosophical Matters a competent Faculty of thinking, can ever fall into it."

acting constantly according to certain Laws; but whether this Agent be material or immaterial, I have left to the Consideration of my Readers."[11] In fact, there is no direct evidence that Newton was seriously attracted to the latter possibility. What there is points, on the contrary, to its remaining his preferred hypothesis (overlaid as it is by his Locke-like agnosticism on such matters) that the "agent" in question is the aether.[12] If so, we can understand that he should not have felt the need to make an issue of the point with Bentley. It would bespeak the existence of God just as certainly, from Newton's point of view, if the universe-machine was so constructed as to produce the phenomena of gravity by natural means. We must still postulate an intelligent architect who has thus bestowed the power of gravity on bodies.

Newton's aetherial speculation is in a tradition to which Locke is certainly indebted, since it falls into line with such arguments as Boyle's "concerning those that would exclude the Deity from intermeddling with Matter."[13] Boyle's God "intermeddles" by strictly mechanical means, in this case by "Magnetical Steams of the Earth, or the pressure of some subtle Matter incumbent on [objects], or . . . what ever else may be the cause of Gravity."[14] There is, moreover, some internal evidence of the direct influence of Boyle on the passage in the *Education*,[15] while there is no particular reason to think even that it was not written well before Bentley's lecture. Such considerations are inconclusive, but at least there is no *prima facie* ground for supposing that a reference to gravity as evidence of divine intervention must be an allusion to Bentley rather than to Boyle or to Newton. The question can be resolved only by a wider investigation of what Locke himself was likely to have meant by the words he used.

[11] Cohen, p. 303.

[12] Cf. Letter to Boyle of 28 Feb. 1678–9, Cohen, p. 253; *Principia Mathematica*, 2nd ed. (London, 1713), General Scholium to Book III. The evidence sometimes cited for vacillation or secret doctrine on Newton's part is indirect and unconvincing. Cf. R. E. Schofield, *Mechanism and Materialism* (Princeton, 1970), pp. 8 ff.

[13] *Some Considerations Touching the Usefulness of Experimental Natural Philosophy*, 2nd ed. (Oxford, 1664), I.iv.

[14] *Some Considerations*, p. 70. Cf. Hobbes, *De Corpore*, IV.xxx.

[15] Cf. Boyle, p. 66: "But I shall instance in those more obvious Phaenomena . . . " Locke: " . . . to instance but in that common [phaenomenon] of Gravity . . . " The expression is not common in Locke.

II. "Superaddition": A Problem of Interpretation

The most famous of the relevant discussions concerns the possibility of thinking matter, materialism *versus* dualism. Locke states agnostically that, "by the contemplation of our own Ideas, without Revelation," we cannot know

> . . . whether Omnipotency has not given to some Systems of Matter fitly disposed, a power to perceive and think, or else joined and fixed to Matter so disposed, a thinking immaterial Substance: It being, in respect of our Notions, not much more remote from our Comprehension to conceive, that God can, if he pleases, superadd to Matter a Faculty of Thinking, than that he should superadd to it another Substance, with a Faculty of Thinking; since we know not wherein Thinking consists, nor to what sort of Substances the Almighty has been pleased to give that Power, which cannot be in any created Being, but merely by the good pleasure and Bounty of the Creator.[16]

He goes on to say that we cannot find "Cogitation within the natural Powers of Matter," and that matter "is evidently of its own nature void of sense and thought."[17]

Leibniz was neither the first nor the last of Locke's critics to take him to mean that for all we know God might have made matter think by an act positively against the nature of matter—as if Locke had allowed that whatever thinks without a standing miracle must be immaterial.[18] Yet such an interpretation goes against Locke's explicit refusal, even in this passage, to concede that finite immaterial substances might think "naturally," without a divine act of "superaddition." The power of thought, he says, "cannot be in *any* created Being, but merely by the good pleasure and Bounty of the Creator." This refusal, made even more explicitly elsewhere,[19] is surely something which must be explained rather than ignored in any reasonably secure hypothesis as to Locke's meaning.

[16] *Essay,* III.iv.6, pp. 540 f.

[17] *Essay,* p. 542 and p. 541 respectively.

[18] *Nouveaux Essais sur l'Entendement, Philosophischen Schriften von Leibniz,* ed. C. J. Gerhardt (Hildesheim, 1965), V, 54-61 and 357-63.

[19] *Second Reply to the Bishop of Worcester, Works,* IV, 464 f., discussed below.

There is another question for the Leibnizian interpretation which is like one which arose over the power of gravity. The supposedly nonnatural superaddition of thought would not necessarily interfere with the normal and natural operations of the mechanical system, since it could presumably be a matter of the correlation of those operations with a different order of events. Even if that is the view attributed to Locke, however, the mystery must remain as to what it would be for the power of thought to *belong* to the "System of Matter fitly disposed," and how God could possibly make thought an action of that system simply by *fiat.* For these relations of "belonging to" and "being an action of" must be understood causally. It might be suggested that God's correlations of thought with motions make the power of thought *as it were* an attribute of the system. Yet if thought is not genuinely an action of the material system, it must be the action of something else. For in this same section Locke explicitly agrees with Descartes that if thought occurs, there must be something which thinks: " 'Tis past controversy, that we have in us something that thinks, our very Doubts about what it is, confirm the certainty of its being, though we must content ourselves in the Ignorance of what Kind of Being it is."[20] Thought is not for Locke an entity *separable* from its subject, like the despised "real accidents" to which Aristotelians were supposed to be committed.[21] It therefore could not be arbitrarily and mysteriously *attached* to this or that as subject. There is admittedly one modern commentator for whom that is just what Locke did think possible. A. S. Pringle-Pattison tries to fit his account of the discussions of thinking matter to a disastrous explanation of the doctrine of substance. He alleges that the idea of substance in general is not an indeterminate idea of what is unknown, but is actually an idea of "something purely indeterminate," such that "any attributes or powers may be annexed to, or conferred upon any substance, according to 'the good pleasure' of their Maker." But I have criticized this kind of reading at sufficient length elsewhere.[22]

A different, more plausible argument has been adopted in a

[20] *Essay,* IV.iii.6, p. 543.

[21] Cf. *Essay,* II.xiii.19; Boyle, *Origin of Forms and Qualities,* p. 7.

[22] "The Ideas of Power and Substance in Locke's Philosophy," in *Locke on Human Understanding,* ed. I. C. Tipton (Oxford, 1977).

recent article by Margaret Wilson.[23] She recognizes that a purely voluntaristic conception of certain laws of nature, so far from cohering with Locke's deeply rationalist theory of substance, would sharply diverge from it. Nevertheless, she is prepared to argue that Locke was drawn in these contrary directions, both towards his "official" dogmatic mechanism and also towards the view that certain brute regularities and powers disprove or limit mechanism. The question of thinking matter she connects, as Locke himself connected it, with another question, that of the unintelligibility of the processes by which ideas of secondary qualities are caused in sense perception. Both issues concern the mind-body relationship, and she associates Locke's views on both with a tendency, which she claims to discern in what he says, to look with approval on Malebranche's Occasionalism. Mind-body "interaction" is not genuinely causal, but an event of one kind can be the "occasion" for God to produce an event of the other kind. Thus Locke says in one passage that, "there being no conceivable connexion between any impulse of any sort of Body, and any conception of a Colour, or Smell, which we find in our Minds," we have to regard ideas of secondary qualities "no otherwise . . . than as effects produced by the appointment of an infinitely Wise Agent, which perfectly surpass our Comprehensions."[24] Thus, if the materialism which Locke envisages as possible were actually the case, then on this reading ideas of secondary qualities would be, so to speak, doubly "superadded." They would in any case be arbitrarily "annexed" to, or correlated with, certain motions produced in the brain by the mechanical processes of sense-perception, a relationship like that postulated by Occasionalism. And *ipso facto,* on Locke's "materialist" option, they would be arbitrarily superadded to the material mechanism *qua* miraculous subject of thinking. It is this double "superaddition," so Wilson thinks, which Locke envisages when he writes:

> . . . when we allow [Motion] to produce pleasure or pain, or the Idea of a Colour, or Sound, we are fain to quit our Reason, go beyond our Ideas, and attribute it wholly to the good Pleasure of our Maker. For since we must allow he has annexed Effects to

[23] Op. cit.

[24] *Essay*, IV.iii.28, quoted by Wilson, p. 146.

> Motion, which we can no way conceive Motion able to produce, what reason have we to conclude, that he could not order them as well to be produced in a Subject we cannot conceive capable of them, as well as in a Subject we cannot conceive the motion of Matter can any way operate upon?[25]

Before entering on an alternative explanation of Locke's terminology, it may be helpful to consider further the contradictions which an interpretation like Wilson's must be prepared to find running through his thought. People do sometimes contradict themselves, but unless a plausible historical or philosophical explanation can be given for its occurrence, every such radical contradiction which it is necessary to postulate must count as an argument against the interpretation proposed: other things being equal, a rival interpretation which postulates a more or less consistent line of thought must be preferable.

First, on Wilson's reading, Locke must have had a curiously ambivalent attitude towards Occasionalism, and perhaps to the issue of the extent of God's power. For he took explicit cognizance of the former by writing a vigorous, damaging, and unequivocal attack upon it, in which he insists that there is no reason to regard the causality of perception as other than direct and natural.[26] In postulating the intervention of God, moreover, the followers of Malebranche detract from God's omnipotence:

> For which . . . is the perfectest power; to make a machine, a watch, for example, that when the watchmaker has withdrawn his hands, shall go and strike by the fit contrivance of the parts; or else requires that whenever the hand, by pointing to the hours, minds him of it, he should strike twelve upon the bell?[27]

But Locke in general seems to think, not just that it is more impressive when God brings things about without contravening the order of nature, but that, whatever God does, he cannot really bring about what is naturally impossible. To bring about the impossible is to break a necessary connection, and Locke's paradigm for impossibility and necessity is geometrical. Bringing

[25] *Essay*, IV.iii.6, p. 541.
[26] "Remarks upon Some of Mr. Norris's Books," *Works*, X, 247 ff.
[27] "Mr. Norris's Books," p. 255.

about the physically impossible would be like bringing about a triangle the angles of which do not equal two right angles. There would be a contradiction in it, and Locke's case for "thinking matter" is precisely that he sees "no contradiction in it."[28] Even in a passage quoted by Wilson, Locke states that, where "there are certain Relations, Habitudes, and Connexions . . . visibly included in the Nature of the Ideas themselves," then "we cannot conceive them separable from them, by any Power whatsoever. And in these only, we are capable of certain and universal Knowledge."[29] "Any power whatsoever" presumably includes the power of God.

When talking directly of miracles, Locke is, as we might expect in the circumstances of his time, distinctly cagey. Yet in his only extended discussion he carefully avoids defining a miracle as an event contrary to the nature of things on the ground that, by that definition, we should never know when a miracle has taken place.[30] He prefers to understand a miracle as an event contrary to the normal course of our experience, such that in its context it is a purposive manifestation of divine power. The hardly disguised consequence of this account (which Locke did not publish himself) is not only that we can know when a miracle has occurred although we are ignorant of the laws of nature, but that no conflict arises between a belief in miracles and a belief that God cannot do the naturally impossible. There is admittedly at least one mention of miracles in the published works in which Locke is evidently prepared to seem to accept the common view that miracles are events contrary to the laws of nature. Yet even here, where the context is theological rather than philosophical controversy, he stresses that God "does constantly (unless where the confirmation of some truth requires it otherwise) bring about his purposes by means operating according to [things'] natures. If it were not so . . . miracles would lose their name and force, and there could be no distinction between natural and supernatural."[31]

There is, however, another contradiction, even more funda-

[28] *Essay,* IV.iii.6, p. 541.
[29] *Essay,* IV.iii.29.
[30] "A Discourse of Miracles," *Works,* IX, 256 ff.
[31] *The Reasonableness of Christianity, Works,* VII, 84 f.

mental in its way, to be found in Locke's thought if Wilson is right. Locke's "official" position is *not* dogmatic Boylean mechanism, as she asserts, but an agnosticism shared with Newton and Gassendi. The corpuscularian hypothesis is regarded by Locke as the best inadequate physical theory we have. Someone who knew Boyle's primary affections of the minute parts could perhaps give an explanation of the phenomena, but the difficulties at the heart of the hypothesis, above all the difficulty of cohesion, point to its not being a full account of the nature of things.[32] It serves as a useful paradigm illustrating the *type* of theory which Locke thinks must be true, and it is often assumed by him for the sake of a particular argument. Yet, although the substance of physical things is no doubt something like Boyle's matter and is at some level obedient to Newton's laws, it is still something we know not what. It is that agnosticism about general essences and their fundamental modifications which is propounded in the discussions cited by Wilson of thinking matter, of the perception of secondary qualities, of cohesion and, except in the *Education,* of gravity. The contrast is between reality and our ideas of it. Thus it is argued that from *our* idea of matter we cannot know whether or not a material system could have the power of thought. "A material thinking thing" is no contradiction in terms, the meaning of *our* terms being determined, as always, by *our* ideas. The conclusion is that we do not have an adequate idea of the real essence either of matter or of that which thinks. It is difficult to see how this argument could actually be intertwined with an argument assuming certain knowledge that a standing miracle would be required for materialism to be true.

III. Ignorance, Contingency, God's Will, and the Doctrine of Predicables

Let us now turn to the task of interpretation. First, what is meant by ascribing an event or relationship to God's "positive will" or "good pleasure"? The point of such attributions is sometimes no more than that all observed happenings which *we* are unable to explain on intuitively evident principles must be as-

[32] *Essay,* II.xxiii.8–13, 23–32; IV.iii.16.

cribed, in our ignorance of anything more specific, to the will of the God who is in any case, one way or another, the "wise architect" of it all. As we should expect, Locke has moments of extreme epistemological pessimism when this class of occurrences is said to include virtually all natural relationships. By contrast with those few relationships "visibly included in the Nature of the Ideas themselves," so he tells us,

> . . . the coherence and continuity of the parts of Matter; the production of Sensation in us of Colours and Sounds, etc. by impulse and motion; nay, the original Rules and Communication of Motion being such, wherein *we can discover* no natural connexion with any Ideas *we have, we* cannot but ascribe them to the arbitrary Will and good Pleasure of the Wise Architect.[33]

Where the point is as purely epistemological as in this passage, even the "original" (i.e., fundamental or essential) principles of material change may be ascribed to God's pleasure. Wilson, however, actually claims that Locke is here asserting that the coherence and continuity of the parts of matter "have no more claim to being 'natural' consequences of the primary qualities of matter than thought or gravity." If we take "natural" in a very special sense, then, as we shall soon see, something like that may be what Locke believed. Yet he can hardly here be expressing such a view of "original" properties of matter, since for Locke "original" and "natural" mean the same thing. Wilson rightly, but in the circumstances of her argument rather oddly, draws a parallel with *Essay* IV.xxiii.28, where the point is expressly that we are as ignorant of the substance or essence of matter as we are of that of mind. The point in the present passage is indeed similar: *we can discover* no natural connections at the level of *our* ideas, and so must ascribe the observable regularities to God's will.

Locke takes the same broad approach to the *possibility* of what is *not* observed to happen (including what is observed not to happen), but here the epistemological point has implications of a kind for our substantial beliefs about God. Whatever in this class of events (or nonevents) is not contrary to "visible" necessity, i.e., everything of which the nonoccurrence is not deductively

[33] *Essay,* IV.iii.29 (my emphasis).

explained from the known nature of things, should be regarded, with due humility, as actually within God's power. That is why Locke challenges Stillingfleet to show that the story of a thinking material system contains a "manifest repugnancy," and complains that all that is offered is the argument that we cannot conceive or understand how matter should think. To accept such an argument is boldly "to set bounds to God's omnipotency" on the basis of our own "narrow conceptions." But to deny a power to God just because we cannot comprehend it is not only sacrilegious but analogous to the absurdity of denying the occurrence of what manifestly occurs just because we do not understand how is occurs.[34]

It will be seen from this argument that, just because "manifest repugnancy" and "visible necessity" are like what is "conceivable" (i.e., comprehensible) in being relative to *our* ideas, Locke is not claiming to know that it is *ontologically* possible that matter should think. It might be *necessary* that what thinks is immaterial even though it is not *visibly* necessary. In other words, he agrees that *if* it could be shown that the postulated superaddition of thought to a suitably constructed machine is contrary to ("destroys") the essence or nature of matter, then it would be shown to be self-contradictory and absolutely impossible. But all that the immaterialists show is what is beyond dispute: that the possibility of a material thinker does not follow *visibly* from *what we know* of matter.[35] Locke's able and perceptive apologist, Samuel Bold, is thus right when he states that for Locke "there is no demonstrative proof either that [God] can, or that he cannot superadd a power of thinking to some systems of matter fitly disposed." For "we cannot possibly . . . comprehend how far his power can extend, nor be certain of the capacity of substance, which is an unknown nature."[36] It is relevant that Locke himself introduces the topic of thinking matter in the *Essay* by means

[34] *Second Reply,* pp. 462 ff.

[35] *Essay,* p. 541, ll. 8 f.; *Second Reply,* p. 461; etc. At p. 469 Locke refers to Descartes' as the first attempt to prove a contradiction known to him. Norris, in *An Essay Towards the Theory of the Ideal or Intelligible World* (1704), II.i, still relies on the Cartesian argument for a real distinction between soul and body in deciding "that great Question, *Whether Matter can think?*"

[36] *A Discourse concerning the Immateriality of the Soul* (1705), pp. 165 f. Cf. Montaigne, *Essais,* I, xxvii.

of an analogy with what was then a mathematical unknown: our inability to prove either materialism or dualism from our ideas of matter and thinking is like our inability to pronounce on the problem of squaring the circle.[37]

Nevertheless, the function of attributing a circumstance to God's good pleasure can go beyond that of marking the limits of our understanding of necessity. Locke holds that the world contains a certain clearly defined type of ontological contingency, one which is not given the same status in all rationalist systems. First, although occurrences follow necessarily from the essences and determinate "modifications" of the general substances involved in them, they do not follow from the essences of the substances alone. What happens to a particular quantity of matter depends on something other than its intrinsic essence as the substance (i.e., matter) that it is. Otherwise quantities of matter would either all enjoy the same life history or, as Leibniz held, each have a distinct and particular essence. Only what follows from the essence of a substance, however, is necessary to it. The extreme rationalism of Leibniz and Spinoza is evinced in systems within which every attribute of any substance is in this sense necessary. But for Locke, as for Descartes, not only is the existence of all finite substances contingent, but they all have contingent as well as necessary intrinsic attributes. All physical events are contingent, since all matter might originally have been at rest, and rest necessitates only rest. Now one purpose for Locke in invoking "God's good pleasure" is to mark what is accidental or contingent in this sense. Any such feature of physical reality, however general it may be, is taken to be the consequence of a specific act or intention-in-acting of God which goes beyond the act or intention of bringing into existence substances with certain general natures. For example, even if all matter were constantly in motion, that would be for Locke a function of the conditions imposed by God on the matter He has created, rather than a function of its nature as matter.[38]

[37] *Essay,* p. 540, ll. 20 f.

[38] *Essay,* IV.x.10, p. 623, ll. 15 ff.; II.i.9, p. 108, l. 25. Cf. Boyle, *Origin of Forms and Qualities,* p. 101. In *A Letter to the Bishop of Worcester, Works,* IV, 82, Locke states that the "real essences" of species consist of contingent attributes of matter: they do not "flow from the substance in any created being, but are in

It is thus possible to identify at least two sorts of grounds, according to Locke's explicit doctrine, for assigning something to the scope of God's will or "good pleasure," one epistemological, the other ontological. The two are, however, sometimes linked, and then the latter is prior. As we have seen, Locke thinks that those observed or postulated states of affairs which we cannot prove either to follow from, or else to be contrary to, the essences of the general substances involved should be assumed by us, in a proper spirit of humility, to fall within the area of the contingent. That is why to ascribe something to God's pleasure may in effect be no more than to grant that both it and its contrary are *as far as we know* possible. But sometimes what Locke means is that, without qualification, a certain state of affairs is contingent: e.g., matter's being in motion.

It may preserve my interpretation from possible misunderstanding, and will in any case serve to introduce my explanation of Locke's technical meaning in talking of such things as "superaddition" and the "natural powers" of matter, if I say a little about the relation between the above points and the Aristotelian Doctrine of Predicables as elaborated by Porphyry. That doctrine, which embodies the Aristotelians' conception of scientific explanation, was at least as widely known—and knowledge of it was as widely assumed in argument—as is the case, say, with Russell's theory of descriptions today. Much of the argument of the *Essay* is unintelligible unless the doctrine is kept firmly in mind.

Porphyry's predicables are *genus, species, difference, property,* and *accident.* The essence or nature of the *species* should be defined by *genus* and *difference,* and the essence of the genus in turn by a similar division of the higher genus, until we reach the highest genera of all, the ten or eleven categories the first and most fundamental of which is substance. *Properties* are, roughly speaking, attributes characteristic of a species or genus which necessarily

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every thing that internal constitution, or frame, or modification of the substance, which God in his wisdom and good pleasure thinks fit to give to every particular creature, when he gives a being." *Essay,* III.vi.4 admits a certain sense in which *everything* is "necessary," but only emphasizes the present dichotomy: " 'Tis necessary for me to be as I am; GOD and Nature has made me so." For a discussion of the substance/real essence distinction, see Ayers, op. cit., Secs. 4 f.

or at least naturally belong to all its members, and which are explained by, or flow from, its essence. An *accident* is any attribute of an individual which is not thus related to the essence of the species to which the individual belongs and owes its being. Hence the essence of man is defined as *rational animal*, and such distinctively human properties as the use of language, a sense of humor, and the possession of hands are supposed to be explained by their intelligible link with man's being a rational animal. Other attributes, temporary or permanent, of particular human beings, e.g., a fair skin or musicality, are accidents. A fully worked out science will consist in definitions of the genera and species from which all their properties have been derived. There is thus no science of accidents as such.

Locke makes use of the terminology of the doctrine of predicables at two levels: first in discussing the attributes of the fundamental general substances, matter and (if there is such a thing) immaterial substance; and secondly, in presenting his logic of the species or "particular sorts" of substances. For him only the former exist as distinct substances independently of our system of classification. With respect to the level of the "particular sorts," properties are attributes which flow from the determinate "real essence" underlying the "nominal essence." Consequently, what is a property relative to one nominal essence may be an accident relative to another: e.g., if our arbitrary definition of "bird" includes having a beak, then having feathers may be a property; but if we select a different definition, so that bats count as "birds," then having feathers will be an accident. In other words, necessity at this level is *de dicto:* individuals purely as such have neither "properties" nor "accidents." In relation to the general substance matter, however, what count as essential attributes or properties of the "particular sorts" are all accidents, and what is an accident of matter is so absolutely.[39] It is for Locke only at this level that properties are ontologically (or *de re*) necessary and accidents ontologically contingent. Such accidents are therefore opposed to properties in being peculiarly and directly attributable to God's good pleasure, i.e., to a divine intention-in-

[39] Cf. Boyle, *Origin,* p. 43: "and though an Accident cannot be but accidental to Matter, as it is a Substantial thing, yet it may be essential to this or that particular body." Cf. n. 38, above.

acting over and above the intention to create the general substance.

Reference to God's will in the discussion of accidents was not novel, for it had even entered the logic books. A distinction had been drawn, for example, between separable and inseparable accidents. The latter are attributes which all members of the species possess throughout their existence but which, unlike properties, do not flow from the essence. A standard example was the blackness of crows, which was held to be contingently "inseparable by God's appointment." (Hence "All crows are black" became the familiar paradigm of a contingent universal proposition.)[40] Logical doctrine casts a similar light on Locke's use of the word "superadd." First, substance and essence are the same thing. For the Aristotelian, therefore, to predicate genus or difference or both of a substance is simply to explicate the nature of the subject: the predicate does not go beyond the subject. It was standard doctrine that the same is true of the predication of properties: here, too, the predicate is contained within, and adds nothing to, the subject. As one authority puts it in stating that only accidents are logical "adjuncts": "Properties be not adjuncts: for adjuncts doe outwardly befall the subject . . . Properties doe not outwardly befall the subject: but, they are necessary emanations from the principles of nature."[41] This doctrine seems to have been questioned by Maimonides who, according to H. A. Wolfson, distinguishes just two kinds of proposition, "one in which the predicate signifies something superadded to the essence of the subject and the other in which the predicate signifies that which is the essence of the subject."[42] Wolfson concludes that properties are "in effect" treated as eternal accidents, but whether or not this is a correct interpretation of Maimonides' notion of superaddition, it is not a notion which I have found in seventeenth-century writings. In ordinary seventeenth-century usage the phrase "superadded properties" (the title of Wilson's article) would be a contradiction or solecism. The doctrine that accidents are superadded "adjuncts" should

[40] T. Spencer, *The Art of Logic* (London, 1628), p. 64. (Cf. Hobbes, I.iii.11.)

[41] Spencer, p. 62.

[42] "The Aristotelian Predicables and Maimonides' Division of Attributes," in H. A. Wolfson, *Studies in the History of Philosophy and Religion,* II, 165.

always be remembered in relation to the familiar notion of a "naked substance": which is not of course a substance stripped of all *attributes* including those which constitute or are necessarily connected to its very being, but a substance stripped in thought of all *accidents* for the purpose of determining what it is.

It should now be reasonably clear what Locke means by "superaddition" and what it is to place thought outside the "natural" powers of matter as such. Any attribute of matter or of certain "parcels" of matter which, as Locke puts it, falls outside "the bare essence or natural powers depending on the essence of matter in general"[43] is not a "natural" attribute of matter as such and so must be "superadded" or "superinduced" by God. Thus a "natural" attribute, in this sense, is the same thing as a "property." "Superaddition" is not here, of course, a mere act of predication, but even in the theory of predication the notion has an ontological as well as logical significance. The important point is that talk of "superaddition" in no way implies that something supernatural or *contrary* to the essence of matter is going on: "For example, God creates an extended solid substance, without superadding any thing else to it, and so we may consider it at rest: to some parts of it he superadds motion, but it still has the essence of matter."[44] It is, so Locke thought, contingent that matter should move: its motion is an "accident." But what could be less miraculous or contrary to the essence of matter than motion?

At this point it might reasonably be asked why Locke so confidently supposes that motion is not essential or necessary to matter, seeing that he takes himself to know nothing of the essence of matter. Such a problem did not arise for Boyle insofar as he advanced a dogmatic conception of matter. But for Locke "extended solid substance" gives a sort of nominal essence of matter rather than its real essence. Even if there is no visibly necessary connection between being extended and solid and being in motion, it might seem to follow from Locke's principles that the unknown essence of that which is extended and solid might still logically entail movement or even include it. True, he claims to be able to imagine clearly "the Matter of the next Pebble, we

[43] *Second Reply,* p. 461. The whole passage, pp. 459–73 (at least), should be read as a single argument.

[44] *Second Reply,* p. 460.

meet with, eternal, closely united, and the parts firmly at rest together."[45] Yet perhaps this capacity merely reflects the incompleteness of our idea of matter, and perhaps the particles of any actual pebble are necessarily in constant motion. It might therefore seem that Locke ought to have retreated to the epistemic claim that *as far as we know* motion is a superadded attribute. Nevertheless, it is only to be expected that he does not do so, for his view of motion is intimately related to a metaphysical distinction fundamental in his philosophy of science.[46]

The metaphysical distinction between *essence* and *operation* lies behind the argument already mentioned in which Locke claims that thought must be supposed to be superadded by God *whether we take that which thinks to be a material substance or an immaterial one.* The doctrine is that, quite generally, to whatever substance God gives a being, it is possible that he should "leave it in a state of inactivity."[47] For he can always create its essence without putting it into operation, just as he can stop its activity without annihilating it. The model which dominates Locke's thinking in this area, so far from being anti-mechanist, is precisely that of a clock or machine. The potentialities of a clock lie in its structure, but it needs to be set going. Yet for Locke this principle of mechanism transcends any specific mechanistic theory and extends to all substances. That is why he can argue that, whether it is material or immaterial substance which thinks, thought, like motion, is a "superadded" attribute. Why then, he asks, should we believe that God can superadd it to an immaterial, but not to a material substance? Since both are "conceivable" in the sense that neither is "visibly" self-contradictory, and neither is "conceivable" in the sense of "intelligible to us," the immaterialist prejudice is "too much for us (who are but of yesterday, and know nothing) to be positive in."[48] Thus it will be seen that Locke's conviction that

[45] *Essay,* IV.x.10.

[46] *Essay,* II.i.9, p. 108, l. 25.

[47] *Second Reply,* pp. 464 f. Cf. Journal entry for 20 Feb. 1681–2, *An Early Draft of Locke's Essay,* etc., ed. R. I. Aaron and J. Gibb (Oxford, 1936), p. 123: spirit and matter "may both lye dead and unactive, i.e. the one without thought, the other without motion . . . which wholy depends upon the will and good pleasure of the first author."

[48] For some reason Wilson finds the distinction between these two sorts of inconceivability "both tenuous and ill-defended" (p. 145, n. 7). Certainly Locke's explanation must be firmly grasped if his position is to be understood.

motion and thought are not "natural" properties of the substances which move and think, whatever those substances may be, is not really any kind of abandonment or even qualification of his agnosticism about essences. It is, on the contrary, a consequence of the abstract scheme within which, at any rate with respect to finite substances, essence is opposed to action. God, as we shall see, is different.

IV. Norris on Natural Immortality: A Terminological Parallel

In case it is still doubted whether this understanding of Locke's talk of "superaddition" and of the "natural" properties of matter is correct, it may be helpful to cite a contemporary of his, John Norris, who uses the same terms in just the same general sense. With a systematic pedantry happily absent from the *Essay* (if sorely missed, as it seems, by generations of Locke's critics), Norris laboriously explains what he means in Part I of his *Philosophical Discourse concerning the Natural Immortality of the Soul,* first published in 1708. Here he sets out the precise relationships holding between his conceptions of the natural/positive distinction, of the essence of a thing, of what is due to the will and pleasure of God, and of the superaddition of attributes. The connection with what I have called "contingency" is clear, and Norris subscribes to the view that the existence of all substances bar one is contingent:

> . . . this Distinction of Natural and Positive, must be understood not of *Things* themselves, but of the *Properties* or Affections which we conceive as belonging to those things . . . For as to the things themselves, they are all *Positive,* being put into Being by the Pure and Arbitrary Will and Pleasure of God. But indeed the Attributes of things may be either one or the other, according as the Relation or Connexion between them and their subject is. If they are such as flow from the Nature of the things, so that the things being once put . . . they then Immediately and Necessarily result, then they are *Natural.* But if they do not flow from the Nature of the thing it self, but derive their Original from without, and are only connected with, or join'd to the thing by the Will or Power of an external Cause, then they are what we call *Positive.*[49]

[49] Norris, *Philosophical Discourse,* 4th ed. (London, 1722), pp. 4 f.

In hitting upon "positive" as the contrary of "natural" Norris is of course consciously drawing a parallel with the familiar dichotomy of natural and positive law, a connection which his chosen illustration makes explicit; the natural goodness or badness of an action flows from the nature of the action itself, but its positive goodness or badness is determined by the will of the lawgiver.[50] Norris also makes the identification of "nature" and "essence" explicit, so that it is evident that the natural/positive dichotomy is equivalent to the distinction between property and accident. "Nature," he truly says, has more than one sense, but it often means *essence* and "in this last sense of the word it is that I would be understood by it . . . when I speak of Properties . . . flowing from the Nature of certain Beings."[51] He recognizes that even natural properties are dependent on God's will, but argues for the old idea that they are only indirectly so: "*Risibility* is the Natural Property of a Man; which it is as flowing from his very Nature, and not from the Will of his Creator, any otherwise than Mediately, as that Will is the cause of [the existence of] that Nature."[52] Attributes which are not natural properties are directly attributable to God's will whether or not there is anything miraculous or contranatural involved. Norris actually makes this point, and at the same time introduces into the argument the distinction between natural and supernatural, by means of the deliberate paradox that the natural/positive distinction is coextensive with the natural/supernatural distinction. God's eternal maintenance in being of a creature not naturally immortal would be "supernatural" even if achieved without interrupting the ordinary processes of nature, since

> . . . even the common Influence whereby God upholds his Creatures, tho it may be consider'd as Natural with respect to the whole Oeconomy, and as it is according to the settled and stated order of his Concourse, and the Ordinary Course or Method whereby he governs the World, is yet truely supernatural in the first Institution of it, and as to particular Creatures, as preserving them in

[50] Norris, p. 6.

[51] Norris, p. 8.

[52] Norris, p. 10. The distinction between what is immediately, and what is only mediately due to God's will corresponds to Locke's dichotomy between God and nature.

> that perpetuity of Being for which they have in their own Natures no inward Foundation.[53]

Such immortality would be an act of grace, arranged at the moment of the creation of the world, "as being something gratuitously superadded to the Nature of the Creature." Norris wants to make it quite clear that he includes under "positive" or "superadded" immortality any continued avoidance of death by ordinary and nonmiraculous means on the part of a being which is capable of a nonmiraculous death. His way of putting the point is paradoxical just because, as in the passage from Locke's *Reasonableness* quoted above, "supernatural" was normally opposed to "natural" in the ordinary sense, current today, in which any event or attribute wholly determined by antecedent conditions in accordance with the laws of nature is natural; rather than to "natural" in the technical, now largely outdated sense in which only properties and essences are natural.

Perhaps few even among modern readers would understand the claim that the soul is (or is not) "naturally immortal" in anything but a sense approximating that so painstakingly explained by Norris. Yet most modern readers, I take it, fail to appreciate that Locke's assertion that thought is not a natural property of matter is a thesis of just the same type. It is interesting that Norris himself, together with Leibniz and others among Locke's contemporaries, had been guilty of the same failure to grasp Locke's meaning. It seems that the strength of their own immaterialist prejudices dissipated the will to sort out the epistemological and ontological issues which Locke keeps in play, skillfully enough, apart or together throughout the *Essay*. The passage of time may have erected other barriers to comprehension, but it ought at least to have freed us from that one.

V. The Superaddition of Thought and the Ladder of Perfections

Although the above account explains the logical content of the notion of "superaddition," it does not, I think, make sufficiently explicit the teleological overtones of the term's employment by

[53] Norris, p. 11.

both Locke and Norris. An attribute which Locke describes as superadded by God or ascribes to his "positive will" will not be just any accident. Its acquisition is not a purely logical "addition" but something expressly aimed for in God's plan, something *not* "accidental" in the modern sense. Here it could, of course, be argued that *everything* which results from God's initial act of creation must have been not only foreknown but intended by Him. Not just the existence and initial state of the mechanical universe, but every element in its history from first to last, is equally the object of an initial complex intention. Locke, however, thinks within the terms of a less holistic natural theology. The division of labor between God and nature is such that an initially chaotic state of particles in random motion, once created by God, might naturally have given rise to similar states of affairs without any further effort on His part, so to speak. Yet there are certain ordered features of the world which could only have arisen from an initial state which (whatever its appearance) was carefully selected rather than chaotic, by motions which were initially directed rather than random. In other words, God must be supposed carefully to have chosen means to such complex and valuable ends. It is in general what Locke calls "excellencies" or "perfections" which are said to have been "superadded" by God.

Locke tailors his notion of a "perfection" with elaborate care, in order that, unlike the notion employed by some other philosophers, it should be compatible both with his agnosticism about the natural world and with his mechanistic rationalism. The evidence for that careful and highly significant concern lies partly, but not entirely, in the set-piece argument for God's existence in *Essay* IV.x and in the peculiar relationship of that argument to earlier arguments, in particular to one occurring in Ralph Cudworth's *The True Intellectual System of the Universe* (1678). Locke's debt to Cudworth is well known;[54] but the funda-

[54] Cf. Journal, 18 Feb. 1681–2, Aaron and Gibb, p. 118. W. von Leyden, in "Locke and Nicole," *Sophia* (1948), has pointed out an earlier debt. Locke's own translation of Nicole's proof, together with two other pieces from the *Essais de Morale,* was posthumously published in *Discourses on the Being of a God,* etc. (London, 1712). The argument is essentially the same as Cudworth's, but considerably less complex. Although Locke is evidently following Cudworth, *Essay,* IV.x contains some echoes of the translation. Von Leyden's scholarly discussion opposes all three writers to Descartes. He notices that Nicole's argu-

mental and surely deliberate difference from Cudworth has, so far as I know, escaped all comment. It is this difference which helps to explain Locke's notion of a perfection, and its significance.

Cudworth's book is a detailed examination and criticism of ancient and modern atheism, which he ascribes to philosophical materialism. He advances a number of arguments for God's existence, including the "first mover" argument that matter cannot put itself in motion. Gravity, too, is taken as evidence of some agent in the universe over and above matter governed by mechanical principles.[55] The chief argument, however, like Locke's, combines the traditional cosmological argument for an eternal first cause with an argument that the eternal cause of thinking things must itself be a thinking thing.[56] The latter is presented as nothing but a special application of the former.

The relevant part of Cudworth's long argument is briefly as follows. First, since nothing can come from nothing, and something exists, then something must exist from eternity which is *causa sui,* existing necessarily or essentially (the standard "cosmological" proof). So far, Cudworth thinks, theists and atheistic materialists are undivided. But the atheists identify the eternal being with matter, arguing that the Lucretian principle that nothing can come from nothing rules out the creation of matter by something else. For the atheist, nothing can be created and everything is matter variously constituted. The correct application of *ex nihilo nihil fit* to creation, however, does not, Cudworth argues, rule it out altogether, but merely restricts its possibility according to the directly derivable subordinate principle that "no effect can possibly transcend the power of its cause." The creation of one substance by another does not infringe this principle provided that the creator is higher on the chain of being than the creation: "There is a scale, or ladder of entities and perfections in the universe, one above another, and the production of things cannot possibly be in way of ascent from lower to higher."[57] Now experience assures us that there are finite thinking

ment, unlike Locke's, embodies an argument for the soul's natural immortality; but he does not draw out the implications of this point of difference with respect to the main argument.

[55] *The True Intellectual System,* 2nd ed. (London, 1743), pp. 667 f. and 684 ff.

[56] *True Intellectual System,* pp. 727–62.

[57] *True Intellectual System,* p. 862.

things. Thought has a higher place on the scale of perfections than any attribute of matter. The eternal creator of finite spirits must therefore possess thought (or, presumably, an even higher perfection). It must, moreover, possess such a perfection essentially if the possession of thought by anything is to be finally explained—a point which independently rules out the possibility that the eternal cause of animal and human consciousness should be matter:

> Wherefore, if matter, as such, have no animal sense and conscious understanding, essentially belonging to it, (which no Atheists as yet have had the impudence to assert;) then can no motion or modification of matter, no contexture of atoms, possibly beget sense and understanding, soul and mind; because this would be to bring something out of nothing, in the impossible sense, or to suppose something to be made by itself without a cause.[58]

This argument has two connected features which should be emphasized. First, Cudworth's scale or ladder of perfections embodies a conception of sharp metaphysical differences in kind: it is a scale of different types of substances. Secondly, the argument relies on establishing such a difference between matter and spirit: if the argument is to work, the finite soul must be immaterial, and must be known to be so—if only from the evident superiority of thought on the scale of perfections. Cudworth was himself a corpuscularian and took real qualities and substantial forms to be "long since justly exploded by the ancient Atomists, and expunged out of the catalogue of entities."[59] Consequently he assumed that whatever attribute can be thus reduced to mechanical modes of matter cannot claim for its possessor a higher place than matter in general on the scale of entities. But the reduction or "resolution" of material forms and secondary qualities into "mechanism and fancy" presupposes sensation and imagination, and it is self-evident that these cannot be themselves "resolved" in the same way: "wherefore undoubtedly they are no modes of matter or body, but attributes of another kind of

[58] *True Intellectual System,* p. 758.
[59] *True Intellectual System,* p. 862. Cf. p. 742.

substance incorporeal."[60] Color in the object is reducible to mechanical attributes only if color sensations can be kicked upstairs. Another argument for immaterialism is Cartesian: a mode cannot possibly be conceived without the substance of which it is a mode, but the "life of the soul" and "cogitation may be clearly apprehended without body."[61] Once we have established the ontological distinction between mind and matter, there can be no doubt about their ordering on the scale of entities: there is "a higher degree of entity, in minds and souls."[62] On the reasonable assumption that animals have sense but not intellect, there is a similar step up on the scale of entities from merely sensitive souls to souls with both sense and understanding.

It might seem surprising that Locke, who can be so carefully agnostic on the issue of materialism, should nevertheless have felt able to make use of Cudworth's argument. What he has done, however, is almost tacitly to modify it in an absolutely characteristic and understandable way. The move he makes is closely analogous to moves made more explicitly elsewhere, e.g., in his account of miracles or in his treatment of personal identity. Miracles stand out by being contrary to normal experience, rather than to laws of which we have no knowledge. Personal identity rests in continuity of consciousness, rather than in the identity of an unknown substance. Similarly, it is for Locke possible for us to identify and rank "perfections" without knowing or caring what fundamental substances underlie them. Whether attributes are modifications of the same substance or of different substances will simply be irrelevant to their ordering on the ladder of perfections. Thus for Locke even if human thought is a complex mechanical attribute of material machines, it is not thereby reduced on the ladder of perfections, as it would have been for Cudworth, to the level of all other attributes of matter—motion in general, solidity, extension, and so forth. Locke's scale is not really a metaphysical scale of "entities" or "being" (despite IV.x.4), but is simply a scale of valuable and remarkable attributes without regard to the general types of substances in which they are instantiated.

[60] *True Intellectual System,* p. 755.
[61] *True Intellectual System,* p. 862.
[62] *True Intellectual System,* p. 750.

Such a notion of a perfection, and of degrees of perfection, is quite explicit in an argument in the *Second Reply* which has directly to do with the possibility of thinking matter rather than with God's existence. As far as we are concerned, Locke says, thought is an excellency like any other: a valuable and remarkable accident and therefore "superadded," but not any kind of sure sign of a difference of substantial type. This is an argument so full and unequivocal that it is worth quoting from it at length:

> For example, God creates an extended solid substance, without the superadding any thing else to it, and so we may consider it at rest: to some parts of it he superadds motion, but it still has the essence of matter: other parts of it he frames into plants, with all the excellencies of vegetation, life, and beauty, which are to be found in a rose or a peach tree, &c. above the essence of matter in general, but it is still but matter: to other parts he adds sense and spontaneous motion, and those other properties that are to be found in an elephant. Hitherto it is not doubted but the power of God may go, and that the properties of a rose, a peach, or an elephant, superadded to matter, change not the properties of matter . . . But if one venture to go one step further, and say, God may give to matter thought, reason, and volition, as well as sense and spontaneous motion, there are men ready presently to limit the power of the omnipotent Creator, and tell us he cannot do it; because it destroys the essence, "changes the essential properties of matter." To make good which assertion, they have no more to say, but that thought and reason are not included in the essence of matter. I grant it; but whatever excellency, not contained in its essence, be superadded to matter, it does not destroy the essence of matter, if it leaves it an extended solid substance; . . . and if every thing of greater perfection, superadded to such a substance, destroys the essence of matter, what will become of the essence of matter in a plant, or an animal, whose properties far exceed those of a mere extended solid substance?[63]

This passage reveals that an important weapon in Locke's agnostic arsenal is the question of the status of animals. As in the discussion of identity, he structures his argument around the Aristotelian trichotomy of vegetable, animal, and human life or souls. He assumes that, although animals have sensation and self-

[63] *Second Reply,* pp. 460 f.

motion, a materialist account of the first two forms of life can be given. Yet Cudworth, who favored animal souls (possibly recycled), regarded it as established that *either* animals are bare machines without sensation, as the Cartesians say, *or* they have immaterial substantial souls. The strength of Locke's position is that *both* views can seem eccentric and arbitrary, while the latter (if immateriality and immortality are supposed to stand or fall together) might be thought to have theologically unsound consequences.[64] If, as Locke supposes, Stillingfleet accepts neither, he must admit that "God can and doth give to some parcels of matter a power of perception and thinking."[65] But it is also clear that for Locke even vegetable life, although nothing but the continuous operation of a suitable "organisation of parts,"[66] is as much a superadded or superinduced "perfection" or "excellency" as is animal life or human consciousness. He takes *none* of these mechanical perfections of certain parcels of matter (supposing that that is what they all are) to be explicable by the essence of matter. As in the case of motion, since these perfections are not possessed by all material, i.e., solid and extended things, it follows that they are not possessed necessarily by any. They are not "properties" of matter deducible from its underlying essence alone, *whatever* that may be. Equally, none of them is known to be *contrary* to the essence of matter.

This deviation from Cudworth's notion of a perfection covertly changes the whole character of the argument for God's existence. The similarities with Cudworth are, by contrast, obvious. The "cosmological" first step remains unaltered. Locke next appeals to the seemingly Cudworthian principle that "whatsoever is first of all Things, must necessarily contain in it, and actually have, at least, all the Perfections that can ever after exist; nor can it ever give to another any perfection that it hath not, either ac-

[64] Cf. Cudworth, *True Intellectual System,* p. 745. He describes the theological objection as "the grand argument" against animal souls, and counters that their natural indestructibility need be no more disturbing theologically than the indestructibility of matter or any substance *qua* substance. Without much doubt Cudworth's discussion stimulated Locke's first important extant comments on personal identity, which like the *Essay* place immortality in continuity of consciousness rather than continuity of substance. (Compare Journal entries of 18 and 20 Feb. 1681–2.)

[65] *Second Reply,* p. 466.

[66] *Essay,* II.xxvii.4 f.

tually in it self, or at least in a higher degree."[67] Gestures are made towards deriving this principle from *ex nihilo nil fit.*[68] Given the premise that a thinking thing exists (whether material or immaterial is beside the point), it follows that the eternal first cause is a "cogitative Being." Then follows an argument that the eternal cogitative being which is the cause of cogitation in us could not be material, since if it were its cogitation would be unexplained, and arise from nothing. In other words, as in Cudworth, the eternal cause of thought must itself think essentially or necessarily. This last argument must be examined carefully, since, if I am right, it is more important for Locke than for Cudworth, for whom "thinking matter" is in any case a palpable contradiction. Moreover, parts of Locke's exposition seem open to a natural and generally accepted interpretation which, unlike the explanation I propose, is quite contrary to what Locke himself says elsewhere, and even to his explicit account of this very argument's meaning. It is here, moreover, that the divergence from Cudworth is revealed. Let us, then, focus on this argument.

Both Cudworth and Locke are arguing that, if the possession of consciousness by the eternal first cause is itself to have a cause (as it must), then it must derive from the essence of that eternal being. Even Cudworth at this point is not so much arguing directly that no material thing could think but rather that the eternal first cause could not of itself bring about thought unless, unlike matter, it thought essentially. Its thought, like its existence, must have a source, and *ex hypothesi* there is no outside source. Both philosophers link thought with motion. First it is stated that motion does not flow from the essence of matter. The motion in existence must therefore have had an external efficient cause.[69] Despite this conclusion the impossible supposition is then accepted for the sake of argument that matter is eternally (and necessarily) in motion. On that supposition, could its motion be the source or cause of thought? Here Cudworth makes it plain that his negative answer rests on the presumption that for matter to "beget sense and understanding" would be for it to beget "soul and mind," a new and different substance. For example, he agrees

[67] *Essay,* IV.x.10, p. 624.
[68] *Essay,* p. 623, ll. 10 ff. and 27 ff.; p. 624, ll. 7 ff.
[69] Cudworth, *True Intellectual System,* p. 758. Cf. *Essay,* IV.x.10.

that, if thought could ever be even an accident of matter, matter's coming to possess it would not contravene *ex nihilo nil fit*, since there would be "no real entity produced out of matter, which was not before in it, but only new modifications."[70] For Locke, however, the principle that consciousness cannot arise from mere matter-in-motion seems to have a rather different significance.

Locke argues, not that to postulate thought is to postulate a substance superior to matter, but that no perfection can arise even as a mechanical modification of matter if it neither flows from the essential nature of matter (for the sake of argument, of matter-in-motion) nor has an appropriately powerful external cause. If matter supposed necessarily in motion would not itself *necessarily* produce a certain perfection, then it could not do so by itself *accidentally*. Indeed, an excellency or perfection of matter is superior to the "properties" of matter and to random or undirected accidents (i.e., to what happens to matter "accidentally" in something like the modern sense) precisely in that it could not possibly have arisen by bare chance. The generation of thought thus implies an antecedent thinking thing *because it implies an intelligent purpose and skill*. That explains why the acme of the scale of entities, in possessing understanding, is equipped to produce all lesser perfections without actually possessing them.[71] The creator of rational beings must be rational, but the creator of vegetables, provided that it is rational, need not vegetate. The connection between teleology and the principle that an effect cannot transcend its cause was not novel. It appears, for example, in Descartes' illustration of his notorious epistemological principle that the *cause* of an idea must be at least as far up the scale of being as its intentional *object:* his example is the thesis that the cause of an idea of a machine must be, if not its object actually existing, then the inventive intelligence of its possessor, who is ontologically superior to the machine.[72] Indeed, a connection

[70] Cudworth, pp. 758 f.

[71] Cf. *Essay,* IV.x.12.

[72] *Meditationes,* Primae Responsiones, *Oeuvres,* VII, 103 f. Locke was perhaps influenced by a parenthetical argument of Cudworth's (which temporarily drops the dualist presuppositions of the main argument) to the effect that, even if everything created were made out of preexisting matter, a further efficient cause would be necessary since "marble cannot make a statue, nor timber and stones a house, nor cloth a garment" (*True Intellectual System,* p. 758).

with teleology was present in the Aristotelian version of the principle, although here the idea is cause rather than effect: man begets man, but the idea of a plough in the mind of the craftsman is the cause of a plough. In natural theology the model of the craftsman is made comprehensive. Thus Locke has converted Cudworth's extended cosmological proof, which is about substantial creation, into a *deductive form of the argument from design*, or at least into a conflation of the cosmological and teleological proofs. It is supposed not merely deductive but also peculiarly a "demonstration" just because, whereas the standard argument from design can start from any purported "evidence" in observable nature, this argument starts from the one such premise known with intuitive certainty from one's own case, the premise that a thing with "sense, perception and knowledge" exists. Moreover, it appeals to the highest perfection in our experience, one analogous to the intelligence requisite in the divine architect.

There are several passages in the chapter which indicate that Locke is well aware of the transformation. His rhetorical gloss on the whole argument, aimed at those unconverted by its first bare formulation, is as follows: it is "senslessly arrogant . . . to suppose Man alone knowing and wise, but yet the product of mere ignorance and chance; and that all the rest of the Universe acted only by that blind hap-hazard." Cicero is quoted: "What can be more sillily arrogant . . . than for a Man to think . . . that those things, which with the utmost stretch of his Reason he can scarce comprehend, should be moved and managed without any Reason at all?" Again, a complaint against those who, like Descartes, argue from the idea of a perfect being is that they try to undermine "those proofs, as being weak, or fallacious, which *our own Existence, and the sensible parts of the Universe,* offer so clearly and cogently to our Thoughts, that I deem it impossible for a considering Man to withstand them."[73]

It is Locke's thus placing his argument within the general context of arguments from design which should color our interpretation of the often and variously repeated claim that "it is as impossible to conceive that ever *bare incogitative* Matter should

[73] *Essay,* IV.x.6 f. (my emphasis). Cf. also §12 and §10, p. 624, ll. 23 f. But compare the passage quoted from §7 with Locke's phrasing of Nicole in the first of the *Discourses on the Being of a God,* §§4 f.

produce a *thinking intelligent* Being, as that nothing should of it self produce Matter."[74] It is significant that he more than once says that what is impossible is the *genesis* of thought in a postulated eternal matter, even though the point is not strictly concerned with a temporal beginning but rather more generally concerns the causal source or origin of thought, which ought indeed to lie timelessly in the essence of the eternal thinking thing: "I appeal to everyone's own Thoughts, whether he cannot as easily conceive Matter produced by nothing, as Thought to be produced by pure Matter, *when before there was no such thing as Thought or an intelligent Being existing.*"[75] Here is another passage:

> . . . if we will suppose nothing first, or eternal; Matter can never begin to be: If we suppose bare Matter, without Motion, eternal; Motion can never begin to be: If we suppose only Matter and Motion first, or eternal; Thought can never begin to be. For it is impossible to conceive that Matter either with or without Motion could have originally in and from it self Sense, Perception and Knowledge, as is evident from hence, that then Sense, Perception, and Knowledge must be a property eternally inseparable from Matter and every Particle of it.[76]

Now this argument, as it stands, is clearly neutral on the question whether *finite* "cogitative beings" are in the nature of things immaterial. Just as the being and motion of matter, because they do not derive from the essence of matter, require an external cause or source, so the thinking hypothetically ascribed for the sake of argument to eternal and eternally moving matter would require an external cause or source. Like them, it cannot be conceived of as flowing from the essence of matter—even if for the sake of argument we assume that they do. To deny that matter can have sense and reason "originally in and from itself," i.e., essentially or necessarily or, in Locke's special sense, "naturally," is not to deny that a material thing can have them *tout court*, or "naturally" in the other sense of the word. The external cause must be an architect, but need not perform miracles.

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[74] *Essay,* IV.x.10, p. 623 (my emphasis).
[75] *Essay,* IV.x.10 (my emphasis).
[76] *Essay,* IV.x.10, p. 624. Last sentence added in 2nd ed.

It is likely to be objected to these suggestions that Locke "clearly" states in the course of the argument that it is impossible that the motion of matter should *ever* constitute thought. Indeed it will be said that Locke simply concludes that the eternal cogitative being cannot be material from the premise that *no* cogitative being can be material. There are two passages in particular which can seem "unequivocally" to bear out this contention. Immediately before the passage last quoted, Locke says:

> you may as rationally expect to produce Sense, Thought, and Knowledge, by putting together in a certain Figure and Motion, gross Particles of Matter, as by those that are the very minutest, that do any where exist. They knock, impell, and resist one another, just as the greater do, and that is all they can do.[77]

Yet just because of what follows—the analogy with being and motion, the gloss which emphasizes that the impossibility concerns matter's possession of thought "originally in and from itself," and the separate argument for the same conclusion based on the undoubted existence of some unthinking matter—it is reasonable to assume that Locke is here arguing for what he says he is, and nothing else. In that case his argument is that, however we pore over the (presumed)[78] essential properties of matter, we shall never see how sensation and thought will "flow" from them alone: *left to itself*, the undirected or random motion of particles will produce nothing but more of the same; and the suggestion that motion at the level of the finest minute particles may for all we know necessarily produce thought is worthless, since mere size introduces no difference in principle.

The second passage which raises the same issues runs as follows:

> For to suppose the eternal thinking Being, to be nothing else but a composition of Particles of Matter, each whereof is incogitative, is to ascribe all the Wisdom and Knowledge of that eternal Being, only to the juxta-position of parts; than which, nothing can be more absurd. For *unthinking* Particles of Matter, however put together,

[77] *Essay,* IV.x.10. What precedes this passage, especially the clause "when before there was no such thing as Thought, or an Intelligent Being existing," is also relevant to its interpretation.

[78] For a difficulty here, see below.

> can have nothing thereby added to them, but a new relation of Position, which 'tis impossible should give thought and knowledge to them.[79]

These sentences, as they stand out of context, are clearly open to interpretation as the claim that even God cannot make a material system ("however put together") think, at any rate nonmiraculously. Yet it can also be interpreted as what in its context it purports to be, an argument that, if *per impossibile* the eternal, wise, and knowledgeable God were a system of matter, then his wisdom and knowledge, not to speak of his being, would be unaccounted for; since they could be ascribed *neither* to a suitably endowed outside source *nor* to his essence, but only to a chance relationship between unthinking parts, which is absurd. The phrase "however put together" must be read in the context of the assumption of the argument that the parts have been put together accidentally or randomly. It is the possibility that the *chance* juxtaposition of parts should constitute thought which is ruled out by the principle that the effect cannot transcend the cause. Locke's argument indeed continues with the point that, if the material God's thinking "consists in a certain motion of the parts," then its thoughts

> . . . must be unavoidably accidental, and limited; since all the Particles that by Motion cause Thought, being each of them in it self without any Thought, cannot regulate its own Motions, much less be regulated by the Thought of the whole; . . . So that such a thinking Being will be no better nor wiser, than pure blind Matter; since to resolve all into the *accidental unguided* motions of *blind* Matter, or into Thought depending on unguided motions of blind Matter, is the same thing.[80]

This further argument at least leaves it open that an immaterial and far from blind supreme mechanic should so regulate and guide the motions of the minute parts of a material mechanism

[79] §16 (my emphasis). There are distinct echoes of Nicole (first translated *Discourse,* §13) here, but significantly Nicole is arguing for the immateriality, indeed natural immortality of the soul. The verbal analogy only emphasizes the different context of Locke's sentences in the *Essay.* For Locke, an argument like Nicole's only works with respect to *God's* immateriality.

[80] §17 (my emphasis).

that, out of his own regulative wisdom and knowledge, he bestows wisdom and knowledge on the system. If we do suppose such a divine external cause, the problem of how *unguided* and *haphazard* motions of the incogitative parts of a system of matter should constitute its thought is circumvented, since the relevant motions are guided or selected; while the teleological principle that the effect must derive its being or perfection from the cause is neatly illustrated. All this explains what Locke meant by the (as far as we know) possible "superaddition" of thought to matter. But in all this nothing contranatural or supermechanical is postulated. For Locke, God must have guided or ordered his material creation, but his performance of the metaphysical absurdity usually understood today by the term "superaddition" is never envisaged. Such an absurdity played no part in the materialism which Locke knew and to which he is directing his response. To sum up that response: Hobbes might be right about us, but the suggestion could not be right that God, too, is material.

If my interpretation of the sentences on the page seems stretched (as it may do for others, but certainly will do for the modern reader who allows nothing but his untutored intuitions to affect his judgment of their meaning), there is nevertheless independent evidence that it embodies Locke's own view of his intentions. In the face of Stillingfleet's criticism, including the imputation that the *Essay* contradictorily asserts both that we can know that what thinks in us is an immaterial spirit, and that we cannot know that it is not material, Locke's defense contains this categorical statement:

> . . . from the idea of thinking, we can have a certainty that there is a thinking substance in us; from hence we have a certainty that there is an eternal thinking substance. This thinking substance, which has been from eternity, I have proved to be immaterial. This eternal, immaterial thinking substance, has put into us a thinking substance, which, whether it be a material or immaterial substance, cannot be infallibly demonstrated from our ideas; though from them it may be proved, that it is to the highest degree probable that it is immaterial.[81]

[81] *Letter,* p. 37. A similar passage on p. 33 refers explicitly to *Essay,* IV.x.16.

On my interpretation of the *Essay* this is just what we should expect Locke to say, given that he is in general prepared to grant that the "inconceivability" or incomprehensibility to us of a material mind creates some prejudice in favor of dualism[82] (despite the bolder allegation at IV.iii.6 that dualism is no more conceivable than materialism). It might be argued, however, that another explanation of Locke's words is possible: he might mean that the intrinsic or natural impossibility of a material system's thinking rules out God's being material, but that an immaterial God has it in his power to do what is intrinsically impossible (e.g., to make a material system think), although it is more probable that he would stick to what is possible. Such a strange and tortuous line of thought, however, postulating that God is bound to the naturally possible in his *being*, but not in his *doing*, could only reasonably be ascribed to Locke if he indubitably maintained elsewhere that the superaddition of thought to material systems would be contranatural. Yet, on the contrary, there is overwhelming evidence that he did not think this. We are told that thought would just as much have to be superadded to immaterial substance as to material substance; that thought is, as far as we can know, a perfection no different in kind from animal or vegetable life; that dualism is no more conceivable than materialism; that to think that what is inconceivable is therefore impossible is to limit God's power to the extent of our ideas; that no one has proved a contradiction in the notion of thinking matter; and so forth. Ironically, one reason why these points have been neglected or misinterpreted is probably that commentators have felt secure in their belief that *Essay* IV.x.10 and IV.x.16 unequivocally assert the impossibility of thinking matter.

The changes made to the second edition in response to Stillingfleet's charges of inconsistency bear out the explanation I propose. For example, IV.x.10 came heavily to emphasize that the issue is simply whether matter could have sense and reason "originally in and from itself," i.e., essentially or necessarily or, in Locke's special sense, "naturally." IV.iii.6 came to state that, although it is shown in IV.x to be a contradiction that the "Eternal first thinking Being" is material, it is *not* a contradiction in general

[82] Cf., e.g., *Essay,* II.xxiii.5.

that material systems should think.[83] Another passage, II. xxiii.15, is an argument expressed *within the terms of* dualism (to the effect that our idea of spirit is as clear as our idea of matter, although we have no positive idea of the substance of either) which can misleadingly seem like a would-be demonstrative argument *for* dualism. The second edition version ends with the sentence, "[Sensation] I must be convinced cannot be the action of *bare insensible* matter; nor ever could be without an immaterial thinking Being." This sentence becomes intelligible if taken to be an allusion to IV.x, contrasting "bare, insensible" matter with matter guided by an immaterial intelligent God. Given all this, how can we happily attribute to Locke the view that the contradiction in the notion of a material God simply derives from a contradiction in the notion of a material thinking thing? Whatever *we* would mean if *we* uttered certain selected sentences from IV.x, it is as certain as interpretation can be that this was not *Locke's* meaning.

I would not deny that the argument for God's existence could have taken a form more obviously consonant with the strenuous agnosticism of IV.iii.6 and elsewhere; nor that the total response to Stillingfleet contains an element of fudging or tidying up. For example, IV.x is one of those passages in which Locke seems ready to assume that Boyle's account of the essence of matter will do, and to forget that "solid, extended substance" ought by his own lights to be regarded as no more than a definition of *our* idea of matter. Once Boyle's mechanism is subjected to the skeptical argument of, e.g., II.xxiii (not to speak of the problem of gravity), the claim that, without "an intelligent being existing," particles in motion "Knock, impell, and resist one another . . . and that is all they can do," even if it means what I say it does, can only seem unduly dogmatic. It is therefore out of place in a purported demonstration in which everything appealed to must be absolutely certain. Moreover, the independent argument that matter does not think essentially, which appeals to the obvious existence of unthinking matter, however reasonable, is an appeal to sense experience and so less than is strictly required for a demonstration.[84] What Locke therefore needs is a general *a priori* principle

[83] *Essay,* p. 541, ll. 8–15.

[84] I take it that *Essay,* p. 624, ll. 11–15 constitutes such an appeal.

which is independent of a specific mechanist theory: i.e., the principle that *however* particles in motion behave in general and as such, that behavior, *unguided or unselected by thought*, will not lead to thought. Locke would, of course, have accepted such a principle, deriving it from the extended cosmological principle that the cause must have at least the perfection of the effect. Thus rewritten, Locke's argument would be less graphic, but more evidently unreliant on a dogmatic, specific form of mechanism.

It is interesting that Locke himself seems to have seen the need for just such a revision of the argument of the long passage quoted above from the *Second Reply*.[85] There he argues that the superaddition of thought to matter no more evidently "destroys the essence of matter," i.e., extension and solidity, than does the superaddition of any other perfection. Again he seems less than clearly to recognize that, by his own lights, "extended, solid substance" gives the defining or "nominal" essence rather than the ontological or "real" essence of matter. He seems rather to be assuming the corpuscularian view of the latter for the sake of argument. Yet in a later letter to Collins the same general point is put in a way which is more scrupulously compatible with agnosticism about the ontological essence. Cogitation, extension, and solidity, it is said, may all be, for all we know, similarly related to an *unknown* substance or essence: "Of this substance we have no idea, that excludes cogitation, any more than solidity."[86] If only Locke had seen fit to rewrite the relevant parts of the argument for God's existence in the same terms, then perhaps fewer mistakes would have been made about his meaning.

Criticism is not my present purpose, but it may help us to grasp the character of Locke's "proof" if we identify its weaknesses. Crudely, it is either invalid or circular.

An argument from design is normally neither presented nor to be judged as a would-be deductive proof. As Cudworth, for example, puts the teleological argument in its most general form, it is no more possible that the regular system of the world should be the result of the fortuitous motion of atoms than that the hated "six books of T. Lucretius Carus" should be a chance arrangement of letters.[87] Such things were held to be "impossible"

[85] I.e., pp. 460 f.

[86] Dated 21 March 1703–4, *Works*, X, 282 ff.

[87] *True Intellectual System*, p. 676. Cf. *Essay*, IV.xx.15, p. 716, ll. 23 ff.

because of the supposed massive improbability of their happening by chance, rather than in the sense in which a triangle with angles greater than two right angles is impossible. Locke, however, tries to conflate the two sorts of "impossibility" by means of the extended cosmological principle. Thus, from premises which we can know to be true by observation and experience (e.g., that living things exist or, more certainly and more impressively, that a thinking thing exists) we can, so Locke believed, strictly deduce the existence of God. Yet (whatever we are to make of the principle) the argument is invalid unless we presuppose the additional premise that the observable or introspectible attribute in question—life, thought, or whatever—is a "perfection" in the required sense, a point which is beyond the powers of observation or introspection to determine by themselves. For in effect, as we have seen, the judgment that the attribute is a perfection just is the judgment that it involves too much remarkable organization to have come into existence by chance. The intuition to which Locke appeals in each case is really no different from the sort of intuition appealed to by Cudworth in the example of Lucretius' poem. To make explicit and to unpack the necessary additional premise is therefore to make explicit the circularity of the whole argument, and to reveal its inherent tendency to collapse into the standard probabilistic argument from apparent design, a tendency manifested in Locke's own rhetoric.

Locke himself brought an analogous criticism against an argument employing the rival concept of a perfection. In the same letter to Collins, he considers an argument of Norris' for substance-dualism, that "Cogitation . . . is more excellent than motion, or vegetation; and therefore must belong to another substance than that of matter, in the idea whereof, motion and vegetation are contained." The point of one criticism which Locke goes on to make seems to be that Norris offers no independent criterion by which to identify a difference in excellence. Consequently he argues in a circle, judging thought to be superior to vegetable life just because he already accepts the conclusion that matter cannot think, but can vegetate. Yet Locke himself could be embarrassed by the reasonable demand for an independent criterion for distinguishing "perfections" from those manifold accidents of matter which count for no more than its

undirected arrangement and motion: a criterion independent, that is to say, of the conclusion that the former could only arise by design.

VI. Conclusion

The doctrines which I have discussed may seem distinctly old-fashioned, but they have been important in the history of science as well as of philosophy. Our prize, if I am right, is to have entered into Locke's mind and world and system far enough for us to have achieved at least some comprehension of its consistency and of that appearance of consistency to Locke himself without which it is incredible that the *Essay* should have been written. Whatever weaknesses exist in his argument, the struggle for system is always present, thoughtless or reckless inconsistency, mindless "tensions" never. If there remains anything mysterious in his attitudes it lies in his concession, made at the very moment of his rebuttal of the arguments of dogmatic dualism, that dualism is nevertheless highly probable. Yet, whatever his reasons for that judgment, the only discursive argument which he advances is for agnosticism, and the vigor of his campaign against the orthodox proofs of a simple, immaterial, and naturally immortal soul might well make its weight seem to lie, as many indignant contemporaries believed, on the materialist side. As for the notion of "superaddition," it is neither the strongly metaphysical recognition of the peculiar problem of consciousness nor the clear step towards an empiricist theory of causation which some have taken it to be. It is, on the contrary, a technical tool borrowed from logic and used in a broadly mechanist or rationalist, but scientifically agnostic natural theology. That natural theology is elaborately neutral on the question whether human consciousness consists in more than the mechanical functioning of a material machine.[88]

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[88] An earlier version of this article was presented as a paper to a symposium of the Gottfried-Wilhelm-Leibniz-Gesellschaft held under the title "Truth, Knowledge and Reality: Inquiries into the Foundations of Seventeenth Century Rationalism" at the University of Reading, 27–30 July 1979.