

# *Ernan McMullin on Human Nature and the Meaning of Reduction*

with Paul L. Allen, "An Augustinian Philosopher between Dualism and Materialism: Ernan McMullin on Human Emergence" and Ernan McMullin, "Biology and the Theology of the Human"

## BIOLOGY AND THE THEOLOGY OF THE HUMAN

by *Ernan McMullin*

*Abstract.* We will consider two Christian responses to the enormous advances in recent years in the connected sciences of genetics, evolutionary biology, and biochemistry, a dualist one by Pope John Paul II and an "emergentist" one by Arthur Peacocke. These two could hardly be more different. It would be impossible within the scope of a brief comment to do justice to these differences. What I hope to do instead is more modest: to draw attention to troublesome ambiguities in some of the key concepts on which discussions of human uniqueness depend, to recall very briefly some of the difficulties philosophers have encountered in their attempts to define the relation of the human powers of mind to the material capacities of body, and finally to ask what the theological significance of all this is.

*Keywords:* dualism; emergence; evolution; human nature; John Paul II; matter; Arthur Peacocke; reduction; soul

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In 1981, at the height of the debate about "creation-science" in the U.S., the National Academy of Sciences stated in a resolution: "Religion and science are separate and mutually exclusive realms of human thought whose presentation in the same context leads to misunderstanding of both scientific theory and religious belief" (National Academy 1984, 6). "Separate and mutually exclusive"—this view of the science-religion relationship is an attractively simple one, one widely shared in our secular age. It implies that true conflict between the two cannot happen: if a debate does arise it

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can only be because one or the other has overstepped its bounds, epistemologically speaking. Long ago, in the first major confrontation between Christian theologians and practitioners of a natural science, Galileo quoted a *bon mot* he attributed to Cardinal Baronio: "The intention of the Holy Spirit is to teach us how one goes to heaven and not how heaven goes."<sup>1</sup> He argued, plausibly, that the Scriptures were never intended /368/ to bear on such technical issues in the natural sciences as the true motion or rest of earth and sun; in this regard, the Biblical authors would assuredly have accommodated themselves to the capacities of their intended audience.

Though there would be pretty general agreement today on this clear-cut separation between theology and such sciences as astronomy, the matter is quite different in regard to one domain where the interests of the two sides clearly seem to converge. The sciences obviously have a great deal to say about human nature, but the Bible presupposes a very definite view of human nature also: Human beings are made in God's image, are morally responsible for their actions, are destined to eternal life with God. It is, of course, a matter of presupposition on the part of the Biblical authors, not of philosophical argument. Yet the commitment to certain very general views regarding human uniqueness, human unity, and human freedom is unmistakable.

#### TWO VIEWS

Pope John Paul II made this latter point very forcefully in a recent address intended for a meeting of the Pontifical Academy of Sciences that dealt with issues in those sciences that bear on evolution. It is proper for theologians to concern themselves with the question of evolution, he asserted, "for it involves the conception of man" (John Paul II 1996, 352). The Pope was perfectly willing to allow that the theory of organic evolution is supported by a growing body of evidence, impressive in its "convergence." (This was the feature of his address that was picked up by the press in the U.S., presumably because of the enduring controversy surrounding the efforts of "creation-science" advocates to oppose the theory of evolution in the name of Biblical orthodoxy.) He went on to insist, on philosophical as well as theological grounds, that this theory cannot account for the appearance of the human soul which, being spiritual, cannot originate from the resources of matter alone. The soul must, then, be "immediately created by God."

But does not this claim of an "ontological leap" to the level of the human create a severe tension between theology and the sciences, he asks? After all, physical continuity "seems to be the main thread of research into evolution in the fields of physics and chemistry." But closer consideration of the methods appropriate to "the various /369/ branches of knowledge makes it possible to reconcile two points of view which would seem irreconcilable."

The “sciences of observation” are limited to what can be measured and correlated. “The moment of transition to the spiritual cannot be the object of this kind of observation,” even though at the experimental level science can discover “signs of what is specific to the human being.” Ultimately, however, it belongs to the competence of philosophy and theology to analyze the implications of such uniquely human features as self-awareness, freedom of choice, religious experience. It is at this level that the discontinuity of the human must be affirmed. Reductionist or materialist philosophies that deny this “ontological” discontinuity and “consider the mind as emerging from the forces of living matter or as a mere epiphenomenon of this matter are incompatible with the truth about man.” They cannot “ground the dignity of the person.” What is at issue, then, is “the true role of philosophy and beyond it, of theology.” The Papal address simply restates traditional doctrine in regard to the human soul, with a fuller philosophical commentary than any other recent Roman pronouncement on the issue.

There are echoes here, ironically enough, of the position taken in the statement from the National Academy of Sciences. Apparent conflict between religion and science regarding the activities that distinguish human beings from other living things can be dealt with by ruling that the two are mutually exclusive, that they cannot in principle truly overlap in the claims they make about the world. Of course, the Papal statement backs this up in a way that the NAS would never allow by asserting that the sciences simply have no jurisdiction in the disputed domain. The claim is a familiar one, familiar in recent decades especially among those who belong in that group of philosophical traditions loosely called “Continental”: existentialism, phenomenology, personalism. . . . One would look in vain for the most part in the works of leading figures in these traditions for any hint that the services of such sciences as evolutionary biology or anthropology or cognitive science could help to illuminate the philosophic quest for a better understanding of the human spirit. The group of philosophical traditions equally loosely grouped under the label of “analytic,” associated especially with the English-speaking and Scandinavian countries, have been much more sympathetic to the claim that the sciences do indeed have something to say about the nature and origins of such human activities as thinking and willing. /370/

Arthur Peacocke’s essay [. . .] reflects this latter sort of emphasis. In the map of scientific knowledge he provides the reader, the sciences all bear on the human in one way or another, and at the level of the *distinctively* human, such sciences as social psychology, anthropology, and psycho-linguistics, are given strong emphasis. Peacocke underlines, in particular, the way in which such “lower-level” sciences as molecular genetics, evolutionary biology, ethology, and behavior genetics, illuminate issues at the “higher” level of the human. The conclusion he draws from these sciences is that human

beings “emerged” through the natural processes of evolution, so that from the theological standpoint evolution is the instrument by means of which God chose to bring the human race to be. “Furthermore, the biological-historical evidence is that human nature has emerged only gradually by a continuous process from earlier ‘hominids’ and that there are no sudden breaks of any substantial kind in the sequences noted by paleontologists and anthropologists” (Peacocke 2000, 356).

From Peacocke’s perspective, then, there are no ontological discontinuities of the kind the Papal statement finds necessary in order to safeguard human dignity. There is simply no evidence from the sciences that would support such an hypothesis, he maintains, and much that would count against it. How, then, does Peacocke, himself a devout Christian believer, secure the uniqueness of the human that appears to be so central to Christian belief? This is where the notion of emergence comes to his aid. To say that humans “emerged” from the evolutionary processes leading up to their appearance is, for him, to say that the properties constituting the distinctively human level are “new,” that they cannot be “reduced” to (explained in terms of) properties and configurations proper to the lower levels. A “new, non-reducible reality” gradually made its appearance with the advent of the human, something that “transcended” all that went before, even though it had evolved from it. The new reality is not a substance (mind-body dualism is, he says, “a common misapprehension of the Christian view of humanity” [ibid., 361]); it is a new level of being, characterized by “new capabilities and functions at levels of greater complexity;” but not ontologically discontinuous with what preceded it and prepared the way for it.

Since Peacocke lays so much weight on non-reducibility as the criterion for this “new reality,” it would clearly be important to establish that the distinctively human capacities are, in fact, non-reducible. Here his argument becomes muted: these capacities are not to be “prematurely . . . reduced to the concepts applicable to the constituents of the evolved human body” (ibid., 352, my emphasis); they must be accorded the “*prima facie* status” of new realities until they have been shown to be “unequivocally reducible.” But this seems very weak. Elsewhere in his essay, he seems to assume that they have been shown to be irreducible, indeed, that the sciences of the human in general are coming round to this view in consequence of a “major shift in our cultural and intellectual landscape.” But is this really so? What is needed here is at least brief reference to the lively debates going on around this very topic in what may be the most active area in philosophy at the present time, the philosophy of mind.

Here, then, are two Christian responses to the enormous advances in recent years in the connected sciences of genetics, evolutionary biology, and biochemistry. They could hardly be more different. It would be impossible within the scope of a brief comment to do justice to these differences.

What I hope to do instead is more modest: to draw attention to troublesome ambiguities in some of the key concepts on which discussions of human uniqueness depend, to recall very briefly some of the difficulties philosophers have encountered in their attempts to define the relation of the human powers of mind to the material capacities of body, and finally to ask what the theological significance of all this is.

### REDUCTION

In the context of the sciences, reduction is primarily an epistemological affair. To reduce a theory,  $T_2$ , by means of theory  $T_1$  is to show that the explanation given, the concepts employed, the laws drawn on, the mechanisms postulated,<sup>2</sup> by  $T_1$  can satisfactorily perform the equivalent tasks of  $T_2$ , thus “reducing” the sciences needed in that context from two to one. Examples would be Maxwell’s explanation of optical phenomena by means of the electromagnetic field, thus reducing classical optical theory to electromagnetic theory, or the explanation of thermal phenomena through /372/ the concepts and laws of mechanics, thus reducing thermodynamics to statistical mechanics. In the type of reduction of most concern to us here, the notion of a “level” enters in:  $T_2$  is said to be a “higher” level than  $T_1$ , that is, it deals with more complex entities of which the entities that are the subject of  $T_1$  are constituents. To reduce would then be to explain the properties of the whole in terms of the properties of the parts and their configuration. An example would be an explanation of Mendelian inheritance in terms of DNA structure and the action of enzymes, in effect reducing Mendelian genetics to molecular biology.<sup>3</sup>

The topic of reduction received a good deal of attention from the logical positivists earlier in the century, and it continues to be a debated issue today. The summary above does not begin to do justice to the subtlety of the distinctions and the detail of the case-studies to be found in the literature.<sup>4</sup> But it may suffice to enable some needed inferences to be drawn. To reduce a higher-level property is not to deny its reality. It is to question the supposed difference of level, since the reducing properties (concepts, mechanisms, etc.) are alleged of themselves to account causally for the reduced property. Historically, however, reduction has often been supposed to warrant a much stronger inference.

The ancient atomists postulated atoms possessing only shape, position, configuration, and motion. Such properties as the taste and color of visible bodies were to be explained by the properties of the constituent atoms. The conclusion drawn was that the sensible qualities, thus explained, were also explained away. They existed, in consequence, only “by convention.” With the revival of atomism in the seventeenth century, doubts about the existence of secondary qualities surfaced once again: if they could be

explained by the primary qualities of constituent corpuscles, what kind of reality could they have in their own right?

Successful reduction, as already noted, does carry with it an ontological consequence. Since the reduced quality can be fully specified in terms of the reducing qualities and their configuration, it is no /373/ longer regarded as an *autonomous* property. It does not have to be separately specified in a description of the complex entity. Yet it is nonetheless real. The color of an object is no less real because it can be explained in terms of the properties and configuration of the constituents of the body's surface layer of atoms. The negative overtone of the terms 'reductionist,' 'reductionism,' derives in part, no doubt, from the widely-shared belief that a reductionist is someone who denies the existence of a strongly evidenced reality.<sup>5</sup> It is true that someone who claims reduction in a particular domain is denying *diversity* of an irreducible sort. But that is a different matter. If explaining self-awareness in neuro-physiological terms were to be equivalent to denying its existence, then reductionism would indeed be a threatening program! The language of "nothing but" on the reductionist side, furthermore, does nothing to dispel this misunderstanding. All of this does not mean that successful neuro-physiological reduction would not have significant ontological and philosophical consequences. But they are not quite what they are often supposed to be.

One further common misapprehension should be noted in regard to reduction itself.<sup>6</sup> When the science of some complex whole is reduced by the science of its constituent parts, in some cases what has happened might be better described by calling it an *enlargement* of the lower-level science. As we have just seen, it was standard belief from the seventeenth century onwards that a secondary quality like color could be reduced in terms of the mechanical qualities and the configuration of the constituent corpuscles of the colored body. John Locke professed himself baffled as to how such an explanation would proceed, but remained confident that it could, in principle, be carried through (Locke 1690, Bk. 4, chap. Three). Since the corpuscles and their motions were causally responsible for the property perceived by us as color, the science of these corpuscles, mechanics, would be sufficient to explain color. But *whose* mechanics? Newton challenged the list of "primary" properties he had inherited from the "mechanical" /374/ philosophers of an earlier generation by adding a factor that appeared distinctly non-mechanical to his critics. Gravity was needed to explain the behavior of such complexes of bodies as planetary systems. It was the behavior of the *complex* that forced the addition of a concept that would revise the notion of "mechanical" action so drastically.

But much worse was to come. It turned out that Newtonian mechanics, fortified by the "unmechanical" notion of gravity, could not explain the most obvious attribute of solid bodies, namely their color. It took a

complete revision of mechanics itself, a turning-upside-down once again of its most basic notions of mechanical action, to carry the so-called “reduction” through. Quantum mechanics called upon spectroscopic data, data about the frequencies of the radiation emitted by complex bodies, atoms and molecules. Attention to the properties of the whole ultimately forced an entirely new understanding of the capacities of the parts. What is important to grasp here is that it is not just the properties of the parts in isolation (as it was in Cartesian mechanics) that define the science of the parts, but also their properties when joined with others in complex configurations. And these latter capacities or potentialities can only be discovered by treating the properties of the complex whole as, in some cases at least, epistemologically primary. Quantum mechanics may look like a science of elementary particles, and in a sense, of course, it is. But it must not be forgotten that it was constructed by treating the properties of complexes as clues to capacities that would somehow have to be incorporated in the science of the parts.

The label ‘reduction’ is thus in this respect equivocal. Two morals may be drawn from this. One is that reduction is not necessarily the simple shifting of epistemological and ontological weight from whole to parts that it is often assumed to be. The other is that the fundamental revisions of the sciences of the parts that attention to the properties of the complex occasionally brings about cannot be anticipated. Thus to speak of reducing biology or psychology to “physics” is not the clear-cut proposal it is usually assumed to be. Endless debates between proponents of such reduction and their critics rarely pay attention to the ambiguity in the fundamental term in the reduction. What is meant by “physics” in such a scenario? The physics of today? The colors of material bodies were not, in fact, reducible to physics or mechanics as these terms were understood in the mid-nineteenth century. How are we to know what physics will look like a hundred years /375/ hence? Physicists in 1900 could not have imagined how fundamental a transformation would be worked by theories, then still to come, that today we know as relativity theory and quantum theory. It is risky to set limits in this regard. Consideration of the properties of such complex wholes as the human brain could eventually force a revision in the science of the physical constituents of the brain just as fundamental as the revision that consideration of the color of atomically-constituted bodies forced on the Newtonian science of the atom’s constituents. At this point, we simply do not know.

#### EMERGENCE AND MATERIALITY

The issue of reducibility can also arise in a rather different context, when one asks how complex properties come to be in the beings that display them. One might ask, for example, how the processes of biological growth

in the human fetus can bring about the appearance ultimately of such properties as intelligence. Or one might ask, at a further remove, how a new kind, distinguished by various upper-level properties (the first living cell, say) could have come about in the course of evolutionary development. Ordinarily, scientists go about answering requests of this sort for what has been called genetic explanation by looking to the prior constituents of the complex being and the processes in which they engage; they assume that these will causally explain how the upper-level property came to be. But suppose the property is irreducible? Then an explanation of this sort is automatically blocked. It is, no doubt, in large part because of this that claims for the irreducibility of various "levels" in nature have been greeted so often with suspicion from Descartes' time onwards. Nonetheless, belief in such levels persisted even after Darwin's *Origin of Species* posed a strong challenge. It seemed obvious, to some scientists at least, that such levels do exist, and that the transition upwards from one level to the next in the course of development either of the individual or of the kind cannot be the sort of smooth predictable affair that reducibility would, in principle at least, allow the scientist to take for granted in advance.

The issue was much discussed in the later nineteenth century, not only because of the growth of evolutionary forms of explanation but also because of concrete incidents of unexpected reduction in physics, as optical theory for example was subsumed into electromagnetic theory. A number of British philosophers were led to propose a notion that came to be called "emergence."<sup>7</sup> A high-level property is said to be emergent when it is, roughly speaking, irreducible by the sciences governing the constituents from which it derives. To say that it "emerges" implies that in some sense it was already there in potency but that it is in a significant sense new. A favorite example of these early defenders of emergence was water: its properties surely cannot (they reasoned) be reduced by the properties of hydrogen and oxygen alone. Water must be supposed, then, simply to emerge when the material substrate is right, that is, when oxygen and hydrogen are brought together in the proper proportions and in the proper way. With the advent of quantum mechanics, claims for the irreducibility of such chemical complexes as water by the mechanics applying to their constituents have been undermined. But the reducibility of living processes by the concepts of biochemistry is still debated. Authors as diverse as Michael Polanyi, G.G. Simpson, Ernst Mayr and Marjorie Grene, defend one or other form of irreducibility of level in biology and hence are led to postulate emergence to describe what happens in the regular course of biological development when an upper-level property makes its appearance.

Criticisms of emergence are of two kinds. Some philosophers have argued that the notion itself is incoherent or, at the very least, ill-defined. A certain configuration of the constituents is said to be a sufficient condition for the upper-level property to appear.<sup>8</sup> Why not, then, say that this causes



the property to appear? And if one can say this, is it not to say that there is a law connecting the two, and perhaps even to imply that there must be a theory explaining why the law holds, even if we cannot yet say what that theory might look like? And if this is the case, can one still hold that the upper-level is irreducible? The questions here are complex and have led to intricate debates.<sup>9</sup> Many of the issues arise from the difficulties in defining the notion of reduction to which we have already alluded. We shall have to lay aside both sets of issues, important though they are, for reasons of space. The other sort of criticism of emergence is to say that the concept is not needed, since none of the alleged cases of irreducibility hold up. Committed reductionists, like Paul and Patricia Churchland, have argued full reducibility even of the domain of the mental and the intentional, claiming that it can be reduced by neuro-physiology, in principle at least (Churchland 1984; Churchland and Churchland 1986).

This is, however, a highly controversial position. Closer to the center might be the view of Jaegwon Kim who regards the “current orthodoxy” in the philosophy of mind as being a nonreductive physicalism which, in his view, is equivalently a form of emergentism (Kim 1992, 121). He is, however, dubious about the notion of downward causation to which (he maintains) an emergentist must be committed, arguing that assigning to the mental the capacity to influence that which sustains its very existence “threatens the coherence of this popular approach to the mind-body problem” (*ibid.*, 137)./378/

To sum up, then, though the mind-body problem is perhaps the main battlefield in contemporary analytic philosophy, there would be fairly strong support for the claim that the realm of the mental (or the intentional) is not reducible by the sciences of the brain’s constituents, though there would be wide disagreement about how this should be shown and just what notion of reduction one ought to employ in this context. The further question as to how mental processes or properties make their appearance leads to the admission of the notion of emergence, allowing once again for a degree of variation, this time in how this latter concept is defined by its proponents.

One further question needs at least brief treatment. Recent defenders of emergence in the philosophy of mind tend to characterize their view as “non-reductive materialism.” Is it, in fact, materialist? Not if materialism be supposed to exclude the existence of spirit, of a non-material form of existence. Peacocke, a theist as well as an enthusiastic proponent of emergence, would certainly not qualify as a materialist in this sweeping sense. Emergentism is, however, consistent with a broadly materialist account of the mind-body relationship. An emergent property is said to emerge from the “matter” that prepares its way. And the material configuration of the substrate furnishes a sufficient condition for the property’s appearance. The term, ‘material,’ is an exceedingly elastic one (McMullin 1995; 1999). But

if one harks back to its original sense in Aristotle, it connotes the potentiality of a thing to take on a different property or even to become a different kind of thing entirely, while maintaining the continuity conveyed by the notion of *change* (rather than replacement). If, in the process of change that a complex entity undergoes, an emergent property makes its appearance, the potentiality for that property must in some sense have been there in advance. But in what sense?

This is one of the places where the debate about the credentials of emergence as an explanatory notion has been joined. Emergence is not an ordinary sort of change where the outcome can be anticipated and causally explained. There is a degree of discontinuity, a shift from a lower to a higher level. The traditional notion of potentiality carried with it the implication of a smooth process ready to be set loose by the appropriate external agency. Emergence does not seem to be like that. Perhaps a certain expansion of the notion of materiality is needed if emergence be allowed. /379/

Throughout much of the history of the concept of matter, it seems to have been presumed that one somehow knows in advance what the limits set by “materiality” are. Matter is corruptible; matter is extended; matter has location; matter cannot act at a distance. In discussions in medieval philosophy of the “immateriality” of intellect, it was assumed that materiality could be defined in advance as a contrast term.<sup>10</sup> Closer to the modern usage of the term, the natural philosophers of the seventeenth century equated “matter” with whatever obeys the basic laws of mechanics (McMullin 1978, 52–55). In the heyday of Newtonian mechanics, this set reasonably tight bounds on what could count as “material” action, though even then gravity posed something of a challenge. But the upheavals in mechanics of the past century should warn one against such easy assurance today. In particular, the unresolved debate about how best to interpret the quantum formalism in ontological terms makes it difficult, if not impossible, to specify the limits of “material” action in terms of today’s science. And we have little idea of what the mechanics of the future will look like at the deepest level when gravity and the remaining fundamental forces are brought under a single formalism. It is well to keep in mind that it is precisely at the deepest level of what constitutes “mechanical,” effectively “material,” action that the greatest surprises have come in the past, witness the paradigm-shifting contributions of Newton, Einstein, and Bohr.

If emergence be admitted, the notion of the “material” might have to be loosened up even further. An emergent property is one that could not have been anticipated on the basis of the prior science of the /380/ constituents only.<sup>11</sup> A form of “materialism” that allows emergence is, therefore, a pretty capacious position. It would admit properties like intentionality and self-awareness that, on the presumption that they are emergent, would lie outside the scope of the basic science of the world’s constituents. On this

reading, it would seem, on the face of it, to be difficult to say of any property in advance that *it* lies forever outside the limits of materiality. The “material” is simply the realm of becoming, whose capacities for new sorts of otherness only time can reveal. The traditional assumption that “materialism” confines one to categories that are immovably fixed in advance would thus have to be rejected. But, as we have seen, there is another reading that would begin not from matter but from spirit and would make the categories of the “material” and the “immaterial” independent of developments in the natural sciences. The theologian, Karl Rahner, expresses this view succinctly:

What spiritual means is an immediate non-empirical datum of human knowledge. . . . It is only on the basis of that knowledge that it is possible to determine the actual metaphysical meaning of ‘material.’ It is an unmetaphysical and ultimately materialistic prejudice common among scientists to suppose that . . . [they] know precisely what matter is, and then subsequently and laboriously and very problematically have to discover spirit in addition, and can never properly know whether what it signifies cannot after all be reduced to matter in the end. (Rahner 1965, 47)<sup>12</sup>

/381/ Though this would seem to make the border between matter and spirit impassable, Rahner will also say “without scruple, that matter develops out of its inner being in the direction of the spirit” (Rahner 1966, 164). In his view, the Creator has endowed matter with the capacity to “transcend itself”; the “power of self-transcendence” may allow a “leap to a higher nature” (*ibid.*, 169, 165).<sup>13</sup> It sounds like emergence, in a different, more metaphysical, idiom.<sup>14</sup>

## DUALISM

We are now in a better position to assess, in a very brief way, the strengths and weaknesses of two very different accounts of the human soul, dualist and emergentist. What makes such an assessment more than ordinarily problematic, however, is that it has to take into account three quite diverse sorts of knowledge-claim, scientific, philosophical, and theological. Each of these possesses its own characteristic notions of evidence, its own modes of procedure. Even this is to oversimplify, since the sciences and more especially philosophy and theology are themselves very far from agreement internally on matters of evidence and procedure. And in the event of disagreement, how is one to assign relative weights to the three different sorts of consideration?

What about the dualist claim that the sciences need not be taken into consideration in this context, on the grounds that the activities on which the existence and nature of the soul are predicated are not accessible to the methods of the biologist or the psychologist? On the face of it, such a claim seems problematic. Why should the psychologist be barred from

investigating self-consciousness, free choice, and the like? Why should the neuro-physiologist or the molecular biologist be deemed incapable of investigating the material basis for such activities in the brain? Perhaps more tellingly, might not the inaccessibility argument be reconstrued to point to the *non-reductive* character of certain aspects of mind, and hence to be satisfied by emergentism, say?

The emergentist agrees with the dualist that the resources of physics and biology are of themselves inadequate to deal with the intentional character of human consciousness. But emergentists do not take the further step of supposing that conscious activities are not rooted in the physical structures of the human organism, nor do they bar an appropriately scientific treatment of the intentional aspects of mind. The science here would not, of course, reduce to physics or biology. But it would not impose the absolute ban on “scientific” investigation that renders dualism suspect in the eyes of most scientists and many philosophers. Let us assume, then, that the sciences are not to be ignored in an investigation of the soul.

How should such an investigation proceed? Let us begin with dualism, in both its stronger (Platonic or Cartesian) and its moderate (Thomistic) forms. The original arguments in favor of dualism were philosophical in character. This is not the place to analyze these arguments in any detail, though of course this would be necessary were our investigation to be anything more than schematic. The capacity of the mind to reach unchanging truth (Plato), the reception of the forms of material things into the mind as the means by which these things are to be grasped intellectually (Aristotle), convinced the most influential among Greek philosophers that the power of thought must transcend the “material” order of the changeable and the singular. Since the senses are clearly corporeal in their mode of operation, however, there was an enduring difficulty about how to conceive the relationship between sense and intellect, a difficulty that Plato and Aristotle addressed in very different ways. Aquinas for his part allowed that the body is necessary for the normal operation of the human intellect because of the dependence of the intellect on the senses for the starting-point of knowing (the “phantasm”). But he also insisted that the intellect is “a power in which corporeal matter has no share whatever” (Aquinas *ST I*, q. 76, a.1.c). Here is an issue where a great majority of those engaged in the mind-related sciences today would disagree.<sup>15</sup>

Another challenge would come from the continuities of structure and behavior proclaimed by evolutionary science. Soul-body dualism affirms a sharp ontological discontinuity between the pre-human and the human. It is easy enough to claim the synchronic uniqueness of human beings, that is, the distinction that can be drawn between them and the other living species of today, on such grounds as self-consciousness. How sharp the distinction is and especially whether it testifies to the sort of discontinuity that dualism requires would be a matter of debate. But the

case for *diachronic* uniqueness, that is for the claim that there was a sharp discontinuity of a non-material sort marking the advent of the first humans would presumably be impossible either to make or to refute on scientific grounds.<sup>16</sup> Since dualists do not believe that mind requires a physical organ for its operation, they would not expect a macromutation or anything of the sort to mark the transition from the pre-human to the human, from non-mind to mind. Should there not, however, have been abrupt changes at the behavioral level? Ought not the sudden appearance of intellect have been marked by a rapid appearance of culture? Anthropologists do not seem to have found any evidence of this so far. The story they tell is, rather, of gradual changes spanning aeons as the hominid line developed.

How does dualism stand in contemporary philosophy? Though it has notable defenders (Foster 1991; Swinburne 1986), it seems fair to say that in Anglo-American philosophy, at least, defenders are far outnumbered by critics. Though many of the latter would defend a version of reductive materialism, it is well to underline once again that the rejection of dualism in no way entails the acceptance of a reductionist account of mind. Some of the philosophers' objections to a strict dualism are prompted by the seeming paradoxes involved in the claim that the human being is a non-physical thing, possessing mental properties only (van Inwagen 1993, chaps. Nine, Ten). Another set of criticisms focuses on the issue of how the two substances are supposed to interact, though these criticisms have lost some of their force in the light of recent advances in quantum mechanics where the interactions /384/ between elementary particles appear to be very odd indeed. Some objections urge a substantial continuity, both at the physical and the mental levels, between humans and the rest of the animal world (Hasker 1974). In the face of this last challenge, the dualist options appear to reduce to three: either to attribute immortal souls to higher animals,<sup>17</sup> to restrict mind to humans only, as Descartes did, or to base the argument for dualism not on the abilities of mind in general but only on a small subset of those abilities purported to be unique to humans alone.

The qualified dualism of Thomas Aquinas escapes many of these objections but faces others on its own account. What exactly is the ontological status of the human soul in his view? Is it or is it not a substance? At first sight, Aquinas appears to be on both sides of this issue. But he is quite explicit in concluding to the incoherence of the view that the human soul is a substance in its own right,<sup>18</sup> a view that was in fact held by many of his contemporaries and that has been defended in more recent times by many Thomists. Such a view, he urges, would make the union of soul and body accidental, instead of substantial, as the unity of the human demands.<sup>19</sup>

Though the soul is not strictly speaking a substance, it can however be called "subsistent," Aquinas argues, because its intellectual operation is independent of matter. He needs this in order to secure the theologically

significant corollary that the soul survives the death of the person. But if the soul is defined as the form of the human body, how can its operation be independent of body? Forms are co-principles with matter, but cannot on that account be called “immaterial” without risking serious ambiguity.<sup>20</sup> The problem lies with the at-/385/tempt to extend the matter-form framework to allow for the possibility that the intellect might properly be called a form and even “the form of the human body” (Aquinas *ST* 1, q. 76, a.1.c.), though it does not serve to determine any matter.

Such objections to dualism as these are by no means conclusive. But they lead us finally to ask whether the *theological* warrant might not often be, for Christians at least, the primary motivation for dualistic belief.<sup>21</sup> It is true that there is little trace of a specific soul-body dichotomy in the Old Testament until one comes to the late Book of Wisdom, written less than a century, perhaps, before Christ’s birth. The Greek provenance of the dichotomy in this text is unmistakable; not only is the soul, rendered by the Greek term *‘psuche,’* regarded as an immortal part of the human being, but it is also described as pre-existing the body (8:19) and as burdened by the body (9:15). In the New Testament, *‘psuche,’* often corresponds roughly with *‘nepes,’* the traditional Hebrew term for the living being, the principle of life, the self (Lynch 1967, 450). But it also sometimes carries the Greek sense of soul: opposed to body and immortal. There are, however, relatively few texts where the dichotomy is clearly conveyed.<sup>22</sup>

The early Church Fathers found the prevailing Greek views on the natural immortality of the soul congenial to the development of Christian doctrine generally. It allowed one to picture, for example, the souls of the just and unjust remaining in existence awaiting the Last Judgement and reunion with their bodies in resurrection. True, if the soul were already naturally immortal, it was not altogether clear, in the Greek view of the human, at least, what the advantage would be in rejoining it with its one-time attendant body. But as time went on, theologians took the Greek dichotomy for granted; /386/ Augustine, in particular, made it a key element of his theology. The supposition was, of course, that the dichotomy could be validated philosophically, though in the later medieval period, some distinguished theologians (Scotus and Cajetan, for example) were doubtful of this, though not in the least questioning its theological warrant.

To review that warrant as it stands today would be a massive task. And one would have to separate the Catholic and Protestant traditions. The warrant seems much stronger in the former. Not only is a very heavy weight attached to Patristic tradition there, but there have been numerous declarations by Church Councils and by explicit Papal statements of varying doctrinal weights, like the one quoted above from Pope John Paul II. True, the language in which dualism is expressed in each case followed the prevailing philosophical idiom of the day.<sup>23</sup> What remained invariant

was the evident conviction that a dualistic distinction of one sort or another should be maintained. At a time when philosophical arguments for the natural immortality of the soul had come to be widely challenged (1844), Pope Gregory XVI, condemned the view that this doctrine could not be demonstrated “by reason alone,” though he did not indicate how the demonstration should proceed (Denzinger 1962, n. 2766). Taken together, these declarations and others that could be added constitute strong warrant indeed, as theological warrant is understood in the Catholic tradition.<sup>24</sup> In other Christian traditions, the matter might be less clear, but there too the handful of New Testament references and the testimony of the early Church Fathers could carry significant weight. /387/

In short, then, the primary argument in support of the dualistic position today, at a time when this position is challenged both from the scientific and the philosophical sides, might well (for Christians) seem to be the theological one, raising an acute, and not entirely novel, question as to how such a situation is to be handled. The simplest approach, of course, would be to challenge the relevance of the sciences in matters concerning the soul, and to make as convincing a case as possible for some form of dualism while responding to the objections to dualism generally. This is what Christian thinkers have most often chosen to do.

In his essay, Peacocke (2000) sketches a non-reductive alternative to dualism and lays aside the matter of theological warrant. This latter strategy is perhaps understandable, given the constraints of space. Still it does leave the reader with a question: how would one deal with the theological arguments for the dualist position he dismisses?<sup>25</sup>

#### EMERGENTISM

A comment first on the scientific and philosophical considerations for and against Peacocke’s chosen alternative, emergentism. The arguments in its favor have been no more than hinted at above. The difficulties it faces lie, first, in the notion of emergence itself which some critics have called incoherent. The debate is not so much between dualists and emergentists as between emergentists and reductive materialists. The issues are extremely complex, too complex for adequate review here. My purpose in drawing them to attention is only to emphasize that the rejection of dualism by no means entails emergentism. There is a lot of work to be done first if this is to be the chosen alternative from the philosophic and scientific standpoints.

But what about the theological objections? The stakes are high. Are human beings naturally immortal or not? Is it the case that, independently of Christ’s coming, the individual human mind is such that /388/ once it exists, it necessarily confers immortality on that individual? Or does survival after death depend on the Christ’s promise of resurrection? Does immortality apply to the whole person, rather than in the first instance

to the soul? Is immortality gratuitous or ontologically necessary? If the philosophical arguments in favor of dualism and its corollary immortality fail, does the theological warrant still stand? Can it survive the philosophical critiques of dualism? How, in short, might an emergentist who is also a Christian defend himself or herself against obvious theological objection?

Several possible lines of argument suggest themselves. The first is implicit in what has already been said about Greek influence on early Christian dualistic formulations. How does this affect the strictly *theological* credence to be given to these formulations? Does their adoption by early Christian writers as well as by later Christian theologians afford them an *independent* theological warrant, so that if their philosophical credentials come to be challenged, theologians ought rally in their support? There has been a tendency, more marked in the Catholic tradition, to extend the authority of theology to a philosophy that successfully explicates Christian belief in philosophic terms. A whole series of Papal pronouncements around the turn of the last century seemed to accord Thomistic philosophy, then enjoying an active revival, a status little short of definitive truth. But might one call upon the same principle of accommodation here that theologians recognize in other contexts, and argue that the writers of Scripture were simply accommodating their mode of expression to the idiom and popular belief of the day? The issue is clearly a delicate one, and is in fact so described in a recent message from Pope John Paul II to the participants in a conference on the relations of the physical sciences and theology:

Theology is not to incorporate indifferently each new philosophical or scientific theory. As these findings become part of the intellectual culture of the time, however, theologians must understand them and test their value in bringing out from Christian belief some of the possibilities which have not yet been realized. The hylomorphism of Aristotelian natural philosophy, for example, was adopted by the medieval theologians to help them explore the nature of the sacraments and of the hypostatic union. This did not mean that the Church adjudicated the truth or falsity of the Aristotelian insight, since that is not her concern. It did mean that this was one of the rich insights offered by Greek culture, /389/ that it needed to be understood and taken seriously and tested for its value in illuminating various areas of theology. (John Paul II 1990, M10- M11)<sup>26</sup>

Soul-body dualism was assuredly another one of the “rich insights offered by Greek culture.” Ought it, however, be ascribed a different role than hylomorphism, one touching more closely on the substance of Christian faith? There may be room for disagreement here. Did the dualist beliefs of the Greek world help Christian theologians to a truth about the soul that could not be otherwise expressed? Or might the nature of the human be conveyed as well or better, from the theological standpoint, by a non-dualist doctrine like emergentism, one that retains the distinctiveness of the human without committing to the natural immortality of every possessor of intellect?



One advantage that emergentists can claim in this regard is that their view respects the gratuity of the gift of Resurrection, which is, according to Christian faith, the outcome of Christ's mission among humankind. Immortality would pertain to the order of grace alone, a gift of the Creator supernaturally conferred through the mediation of Christ. According to dualist doctrine, on the other hand, we would have been immortal anyway, independently of Christ's saving act. Resurrection for the strict dualist amounts only to the enlargement of an immortality already a necessary commitment of mind, a problematic enlargement, it might seem, for those who hold the soul to be already a substance in its own right. For those who defend the qualified dualism of Aquinas, however, resurrection is apparently called for by the very nature of things: "To be separated from the body is not in accordance with [the soul's] nature" (Aquinas 1945, *ST* I, q. 89, a.1.c). Aquinas argues that since "it is contrary to the nature of the soul to be without the body," and "nothing which is contrary to nature can be perpetual," it was *necessary* that the soul be united again with the body: "The immortality of soul seems to *demand* a future resurrection of bodies" (Aquinas 1957, Bk. 4, chap. 79, par. 10, 299 emphasis added). Might not this, however, call into question the gratuity of Christ's saving action, and compromise the distinction between the /390/ order of grace and the order of nature, so fundamental a feature of Aquinas's own theology? The strain here between theological and philosophical commitments seems evident. In the emergentist perspective, on the other hand, it is the whole person that is resurrected; resurrection of the person belongs entirely to the order of grace.

Emergentists do not have to suppose, as dualists do, that a "special" causal action on God's part is required at the moment of origin of each and every human being. God as Creator already sustains in being the entire natural order of interconnected causes and effects, each effect being directly traceable to causal agencies in the world around us. Much has been written in recent years about the integrity of the natural order, about the wholeness one would anticipate in the work of an omnipotent Creator (Baker 1995, 501; Van Till 1996; McMullin 1993). Dualists are forced to postulate an insufficiency in the order of secondary causes: the Creator apparently has to supplement this order at the moment of origin of each and every human being.<sup>27</sup> Dualism, in fact, seems to require a Creator who intervenes to bring each human soul to be, not from the potencies of the created world, but directly *ex nihilo*.<sup>28</sup> Such intervention is not miraculous in the ordinary sense. It is regular; it can be relied on when the material antecedent conditions are satisfied. But it is not natural either; it transcends the causal powers implanted by the Creator in the natural order. Nor does it pertain to the order of grace, to salvation history, to the extraordinary offering of a covenant between Creator and creature that began with Abraham and came to its climax in the death of Christ. /391/

Rahner asks:

Is not the essential difference blurred between natural and secular history on the one hand and the really personal, sacred history of redemption on the other, if God's action even outside the history of redemption be attributed to a definite location in space and time, because a particular individual reality, in distinction to others, receives a privileged direct relation to God? Must science not perpetually try to remove this stumbling-block, by reason of the very principles of its method? (Rahner 1965a, 66)<sup>29</sup>

God is still "of course, the cause of the soul as God is the cause of everything." And God's creative power is especially evident in the manifestation of self-transcendence on the part of finite being at the origin of each human. What Rahner questions is the explanation of human origins as "an exceptional, extraordinary occurrence whose special ontological features contradict everything that is otherwise understood regarding the relation of the first cause to second causes" (*ibid.*, 67–68).

In the emergentist perspective, this peculiar sort of supplementation on God's part of the orders of nature and grace would not be needed. In this perspective too, the parents of a human child would not simply beget a body; they would truly be parents of the whole person who is their child. Resurrection would pertain exclusively to the order of grace; it would serve as the culmination for each individual of salvation history. It would also follow that the resurrected person would no longer be governed by the measured temporality of earth, by the limitations of a past that is gone and a future that is not yet. What would take its place we have no idea; analogical inference from the order of nature to the order of grace is risky at best. Thus queries about a time-lapse between death and judgement would simply be out of place.

Challenges to human uniqueness have come from many quarters in recent decades, from molecular biology, from physical anthropology, from cognitive psychology. . . . Yet uniqueness is crucial from the theological standpoint. The promise of resurrection extends only to the human; there can be no half-way houses, no gradual shadings into immortality. For the dualist, this is simple: God supplements the *or-/392/der* of created causes to infuse a soul into each body to make of the composite a human being. There is an unambiguous ontological distinction between the human and the non-human. No matter how similar their bodies may be, it is the infused soul that makes the human difference. At what point in the hominid line would God have infused the first souls? Were there necessary conditions to be fulfilled on the evolutionary side first, as matter gradually became more organized? Was there an ontological break between the pre-human and the human on the material side also? Did there have to be?

In answering questions such as these, it would make a difference which form of dualism is being proposed. If the soul is the form of the human

body, it would seem that there should have been a physical difference accompanying the transition from the pre-human to the human. But, of course, if intellect is the differentia, and if it acts independently of any physical organ, the infusion on God's part that makes the human form something more than a substantial form in the ordinary sense marks the transition that the salvation story requires, even though no physical change, in the brain for example, may accompany this transition.

The emergentist cannot point to so definite a marker. Yet since emergentists accept that the distinctively human features are irreducible, there still remains an ontological difference between the pre-human and the human, though obviously not so neat a one. Might the evolutionary line shade from reducibility into irreducibility? Could there have been a substantial continuity in the hominid line as the irreducible features that today distinguish the human quite sharply from other primates gradually made their appearance over a lengthy period? A more sustained analysis of the emergentist option would be required in order to give a plausible response to these questions.

One might, of course, suppose that there could have been a genetic mutation that brought about sudden large-scale phenotypic changes in brain-structure, say. Macromutations are not much favored among geneticists nowadays, but the ability of gene defects to occasion such fateful phenotypic alterations as Down's syndrome is all too well documented. An even more speculative possibility might be envisaged on the theological side. In the non-dualist perspective, continuance of the person in existence after bodily death is a gift of God's grace, not a natural concomitant of intellect. Is it not conceivable, then, that God might choose to begin conferring that gift at a point in the evolution-ary line that is not marked off by some intrinsic ontological difference between the parent organisms and their descendants? In such an event, God would be directly involved in the origin of each human creature but not by a supplementation of the natural order. Rather, it would be by an act of election. God would breathe life into the "dust" of earth, as the *Genesis* metaphor puts it, by freely raising up to eternal life the organism that the evolutionary process had over the long years prepared for that moment. There would still be something quite special about the origin of each properly human life, but it would not entail the *ontological* intervention on God's part that Greek dualism requires.

This is clearly quite speculative from the theological standpoint. But it might be sufficient to indicate that there may, in fact, be theologically viable alternatives to the dualisms that the early Christian Church inherited from the philosophers of Greece. These alternatives would have to be worked out in detail before any kind of judgement could be passed on them. And judgement, as we have already seen, would even in that event be difficult to render, not least because of the profound differences between Christian

theologians regarding the weight to be given to the different sources of theological warrant.

If it accomplishes nothing else, this discussion may at least have convinced the reader that easy assumptions about the essential separability of scientific from theological concerns must be challenged in one crucial domain of contemporary inquiry, at least. Many of the second-order epistemic issues about scope, warrant, and authority come into question once again that the Copernican issue raised long ago. We have learnt much since Galileo's day about the constitution of the world around us and about ourselves as part of that natural world. But the second-order issues remain and are still far from resolution.

## NOTES

1. Galileo 1957, 186. The same aphorism has twice been quoted, with apparent approval, by Pope John Paul II, both times in addresses to the Pontifical Academy of Sciences. In October 1981, speaking about the relation of Scripture and science, he made use of the aphorism to make the point that the Bible is not intended to be "a scientific treatise" but to illuminate the relation of man to the universe and to God (John Paul II 1981, 279). He quoted it again in a recent declaration terminating the work of the Galileo Commission he had set up in 1981. Elaborating on the aphorism, he goes on: "The Bible does not concern itself with the details of the physical world, the understanding of which is the competence of human experience and reasoning" (John Paul II 1992, 373).

2. These characterizations are not quite equivalent, and the differences between them give rise to somewhat different concepts of reduction. For our purposes here, these distinctions can be left aside.

3. Philip Kitcher analyzes this particular example in some detail in order to argue that such a reduction does not, in fact, occur; this leads him to a critique of reductionism in biology generally (Kitcher 1984).

4. See, for example, the one-hundred-page chapter devoted to reduction in Schaffner 1993.

5. Peacocke (2000, 352), for example, appears at times to imply this view: "Higher-level concepts . . . must be accorded a *prima facie* status of referring to realities until their respective terms and concepts have been shown unequivocally to be reducible totally to the sciences of the lower levels." "Until"? But surely even after reduction has been achieved, the properties are just as real, just as rooted in the reality of the body, as they were before?

6. I discussed this point in some detail in an earlier treatment of reduction and related topics in McMullin 1972.

7. The term was coined by G. H. Lewes in 1875, but the concept was already implicit in J. S. Mill's *System of Logic* (1843) and Alexander Bain's *Logic* (1870). It was subsequently developed further by Lloyd Morgan and Samuel Alexander, and found its "canonical" form in C. D. Broad's *Mind and its Place in Nature* 1925. See McLaughlin 1992. McLaughlin treats in some detail the variety of ways in which the defenders of emergence tried to clarify this difficult concept in response to incessant criticism from more reductionistically-inclined colleagues. He concludes that emergentism has been "refuted" by the scientific achievements of the twentieth century, notably quantum mechanics (89–91). It is significant, however, that he sets the psychological realm outside the scope of his analysis, restricting himself to the chemical and the biological.

8. Emergence resembles the notion of supervenience introduced by Donald Davidson who suggested that "mental characteristics are in some sense dependent, or supervenient, on physical characteristics." and thus that "there cannot be two events alike in all physical respects but differing in some mental respect." (Davidson 1970, 88). Elaborating variations on this notion became something of a cottage industry among analytic philosophers in the years following. It would be fairly generally allowed today that emergence and supervenience, despite their apparent resemblance, are by no means equivalent, particularly in their relation to irreducibility. Paul Humphreys puts it rather strongly. In dealing with the problems raised, for instance, by

“concepts in the mental realm,” he asserts: “Reduction has been out and supervenience has been in. This position is only half right. Reduction is still not an option, but supervenience is no good either. It is a notion that is empty of any scientific or metaphysical content, and what anti-reductionists need in its place is emergence” (Humphreys 1997b, 337). See also his Humphreys 1997a; and various essays in Beckermann et al. 1992a, especially Beckerman, 1992b.

9. See, for example, Bechtel and Richardson 1992; Schaffner 1993, esp. 411–516. Bechtel and Richardson focus on the interactive organization of the components of a complex system and conclude that emergence provides a viable middle ground between the extremes of reductionism and holism. Schaffner leans somewhat the other way; he believes that by a careful reworking of the notion of reductionism, one can dispense with “in-principle emergentism,” in the domain of the biomedical sciences at least.

10. And perhaps it could, because of the special features of the Aristotelian doctrine of matter and form. See, for example, how Thomas Aquinas relates “matter” and mind: “But we must observe that the nobler a form is, the more it rises above corporeal matter, the less it is subject to matter, and the more it excels matter by its power and its operation. Hence we find that the form of a mixed body has an operation not caused by its elemental qualities [is emergent?]. And the higher we advance in the nobility of forms, the more we find that the power of the form excels the elementary matter; as the vegetative soul excels the form of the metal, and the sensitive soul excels the vegetative soul. Now the human soul is the highest and noblest of forms. Therefore in its power it excels corporeal matter by the fact that it has an operation and a power in which corporeal matter has no share whatever. This power is called the intellect.” *Summa Theologica*, I, q. 76, a. 1, c. For Aquinas, normal growth, of the human fetus, say, involves progression from the lower form to the higher form, but this might not qualify as an analogue of emergence because of the role played by teleological causation in the growth pattern overall.

11. Assuming that the correlation between the material configuration and the property which is claimed to be emergent has not already been built into the science of the constituents. To avoid vacuity in discussions of emergence, one has to block from inclusion in advance in the reducing science a simple addition of the capacity to set the stage for the emergent property. If, of course, this capacity can eventually be incorporated in a coherent way into the reducing science (recall what was said above about reduction’s being in some contexts closer to enlargement), then the property is not in fact, emergent. But prior to achieving such a reduction, a capacity of this sort could be no more than an *ad hoc* addition. This point is already implicit in Broad’s attempts to give a more precise definition of emergence, and is made explicitly by Hempel and Oppenheim in their influential discussion of emergence (Hempel and Oppenheim ??, 260). See also Beckerman 1992b, 104.

12. Elsewhere, he says: “What matter is in general . . . is not a question for natural science as such but a question for ontology on the basis of an existential metaphysics; such an ontology can answer this question because it already knows what spirit is, and thus . . . what the material is as such, viz. that which is closed in its individuality to the experience of the transcendence of being as such” (Rahner 1974, 162). See also Wright 1996, 127.

13. These quotations do not do justice to the nuanced metaphysical argument he offers here, and in his *Hominisation*, chap. Three (Rahner 1965a).

14. He gives priority to metaphysics on the grounds that “spirit is a reality that can only be understood by direct acquaintance, having its own proper identity derived from no other” (ibid., 53). This makes it, equivalently, irreducible to the language of the physical sciences, a claim echoed, of course, by the proponents of emergence.

15. The late John Eccles, a rare dualist among neurophysiologists, insisted on the interactionist character of his dualism and believed that recent developments in quantum mechanics could explain the nature of the interaction (Eccles 1993).

16. Scientists who discuss the historical development of mind tend to take the continuity of the process more or less for granted. See, for example Deacon 1997. Non-dualist philosophers make the same assumption. Suzanne Cunningham argues for an expanded notion of intentionality that would allow the construction of a plausible evolutionary account of how intentionality might have gradually developed (Cunningham 1997).

17. Swinburne (1986, 198-99) feels compelled to take this rather daring step.

18. For references and a helpful overview of this issue, see Farmer 1997.

19. Aquinas, *Quaestiones de Anima*, a. 1, response (Aquinas 1984). See also *ST*, I, q. 29, a. 1, ad 5: “The soul is a part of the human species; and so, although it may exist in a separate

state, yet since it retains its nature of unibility, it cannot be called an individual substance, which is the hypostasis or first substance, as neither can the hand, nor any other part of man. Hence neither the definition nor the name of person belongs to it." He does allow that the soul may be called a substance in an extended sense of that term, because it is "that by which a primary substance is what it is." In this sense, of course, *all* substantial forms could be called substances.

20. Eleanor Stump concludes that "the immateriality of the soul is thus for him [Aquinas] a direct consequence of his view of the soul as a form" (Stump 1995, 511), referring in particular to *ST*, I, q. 75, a.5. But would not this apply to *all* forms, and hence undermine the argument from immateriality to immortality?

21. Peter van Inwagen finds this warrant to be much less strong than Christians usually assume it to be. What he wants to establish is that materialism is "a possible point of view for a Christian to adopt." His own conviction, based on both philosophical and theological considerations, is that "dualism represents a false picture of human nature," though not (he cautiously adds) a "perniciously" false one (Van Inwagen 1995, 486-87).

22. The clearest one might be: "Do not be afraid of those who kill the body but cannot kill the soul, but rather be afraid of him who is able to destroy both soul and body in hell" Matt. 10:28. Significantly, however, the corresponding passage in Luke is: "Do not be afraid of those who can kill the body and after that can do no more. I will tell you whom to fear: fear him who has power not only to kill but, after he has killed, to cast into hell." Luke 12:4-5. See Van Inwagen 1995, 482.

23. And so the Council of Toledo (688 A.D.) speaks of "two substances, soul and body"; the Fourth Lateran Council (1215 AD.) declares that man is "constituted from spirit and body"; the Council of Vienne (1312 A.D.) asserts that "the soul is the form of the human body"; the First Vatican Council (1870) returns to the older formula: "by spirit and body constituted"; the Holy Office under Leo XIII, a strong advocate of the Thomistic revival, chose traditional Thomistic language: the soul is "the substantial form of the body" (1887); Pius XI in his encyclical *Divini Redemptoris* (1937) declares that in man there is a "spiritual and immortal soul," a strongly dualistic formulation. These declarations will be found in Denzinger and Schönmetzer 1962, nn. 567, 800, 902, 3002, 3224, 3771. For a more detailed account, see Rahner 1965b.

24. Catholic theologians warn, however, that one must be very careful in differentiating between different sorts of Papal and conciliar statement, between, for example, Papal addresses (like the one from John Paul II quoted above) and dogmatic definitions. See Sullivan 1996, chap. Two. "Evaluating the level of authority exercised in documents of the magisterium."

25. Peacocke in one of his earlier works emphasizes the Greek origins of dualistic belief and notes that dualism is alien to the Hebrew traditions of the Bible. He relies on a number of Biblical scholars, notably W. Eichrodt (Eichrodt 1961), to claim "an affinity between the view of man as a psychosomatic unity in the Biblical tradition and that stemming from science, an affinity which has been obscured by the strong influence of some elements in Greek thought on the development of Christian ideas" (Peacocke 1971, 152). See also Peacocke 1985, 154-56.

26. Russell et al. 1990 have assembled a lively set of responses to the message from a variety of sources, Christian and non-Christian. The text of the message is also found as the preface to the proceedings of the conference to whose participants it was addressed (Russell et al. 1988).

27. W. Norris Clarke, in an eloquent defence of the moderate dualist position of Aquinas, argues, to the contrary, that it offers a "far richer vision of the peculiar dignity of the human person" to suppose that, at the origin of each human being, "two great lines of causality" converge, one "the ascending line of the intrinsic forces of the earth," and the other "the descending one of God's own special causal influx" (Clarke 1998, 15).

28. We already saw that theology offers dualism a warrant of sorts. It seems that dualism returns the favor. One of the reasons for the decline of support for dualism among philosophers is surely the decline of theistic belief in their ranks. A dualist who is *not* a theist has to extemporize when explaining how souls came into being. Swinburne remarks: "The ability of God's actions to explain the otherwise mysterious mind-body connection is just one more reason for postulating his existence" (Swinburne 1986, 198).

29. Translation has been slightly simplified.

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