

THEISM, DUALISM, AND THE SCIENTIFIC IMAGE OF HUMANITY

by *Maurice K. D. Schouten*

Abstract. Recently, some philosophers of religion have suggested that a reduction of the classical image of humanity may jeopardize classical theism. To obstruct reductionism, some theologians have argued for dualism on the basis of the argument of consciousness. In this essay, I argue that even consciousness must be considered a brain-based phenomenon. This does not commit one to reductionism, however. Nonreductive physicalism appears to offer a promising alternative to either dualism or reductionism, without necessarily compromising more traditional views of humanity. I do suggest that a modification of the classical image of God may be inevitable.

Keywords: consciousness; dualism; naturalism; physicalism; reductionism; theism.

[W]hereas the traditional view supports Hamlet's exclamation "How like a god!," Pavlov, the behavioral scientist, emphasized "How like a dog!" But that was a step forward.

—B. F. Skinner, *Beyond Freedom and Dignity*

Si Dieu nous a faits à son image, nous le lui avons bien rendu.

—Voltaire, *Le sottisier*

INTRODUCTION: REDUCTIONISM

The scholastic picture of a ladder of reality, a *scala universi* (universal scale) (as we find it in the work of Lull, for instance), has survived in contemporary thinking in the form of a stratified view of the world. However,

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unlike in medieval theocentrism, it is now no longer the lower levels that are dependent on the higher levels but the other way around: higher-level facts are fixed by lower-level, presumably microphysical, facts (Heil 1992; Kim 1996; 1998). In current philosophy of science, this *physicalist* picture accords harmoniously with the common view that different scientific disciplines operate on different levels of analysis (Oppenheim and Putnam 1958). From top to bottom, science supposedly constitutes an inverted pyramid of increasing simplicity and universality. Whereas for the medieval scholar the top level of analysis (i.e., theology) constituted the perspective of sublimity and supremacy, this position is now taken by the lowest-level sciences. Current *reductionism* professes that scientific progress consists in the stepwise explanation of the phenomena of the one level in terms of those of the next lower level, until finally the bottom rung of the ladder is reached, that is, the level of fundamental physics, where only a few basic laws of nature are needed. This is the level where a Theory of Everything (TOE) or a Grand Unified Theory (GUT) must eventually be formulated (Barrow 1991; Weinberg 1993).¹ Such a TOE or GUT gradually but inevitably swallows up the rest of science—and this may have serious consequences for the higher-level phenomena. E. O. Wilson, for instance, has asserted that “all tangible phenomena, from the birth of stars to the workings of social institutions, are based on material processes that are ultimately reducible, however long and tortuous the sequences to the laws of physics” (Wilson 1998, 266).

Reductionism will in one way or another infect the study of humankind. The traditional image of humanity, which portrays a person's actions as consequences of his or her thoughts, desires, consciousness, emotions, will, and so forth, has come under pressure. According to extremist doctrines of *nothing-buttery*, traditional concepts of mind, consciousness, personhood, agency, and responsibility may well have to be abolished in favor of concepts derived from the physical sciences. And this means that the traditional image of humanity may have to make way for a radically different self-conception. Richard Dawkins, for instance, has defended the view that we are nothing but “survival machines—robot vehicles blindly programmed to preserve selfish molecules known as genes” (Dawkins 1976, 21); Francis Crick, another ardent reductionist, has argued that human beings are nothing but packs of neurons (Crick 1994, 3).

This reductionist vision, that in the final analysis a human being is nothing but an assemblage of neurons (or atoms and molecules), has met with strong resistance. Both in religious circles and in Western society at large the idea is widespread that we are more than mere matter. Often the mind is thought to be deeply spiritual and otherworldly in nature. The themes of the specialness and uniqueness of the mind and of the threat of reductionism surfaced prominently in the 1996 papal statement on evolutionism that made the headlines and stirred the world. Pope John Paul II

stated that, although evolutionary theory is now so well established that it cannot be ignored, evolutionism must be aligned with a recognition of the “truth about man” (John Paul II 1997, 383), which ordains a spiritual view of humanity. Thus, as the pope goes on to say, “[w]ith man . . . we find ourselves in the presence of an ontological difference, an ontological leap.”

On the pope’s view, the spiritual nature of human beings precludes the possibility that human beings can be studied from the scientific-experimental vantage point. Scientific truths are not exhaustive of all truths. For the truth about humanity one must turn to theistic explanations. When we are talking about the spiritual aspects of human beings, namely, “the experience of metaphysical knowledge, of self-awareness and self-reflection, of moral conscience, freedom, or . . . of aesthetic and religious experience,” it is not science but theology that “brings out its ultimate meaning according to the Creator’s plans” (John Paul II 1997, 383).² This illustrates that traditionally there have been strong conceptual ties between the theistic picture and a dualist recognition of ontological leaps between mind and matter. Theism is required to explain the special and unique features of human beings. At the same time, it has been argued that without a dualist conception of humanity, theism becomes impossible. Mind-body dualism is thought to be the principal model for understanding God and God’s relations to the material world. Our traditional notion of God has apparently been created in our own image, so that without a dualist account of the human agent, this notion of God in contradistinction to the world cannot be upheld. A number of theists have urged, then, that the traditional image of humanity must be salvaged in order to save classical theism and the concomitant classical image of God. The question in this paper will be whether this is a viable maneuver in the face of recent developments at the interface of the mind and brain sciences that suggest a major antidualist reconceptualization of our self-image. Will a physicalist view of the human agent undermine the dualist view of humanity and thus bring down theism as well?

CLASSICAL THEISM AND DUALISM

Concepts of God. Our traditional understanding of human beings and their minds can be traced back to the medieval, scholastic understanding of God (Farrell 1994). Because according to Christian faith human beings were created in the image and likeness of God (i.e., the human agent as the *imago Dei*; see Genesis 1:27), to gain insight into the nature of humanity we would perhaps do best to set out with what we can say about God. Frank B. Farrell argues that our ordinary conception of the human mind derives from this traditional conception of God: “we still find in subjectivity the necessity, the intrinsic natures, the autonomy, the constructive power,

the role as an always present conserver of determinacy, that earlier we had located in God" (1994, 3). Our view of humanity is modeled after the demiurgic role traditionally ascribed to God. The human spirit is seen as, to use the behaviorist B. F. Skinner's words, a "god within" (Skinner 1953, 29). Thus, our conception of God has substantially contributed to our understanding of human nature. In addition to the image of God influencing the image of humanity, we may ask whether this relationship also holds the other way around, that is, whether our conception of human nature has likewise contributed to our conception of divinity. The answer appears to be affirmative.

Classical theism is almost by definition "committed to the existence of purely spiritual beings" (Hoffman and Rosenkrantz 1994, 145). In classical theism, God is believed to be a spiritual, nonembodied reality (Swinburne [1979] 1991, 90). This traditional conception of God owes a great deal to the traditional model of the human self. To draw on Gordon Kaufman, "when the model for God is the human agent, the most fundamental reality is not taken to be a basically material order, or even a living organism or process of evolutionary development: it is seen, rather, as like a human self; and this has meant historically that God was thought of as a self-conscious and self-directing spirit" (Kaufman 1993, 269).

The fear now is that when we lose our traditional conception of the human self in terms of a spiritual, immaterial soul, we will by that fact alone lose grip of our conception of God, because the latter conception appears to be built on the former. According to classical theism, our image of God is construed around intentional and subjectivist notions. God is attributed beliefs and wishes, compassion and consciousness. But how are we to understand the deity when these psychological notions have themselves collapsed into their neurophysiological counterparts?

In recent years, it has been suggested as an alternative to the anthropomorphic image of God that the mind of God could be identified with the prevailing collection of our most fundamental laws of nature (Hawking 1988). Such a view, however, makes God extremely impersonal and distant. The question then becomes, What do we need the concept of God for? Though such a minimalist reading of the mind of God in a way shows us how everything follows from it, it has nothing to do with the classical image of God as personal, consoling, purposive, loving, providential, benevolent, and so on. God can no longer be conceived as a spiritual reality in any traditional sense of the term. In any case, such a view would no longer be compatible with classical theism defined as "the view that there is an omniscient (all-knowing), omnipotent (all-powerful), good, purposive being who has created and conserves this cosmos" (Taliaferro 1994, 13).

Charles Taliaferro is one among a number of authors who have emphasized that the view of the divine mind on which classical theism is depen-

dent is itself to a large extent informed by the folk view of humanity. Taliaferro suggests that the way in which we make sense of God and God's actions in the world is dependent on our ordinary, dualistic conception of ourselves. Before rejecting it, Arthur Peacocke succinctly sketched this analogy: "[a] dualistic view of human nature qualifies neatly, it has seemed traditionally, as a suitable model for the relation of God to the world. The ultimate ineffability, mysteriousness and transcendence of God appears to be properly analogous to that parallel mystery concerning the nature of consciousness" (Peacocke 1993, 144). Thus, the God-world relation appears to be construed by analogy to a dualism of mind and body.

Our self-knowledge insofar as it is embedded in folk wisdom sees persons not as material beings but as at least in part spiritual. In classical theism, the (personal) properties we typically ascribe to our fellow human beings and to ourselves seem to be projected onto God. Thus, the view of God is modeled after the dualist image of humanity. God is seen as an incorporeal personlike being with perfectly rational and conscious thought who intervenes in the material world on the basis of knowledge, and all of this without bodily features. God listens, hears, sees, believes, knows, wants, and so forth—but all without ears, eyes, a mouth, or a cerebral cortex. And this image comports nicely with the traditional picture of ourselves according to which the spiritual part of the human agent directs its bodily part and acts out into the material world he or she is surrounded by.

However, if the age-old commonsense conception of ourselves is reinterpreted in terms of the conceptual framework of the neurosciences (as at least some physicalists envision), classical theism would perhaps become utterly implausible. In that case, we would no longer have available the anthropological categories that have served us in the past as a model to make sense of God. This line of reasoning would result in the following miniaturized argument: "Classical theism was based upon a useful, but false self-understanding. Get rid of blurry, folk psychology, so they [i.e., the physicalists] argue, and we will soon be rid of blurry, folk religion" (Taliaferro 1994, 5; cf. Godlove 1994). What classical theism requires, then, is a view of persons as (partly) immaterial or spiritual. Only such a construal would in the final analysis be supportive of the theistic conception of God being spiritual (and having the attributes suggested by classical theism).

As for the other side of the chasm, however, dualism has met with strong opposition in current natural science, which is characterized by physicalism and reductionism. Often it is thought that a spiritual mind is a mind shrouded in mystery. The most important problem for dualists of Cartesian persuasion is that not much sense can be made of mind-body interaction. A spiritual mind is placed outside the natural order of things and is therefore deeply causally isolated.

The Ontological Problem of Mind-Matter Interaction. Classical Cartesian substance dualism espouses interactionism. Mind and body do not stand entirely isolated ontologically. Descartes recognized that, although mind and body inhere in different metaphysical substances, they do interact causally (unlike in other forms of dualism such as occasionalism and preestablished harmony). However, Cartesian dualism runs counter to well-known problems regarding this interaction of mind and body. The problem is that the nature of the causal interaction becomes intractable. How could anything that is extended in space be causally related to something that is not extended in space? According to common wisdom in the philosophy of mind, causal relations can hold only between physical entities. The claim that things belonging to entirely different ontological spheres can causally influence each other is unintelligible.

The causal-joint problem of dualism, however, also “constitutes an objection to theistic claims about God who, as a nonphysical reality, causally affects the physical world, sustains it in existence, miraculously reveals Godself in human history, and becomes incarnate” (Taliaferro 1995, 568). The validity of the idea of God-world interaction may be doubted for the same reasons that there cannot be mind-body interaction. In other words, the concept of God is made eligible as a candidate for outright elimination, unless of course some better way can be found to account for mind-body interaction and the causal intervention of God in the world.

The Irreducibility of Consciousness. For the theist a forceful way may still remain to obstruct the reductionist’s argument and to argue for dualism. It may be found in the so-called *argument from consciousness* (Mackie 1982; Moreland 1998; Swinburne [1979] 1991). Consciousness is an important element of our traditional self-understanding. With Descartes (in whose work we find the apotheosis of a development that started with Neoplatonists like Plotinus and church fathers like Augustine; see Heimsoeth 1922), the spiritual no longer stood solely for ratiocination but was instead equated with consciousness. *Cogitatio* (or *pensée*) became *scientia*. According to what Gordon Baker and Katherine J. Morris (1996) called the expansion thesis (embraced by, for example, Rorty 1979), Descartes expanded the use of *cogitatio* “to cover all (and only) ‘states of consciousness’” (Baker and Morris 1996, 14).³

With Descartes, consciousness turns up in the guise of a “god within,” that is, an inner person pulling the strings of the body like a puppeteer. This inner sanctum is the “place where it all gets together” (Dennett 1991, 107). Here, in this “Cartesian theater,” the streams of sensory information processed by different sensory modalities finally converge to create a coherent picture of the world that surrounds us and that is at this very moment in the center of our focus of attention. Thus, the theater of consciousness is the place where phenomenology resides. Here we have

our subjective experiences of colors, tastes, sounds, and so on (the so-called *qualia*). Consciousness is an important ingredient of our traditional self-image. Not surprisingly, then, consciousness has provided theists with an important metaphor or analogy to understand divinity. Taliaferro has even gone so far as to refer to God as the all-comprising Cartesian theater. The theater metaphor is projected directly onto God. God is the “Divine Subject, ‘where it all comes together’” (Taliaferro 1994, 290).

In addition, the argument from consciousness has a deeper purport, because it has served as an argument for the existence of God. The argument, in the words of John Mackie (1982, 121), is “that conscious material beings would require a divine consciousness to bring them into existence.” The argument states that consciousness cannot arise from blind, purely physical mechanisms. Any attempt at providing a scientific explanation of consciousness is doomed to fail. As Mackie points out, the argument finds an early expression in John Locke’s *Essay concerning Human Understanding* (Locke [1693] 1995): “We are so far from knowing what figure, size or motion of parts produce a yellow colour, a sweet taste, or a sharp sound, that we can by no means conceive how any size, figure, or motion of any articles, can possibly produce in us the idea of any colour, taste, or sound whatsoever; there is no conceivable connexion betwixt the one and the other” (IV. iii.13, 545; cited in Stuart 1998, 360).

According to this argument, then, bare matter cannot by itself give rise to conscious thought. Locke’s point, endorsed by Swinburne, is that secondary qualities, qualia in modern terminology (e.g., colors, tastes, and sounds), are “too odd to be scientifically explicable” (Swinburne [1979] 1991, 71). First-person qualia cannot in principle be captured in the third-person idiom of natural science, and therefore they require a different type of explanation. Consciousness has come into being, according to Locke (and Swinburne), because of an eternal personal conscious being, an “all-wise Agent” (Locke [1693] 1995, IV. iii. 28, 455), who has “superadded” conscious thought to matter. Thus, the argument from consciousness turns on the premise that the existence of human consciousness cannot be understood without God being real. Human consciousness can be explained only by taking into account the existence of a divine being. As Locke says, the inscrutability of the relation between primary and secondary qualities “I can resolve only into the good pleasure of God, whose ways are past finding out” (cited in Stuart 1998, 361). Hence, because consciousness is (presumably) scientifically inexplicable, what we need is explanation in terms of divine properties (Swinburne [1979] 1991, 46). What is required is what Swinburne calls a *personal explanation* for consciousness: “the explanation in terms of divine action for what otherwise is likely to remain a total mystery” (Swinburne 1986, 199).

The argument from consciousness as advanced by Locke and theists like Swinburne is two-pronged. On the one hand, it serves as an argument for

the *existence* of God. On the other hand, it points at the need for personal/theist *explanations and descriptions*, as opposed to subpersonal/naturalist ones, to support our traditional self-conception. As such, the argument from consciousness provides another angle on the conceptual and explanatory interdependence of the received images of God and humanity. The dependence of classical theism (and the classical image of God) on the classical view of humanity has already been emphasized. The argument from consciousness stresses the reverse dependence, namely, the dependence of our traditional self-image on classical theism.

Because otherwise the classical notions of God and God-world interaction may begin to shift, a number of authors have held that "it is crucial for theologians to defend the irreducibility of consciousness" (Clayton 1997, 245). On the argument of consciousness, natural science is believed to lack the conceptual resources to provide a successful scientific, fully naturalized explanation for consciousness. Not surprisingly, this argument is contested by contemporary (neural) scientists working on the problem of consciousness. Consciousness is now taken to be an extremely difficult but still *scientific* problem that requires a scientific solution. If consciousness were amenable to a *naturalistic* explanation by some yet-to-be-specified scientific theory, then one would have to ask what this would imply for our orthodox conception of God, that is, for classical theism. According to naturalism in science, if a thing is to be real, it must be part of natural reality. And according to physicalism, if a thing is a part of natural reality, it must be physically constituted.

Let us now zero in on the question of what a naturalistic explanation of consciousness would consist in. The course we follow will show us that we need to distinguish between *naturalism*, *physicalism*, and *reductionism*. We argue that this blunts the dualist edge: perhaps some inroads can be made to a naturalistic explanation of consciousness. If so, dualism and classical theism are at peril.

BETWEEN DUALISM AND REDUCTIONISM

Naturalistic Explanations of Consciousness. The philosophies of science and mind have embraced physicalism and naturalism (epistemological and ontological). According to *physicalism*, the universe is a physical universe in the sense that it is causally closed or complete. Every physical event has a sufficient physical cause. There are no causal gaps to be filled up by mysterious, nonphysical forces or influences. The laws of physics are never violated. *Epistemological naturalism* is the doctrine that science offers the best available evidence and is therefore the best judge of what does and does not exist in the natural world. The natural world, which is the spatiotemporal and causal order of natural objects and processes, can be studied by empirical investigation and explained by the laws and concepts of natural science. In addition, *ontological naturalism* is the view that the

natural world is unitary: all entities are composed of the same constituents (Drees 1997, 531). In the philosophy of mind, naturalism almost without exception goes with a physicalist view of natural reality, in the sense that all entities are thought to be entirely physically constituted.

Naturalism also contrasts with supernaturalism.⁴ In tracing causal chains, one will never be taken outside the domain of natural events. With its ban on the supernatural, naturalism expels explanations that invoke mysterious, miraculous, and magical powers intervening in the causal chains of events. The guiding principles of naturalism were brought out by the words of Denis Diderot, one of the eighteenth-century French *philosophes*:

Be a physicist, and acknowledge the produced character of an effect when you see it produced, even if you cannot explain all the steps that led from the cause to the effect. Be logical, and do not substitute for a cause which exists and explains everything, another cause which cannot be comprehended, whose connection with the effect is even more difficult to grasp, which engenders an infinite number of difficulties and solves not one of them. (Diderot 1963, 60)

Only on the assumption that there can be no mysterious ontological leaps in nature can reality be brought within reach of the natural method, the empirical *via veritatis* (road to truth) of natural science. Gods and souls are expunged from science, being supernatural. Hence B. F. Skinner's comment: "A god is the archetypal pattern of an explanatory fiction, of a miracle-working mind, of the metaphysical. Man is much more like a dog, but like a dog he is within the range of a scientific analysis" (Skinner [1971] 1980, 190). Skinner's preferred way of doing scientific analysis was stimulus-response analysis, but his point applies to neuroscientific methodology as well.

On the assumption of naturalism, even phenomena essential and central for our traditional self-image such as freedom, rationality, intentionality, and consciousness must ultimately be grist for the mill of natural science. For instance, a scientifically respectable account of consciousness must refer to publicly observable phenomena described in the vocabulary of (presumably) the neural sciences. Thus, the cognitive and neural sciences aim to reveal the real nature of the mind by empirically investigating the workings of the neural machine that supposedly underlies it. New in vivo techniques, such as PET and fMRI (Patricia Churchland 1996; Churchland and Sejnowski 1991; Posner and Raichle 1994), but also recent molecular-genetic approaches like transgenesis and gene targeting (Mayford, Abel, and Kandel 1995), make it possible to peer ever deeper into the living brain. Even one of nature's best-kept secrets, how consciousness is mechanically implemented in the physical world, is now thought to be within reach of the rapidly advancing methods and theories of natural science.

Neuroscientists often make use of the powerful explanatory schemes of functional decomposition and localization of functions in the brain (Bechtel and Richardson 1993). With such analytic tools, cognitive scientists and

neuroscientists hope to lay bare, in a joint effort, the mechanisms that underlie such higher-level system properties as thought, consciousness, and emotion. This is supposed to result in a reductive explanation of the latter properties in terms of lower-level cognitive-informational and, ultimately, neuroscientific ones. A reductive explanation reinterprets or redescribes, for instance, consciousness as resulting from neuronal activity in the thalamocortical tract. Such an explanation thus looks to *intrasystemic*, subpersonal, and physically constituted properties to explain systemic, personal, and phenomenological ones. Others have made even stronger claims. They have argued that successful reductive explanations of psychological phenomena may not merely explain (i.e., reduce) these psychological phenomena but may even *explain away* (i.e., eliminate) the latter by the physical conditions cited in the explanation. Explanations that invoke knowledge about the human nervous system often forcefully suggest that our traditional psychological understanding of mental phenomena must have been mistaken. Psychological concepts traditionally employed to describe our mental lives—for instance, the concept of consciousness—cannot be taken to pick out anything real. The eliminativist physicalists suspect that mental entities will be displaced from the catalog of nature.

The eliminativist critics of the ordinary consciousness concept—which refers to the first-person, what-it’s-like aspects of consciousness (Nagel 1980)—have often pointed out that the history of science is characterized by theories that at one point were thought to be eternally true but that were forced by later developments to abandon the field. Paul Churchland, thinking along lines laid out by Kuhn and Feyerabend, has characterized scientific history as a series of revolutions that displaced the intuitions of an earlier era. Alchemy, vitalism, heliocentrism, phlogiston theory, and ideas about witches, demons, and ghosts have all been shown to be otiose. For Churchland this suggests the inductive argument that our intuitions with regard to mind and consciousness are not sacrosanct, either. In a similar vein, Daniel Dennett asserts that “[*t*]here seems to be *phenomenology*. . . . But it does *not* follow from this undeniable, universally attested fact that *there really is* phenomenology” (Dennett 1991, 366). According to Dennett’s uncompromising view, the final naturalized theory of consciousness will probably leave no room for qualia. We have been chasing phantoms for at least the past two millennia. Although qualia may *appear* to be really there, that does not mean that they are really there. It is like sunsets: they appear to exist, but astronomy has taught us that they do not. Perhaps qualia belong more in the realm of folklore than of science. In the opinion of its most radical adherents, then, the brain science revolution will probably discard most of these age-old and deeply confused ideas. Qualia will inevitably be explained away. Thus, the Lockean/theistic argument from consciousness does not even get started, because science is about to show that consciousness (if it exists at all) has an essentially physical

nature, that it is really nothing but, for instance, thalamocortical activity. And a reduction may lead to an elimination, in which case the explained phenomena are explained away.

In the footsteps of John Locke, a number of counterarguments have been raised against these (reductionist and eliminativist) physicalists, detailed below on pp. 691–92. These antiphysicalist arguments aim to show that consciousness has irreducible psychological and phenomenological characteristics that resist being captured within the conceptual resources of a fully physical theory. Because in their view physicalists throw away the baby with the bath water, antiphysicalists have argued for more sophisticated forms of dualism (see pp. 693ff.). But, as we will see, these are not viable either, because they only mystify the problem of consciousness. Closer inspection of the problem, however, shows us a third way out: we can have naturalism (and physicalism) without reductionism (see pp. 697ff.).

Supervenience Physicalism. Claims about the naturalization of consciousness can be put in terms of *supervenience*. Let me emphasize at the outset that supervenience does away with the (ontologically) dualist picture of a split reality: there does not exist a mental substance alongside the physical stuff. The rationale for considering supervenience attractive is that it might allow us to make sense of human nature without giving way to supernaturalism on the one hand or reduction or elimination on the other.

In the philosophy of mind, supervenience has been suggested as an alternative to the reductionist program. The supervenience thesis aspires to capture the intuitively plausible idea of mind/brain *dependence*. What I will call Ψ -properties (mental properties) are dependent on (are determined by) Φ -properties (physical properties). But in spite of this dependence of Ψ -properties on Φ -properties, supervenience has often been thought to be antireductionistic in nature. Although Ψ/Φ supervenience recognizes that there is (lawful, counterfactual-supporting) Ψ/Φ covariation, it does not commit one to the view that Ψ and Φ can be identified.

It must be borne in mind that supervenience physicalism is not a *solution* of the mind-body problem, because it is not by itself capable of explaining *why* psychophysical relations are as they are (this must be left to empirical investigation). The supervenience thesis does, however, define a “minimal physicalism” (Kim 1998, 15; cf. Loar 1992, 246) that does not collapse into reductionism or eliminativism on the one hand or dualism on the other. Supervenience is considered an attractive thesis by many because it promises to comply with the intuitively plausible idea of a stratified reality while preserving the physicalist worldview of science. On the one hand, the thesis of supervenience rejects (substance) dualism, which is incompatible with current naturalism. On the other hand, it is not committed to the equally implausible doctrine that all properties are nothing

but physical properties. Thus, the supervenience thesis hopes to bring out three important points about Ψ/ϕ relations: (1) *covariance*, (2) *dependence*, and (3) *nonreducibility* (see Kim 1998, chap. 1). In the case of mind/body supervenience, Ψ -properties covary with and are asymmetrically dependent on ϕ -properties, and yet the Ψ -properties remain wholly distinct from the ϕ -properties.⁵

Leaving aside difficult questions about strong vs. weak supervenience and global vs. local supervenience, it is useful for our present purposes to adopt a distinction introduced by David Chalmers, namely, one between *natural* and *logical supervenience*. Logical supervenience is defined thus:

Ψ -properties supervene *logically* on ϕ -properties if no two *logically possible* situations are identical with respect to their ϕ -properties but distinct with respect to their Ψ -properties. (Chalmers 1996, 35)⁶

In the case of logical supervenience, we can say that the ϕ -facts *entail* the Ψ -facts. It is logically impossible for the Ψ -facts to hold without the ϕ -facts. An omniscient mind, say God or a Laplacean mind, could in that case read off the Ψ -facts by inspecting a full specification of the ϕ -facts. There is a logical relation connecting the ϕ -set of properties and the Ψ -set of properties. As Chalmers puts it,

If Ψ -properties supervene logically on ϕ -properties, then once God (hypothetically) creates a world with certain ϕ -facts, the Ψ -facts come along for free as an automatic consequence. If Ψ -properties merely supervene naturally on ϕ -properties, however, then after making sure of the ϕ -facts, God has to do more work in order to make sure of the Ψ -facts: he has to make sure there is a law relating the ϕ -facts and the Ψ -facts. . . . Once the law is in place, the relevant ϕ -facts will automatically bring along the Ψ -facts; but one could, in principle, have had a situation where they did not. (Chalmers 1996, 38; the God metaphor is Saul Kripke's).

Natural supervenience is considerably weaker than logical supervenience. It does not require the logical relation of entailment between the two sets of properties. Rather, it obtains when two sets of properties (the Ψ -set and the ϕ -set) are not logically but *nominally* related in the natural world. Following Chalmers, natural supervenience may be defined thus: " Ψ -properties supervene *naturally* on ϕ -properties if no two *naturally possible* situations are identical with respect to their ϕ -properties but distinct with respect to their Ψ -properties" (see Chalmers 1996, 36). A naturally (or empirically or nominally or nomologically) possible situation is one that could arise in reality, if only the conditions were right. The ϕ -facts *necessitate* the Ψ -facts by natural law. The correlation that is observed between the Ψ -properties and the ϕ -properties is not coincidental; they are lawfully connected (that is, the connection supports counterfactuals).⁷

For Chalmers, physicalism requires (global) logical supervenience of all (including mental) properties on physical properties (Chalmers 1996, 41). If a Ψ -property is (globally) logically supervenient on a collection of ϕ -properties, we can say that the former property is reductively explainable

in terms of the latter set of ϕ -properties (Chalmers 1996, 48).⁸ According to Chalmers, this situation holds for almost all natural properties. Because of logical supervenience, almost all higher-level (ψ -) properties have the possibility of being microreduced to lower-level (ϕ -) properties (Chalmers 1996, 42). As I will observe in the next section, a number of authors have suggested that this is not the case for consciousness. Consciousness cannot be reductively explained. And because consciousness is scientifically irresoluble, physicalism must be false.

Against the Logical Supervenience of Consciousness. Chalmers argues that physicalism requires logical supervenience of all properties on physical properties. Arguing from the failure of universal logical supervenience (see below) and the conceptual nature of the so-called explanatory gap between the phenomenal and the physical (Levine 1983), some have denied the truth of physicalism. They claim that, for a few unique and special properties found in the world, logical supervenience is violated, and that therefore physicalism must be false. For these antiphysicalists, as we will see, consciousness is a textbook example of a property that is logically non-supervenient and that therefore points to the falsehood of physicalism.

Although phenomenal consciousness, according to Chalmers, presents a case of natural supervenience, it is not logically supervenient on lower-level, physical properties. For this reason, we must conclude that consciousness cannot be reduced to ϕ -properties. Although in Chalmers's account it is left open that consciousness may *naturally* arise from a set of ϕ -properties—and hence it must be naturally supervenient—our intuitions suggest that it cannot be the case that the latter facts *logically* necessitate the (phenomenological) facts about consciousness. In the case of consciousness, logical supervenience is breached. One of the arguments to which Chalmers resorts to argue against the logical supervenience of consciousness is the *zombie argument*: it is conceivable (and therefore logically possible) that two *doppelgänger* organisms exist, which are physically identical, but only one of them has conscious features (and the other, the zombie, has not). Although logically possible, such a situation would not be naturally possible: it would violate the laws of nature and could therefore not occur in the real world.

One of the other arguments invoked by Chalmers to argue against the logical supervenience of consciousness on the physical facts is Frank Jackson's (1982) well-known *knowledge argument*, a member of a family of influential arguments that some have thought to deal a decisive blow against physicalism (Block 1980; Jackson 1982; Kripke 1972; Nagel 1980). These arguments claim to show that the cleft between phenomenology and natural science is in principle unbridgeable, because the phenomena they describe are only contingently connected. Jackson's thought experiment asks us to imagine Mary, a perscientist brought up in a black-and-white world

and living in the future era of completed neuroscience. Seen through the glasses of neural science, Mary knows everything there is to know about color vision. Still, Jackson argues, she is ignorant about what it is like to see colors, what it is like to have the experience of red. Ergo, the facts about consciousness are not entailed by the physical facts, and consciousness does not supervene logically on the physical. Because neural science at present lacks the conceptual resources to capture the nature of conscious experience, we are led to the conclusion that consciousness cannot be reductively explained, and physicalism is false.

In sum, according to several authors, the failure of consciousness to supervene logically leads to the dismissal of reductive physicalism. This apparently makes room for the adoption of dualism as a better doctrine to explain the facts and intuitions of consciousness. However, as we have seen, the Cartesian (“disparate”) dualism of substances presents a “very messy, unsimple” (Swinburne [1979] 1991, 105) world picture, because it invokes the mystifying notion of causal interaction across deeply separated metaphysical spheres (cf. pp. 683–84 above). Hence, a more sophisticated form of dualism is called for. At least two options have been suggested. First, the theist’s answer is some form of *integrative dualism*. Second, the antiphysicalist who prefers not to give in to mysterianism and supernaturalism may want to follow David Chalmers (1996) in his defense of *naturalistic dualism*. It is to these two alternatives to reductive physicalism, on the one hand, and Cartesian dualism, on the other, that we turn now. My analysis demonstrates that both dualisms are implausible and that a non-reductive physicalism (in one version or another) is better equipped to handle the difficulties presented by consciousness.

CONSCIOUSNESS AND NON-CARTESIAN ONTOLOGICAL DUALISM

Integrative Dualism. As has already been pointed out, the widespread feeling in the tradition in which Taliaferro and other theists stand is that, after neuroscience has completed (if that is possible) its assignment—namely, to account for mental phenomena in terms of brain functions—humanity will be bereft of the last of the qualities that traditionally have been counted as distinctly human. Because of the failure so far of a reductive explanation of consciousness, however, it may be thought that alternative, non-naturalistic explanations of consciousness are more suited to fulfill the explanatory job. Logical supervenience fails because the phenomenal aspects of consciousness are “different in kind” (Ward 1998, 80) from physical properties, and therefore many have found it most likely that these phenomenal properties must be accounted for in a conceptual framework that is also fundamentally different from the conceptual framework typically employed to account for physical properties.

Consciousness has so far escaped mechanical explanation in terms of natural processes and events. Our difficulties in understanding how the phenomenal qualities of consciousness can be translated to the externalist, third-person idiom of natural science suggest that what we need is an entirely different type of explanation. Taliaferro has suggested that such cases as Jackson's point to a deep anomaly for physicalism, an anomaly that cannot be disregarded. On the basis of the knowledge argument (and other so-called intuition pumps), it is concluded by many theists that the naturalistic worldview must be wrong, because consciousness is "too odd" (Swinburne [1979] 1991, 71) to be accounted for in the third-person categories of science. Because consciousness is not susceptible to naturalistic explanation, the only other option available to account for consciousness is that of personal explanations cast in theistic terminology: "the fact that there are conscious beings is mysterious and inexplicable but for the action of god" (Swinburne [1979] 1991, 11).

Theists such as Taliaferro have not failed to recognize the lure of naturalism: if a phenomenon can be properly naturalized, unity and simplicity will result. A unified conception of reality would mean that one could skip the "Herculean task of philosophically and scientifically linking disparate ontological realms" (1994, 84) that traditionally bothered classical dualism. We have seen that the phenomenon of consciousness presents a Herculean project for the naturalist and physicalist as well: how to bridge the subjective and phenomenal world of qualia and the objective world of neural science. In fact, according to some it may be that the supervenience relations invoked by the naturalist are as mysterious as the mind-brain interactions for a Cartesian dualist (Moreland 1998, 51). The failure to build robust bridges between the domains of physics and phenomenology and to provide a microreductive, subpersonal explanation of consciousness points, according to adherents of a theistic metaphysics, in the direction of a theistic type of explanation: an "appeal to deity as the Builder of the bridge between the worlds of mind and matter" (Polkinghorne 1994, 19).

Theistic, personal explanation is the "reverse programme" (Swinburne [1979] 1991, 86) of physicalist reductionism with its downwardly oriented, subpersonal explanations. Consciousness cannot be decomposed and localized; this would leave out everything that we know is essential about it. Rather, it can be explained much better "in terms of a higher, purposive agent" (Taliaferro 1994, 86). The overall direction of explanation must be upward, not downward. All we need is "a schema of explanation that draws upon increasingly rich notions of consciousness and intelligence" (Taliaferro 1994, 84). Such a scheme can be furnished by classical theism: we can explain consciousness by referring to the mind of God. Our conscious thought depends on God's conscious thoughts. As Swinburne explains, it is God who gives human consciousness thoughts, sensations, beliefs, doubts, and so on, so that we may participate in God's

creative work (Swinburne 1986, 198–99). The argument from consciousness shows that physicalism is false; nature is not undivided. At the end of the day, human as well as divine consciousness resides beyond a deep cleft through reality. The supervenience thesis has no use for the theist, it is thought (see also Vallicella 1998).

Theists like Taliaferro and Swinburne state that the mysteriousness of consciousness results from the fact that there are supernatural things. Thought experiments showing that conscious phenomena are irreducible to physical phenomena are far better accounted for in terms of ontological dualism. The mental is not necessarily anchored in the brain or the body. Theists use conceivability arguments, which must show that mind and body are related but only contingently so (Taliaferro 1994, 173–88). It is logically possible (because conceivable) that minds exist without their bodies and that bodies exist without minds. That minds and bodies could conceivably come apart is said to be mandated by reports of out-of-body experiences (OBE), experiences of body switching, and other reports of disembodiment and reembodiment. On the basis of such arguments, theists conclude that minds and bodies must belong to distinct ontological categories. As an alternative to classical (what he calls *disparate*) dualism, however, Taliaferro proposes *integrative dualism*, with an emphasis on the holist, integrated nature of the embodied mind. For Taliaferro it is not, as in the classical version of dualism, that a mind is merely attached or added to and contained in a body. Rather, mind and body are *ontologically distinct, while at the same time fully integrated* (Taliaferro 1994, 115). In Taliaferro's opinion, integrative dualism would deliver a model that, precisely because it is integrative, is much better than disparate dualism at characterizing the God-world relation. Classical theism would be reformed to *integrative theism* (Taliaferro 1994, chap. 6).

Ontological dualism (in whichever guise it shows up) is not, however, a particularly attractive option. To call one's dualism "integrative" does not help us much as long as we are kept in the dark as to how this (causal) bridging of the corporeal and mental realms takes place. Though the emphasis on embodiment and the dismissal of disparate ontological spheres perhaps improves on the classical, unregenerate version of dualism, it does not take away enough of the standard worries about the mind-body relation. What is left is the usual hand-waving with respect to the question of *how* body and mind, as ontologically distinct substances, are integrated to form a whole. How *could* mind and body possibly be properly "*enchaînée*," to speak with Diderot; how *could* they be causally related? How could they not be ontologically and causally splintered? Ontological dualism complicates things unnecessarily (Murphy 1997, 58) and in fact does nothing to disclose the nature of the mind-body relation. To be sure, these problems infect theism: if integrative dualism is problematic, then so must be integrative theism. A further worry for dualism is the general weakness of conceivability arguments, which I will comment upon later.

Thus, integrative dualism to the contrary, naturalism remains a far better option as a framework to study and characterize the human agent. If one wants to stick to dualism, a more promising alternative for the theist may be found in Chalmers's brand. This he refers to with the oxymoron *naturalistic dualism*. It is supposed to be scientifically respectable and to do away with the myths, miracles, and mysteries of supernaturalism, although it still considers the oddity of conscious phenomena to be beyond any reasonable doubt. The alleged naturalism of Chalmers's dualism makes the account cohere with scientific analysis, although it salvages a special ontological status for consciousness.

Naturalistic Dualism. Neodualists like Swinburne and Taliaferro acknowledge the existence of correlations between brain states and conscious states. But that is acceptable for the dualist, because the correlation may hold between entities that belong to distinct ontological spheres. On the dualist's account, mental (Ψ) and physical (Φ) properties can well be co-instantiated. Covariance can be accepted (as, of course, is nonreducibility). But according to the naturalist's scheme of things something more is required of this correlatory relation between properties Ψ and Φ . At the very least, the requirement is that psychological property Ψ depends on physical property Φ , or that physical property Φ is necessary for psychological property Ψ . The reductive physicalist requires of this relation that Ψ -properties are *logically* necessitated by Φ -properties. The Φ -properties determine the Ψ -properties in every possible (conceivable) world. One does not, however, have to agree with this picture in order to be a naturalist. One can say that the Φ -properties *naturally* necessitate Ψ -properties. In every naturally possible world, though not in every logically possible world, Φ -properties determine Ψ -properties. This means that Chalmers claims, somewhat counterintuitively, that one can be a naturalist and still side with dualism.

Because the facts of consciousness do not logically follow from a detailed specification of the physical facts—they cannot be read off—we must face the fact that, contrary to the physicalist worldview, consciousness is an *extra*, further fact. It is an ontologically unique and novel property of the world, over and above the physical properties (Chalmers 1996, 125). This standpoint therefore results in a kind of dualism. The particular brand of dualism defended by Chalmers is undoubtedly a very special one, because it goes by the counterintuitive name of *naturalistic dualism*. Earlier we saw that dualism and naturalism are (almost) opposites. Because naturalism by definition preempts the possibility of ontological chasms, these appear to be mutually exclusive standpoints. Supernaturalism and mysterianism is not what Chalmers has in mind, though. He does not want to adopt an antiscientific stance (1996, 126). As Chalmers characterizes his position, it is not a form of substance dualism. Consciousness must arise from the physical properties of the natural world. Although consciousness stands

practically alone in failing to supervene logically, it *is* naturally supervenient. However, Chalmers's position remains entirely committed to dualism in the sense that it recognizes the existence of ontologically distinct properties. Physicalism must be false, according to Chalmers, because a theory of consciousness requires *new* fundamental features, categories, and laws. To be sure, there must be laws that tie the psychological or, better, the phenomenological realm to the physical realm (remember that consciousness naturally supervenes on the physical); these laws, however, are not entailed by the physical facts alone. They are *additional* laws, over and above the laws found in a completed physical description of the world. And being additional, they are basic; these laws cannot be explained any further, because they are not implied by microphysical laws. Thus, the view of consciousness Chalmers himself advocates is a very strong form of property dualism (1996, 125): consciousness involves ontologically new properties, new facts, and new laws.

Recap. Although both integrative and naturalistic dualism are compatible with conscious mental states being correlated with neural states, both forms of dualism have denied that natural science is in a position to explain *why* these mental and neural states are thus correlated (Chalmers 1996; Swinburne [1979] 1991, 286–87). Against physicalist naturalism, dualism has made much of the argument from consciousness. There is an explanatory gap between states of consciousness and physical states of the world. In the terminology I employed before, the facts of consciousness do not supervene logically on the physical facts. In addition, integrative dualism, but not Chalmers's mitigated dualism, rejects the natural supervenience of consciousness on the physical: consciousness cannot possibly be lawfully connected to the physical world. Naturalistic dualism dismisses mysterianism and is therefore compatible with scientific analysis. As I argue below, however, not even naturalistic dualism is a viable option, because it is not a stable position between full-blown ontological dualism and physicalism. In sum, dualists (of any stripe) have to deal with insurmountable problems. To defend dualism is to close one's eyes to the enormous and ongoing scientific developments in the mind and brain sciences in the past few centuries—and to wallow in mystery. Nonreductive physicalism is a much better option to account for these facts. There is nothing that precludes the possibility that the psychophysical connection can be made perspicuous and intelligible in the future.

NONREDUCTIVE PHYSICALISM

The Physicalist View of Humanity. Although theism and dualism are thought to be conceptually affiliated and complementary (Taliaferro 1994), in recent years some have doubted that theism really cannot go without a

dualist view of humanity. In particular, they have proposed promising versions of *nonreductive physicalism* (Baker 1995; Barbour 1990; Drees 1996; Murphy 1997; Murphy and Ellis 1996; Peacocke 1979; 1986; 1993). According to these proposals, theism is compatible with physicalism.

Nonreductive naturalists have embraced the naturalist picture of a unified and at the same time stratified reality. Against dualism, they defend the unity of nature; against the flat world picture of (reductive) physicalism, they characterize natural reality as a hierarchy of complexity. According to nonreductive physicalism, Ψ -properties on Φ -properties cannot be identified. Because nonreductive physicalism is still physicalism, however, Ψ -properties still *depend* on Φ -properties. Although there is more to the natural world than physical properties alone, physical properties are awarded some kind of ontological (and causal) priority. That said, nonreductive physicalism must endorse supervenience in one form or another (Loar 1992, 246; Macdonald 1995, 140). The idea that higher-level properties are in some sense dependent on lower-level ones is a minimal form of physicalism.

Such a combined antidualist/antireductionist position in theism has been grounded on a number of arguments. Physicalism has, for instance, been defended on the basis of biblical reasons. It has often been thought that Christian doctrine (e.g., the doctrines of the afterlife or the resurrection of the dead) required a dualist conception of persons. Recently the view has gained support that, like reductive physicalism, mind-body dualism is not even supported by the Holy Scripture (Murphy 1997; Peacocke 1993; Stump 1995; Van Inwagen 1995; Van Peursen 1961). Mind-body dualism may even contradict some basic themes in Christian teaching (Murphy 1997, 58). Rather than being rooted in the Judaeo-Christian tradition, mind-body dualism is likely to be of Hellenistic origin (Van Inwagen 1995).⁹ According to Murphy, unlike dualism, nonreductive physicalism is “close to the ancient Hebrew conception of the person” (Murphy 1997, 59), because it is able to offer an account of undivided personhood. Still, the physicalist’s argument apparently keeps running counter to the argument from consciousness.

Against Conceivability Arguments for Dualism. If valid, conceivability arguments show that the mind-matter connection is not necessary, but merely contingent. It is possible that mind and matter can be disconnected. However, the trouble with this family of arguments is that it wants to argue from epistemic premises to ontological conclusions. The fact that we can imagine the possibility of disembodied existence or of phenomenological zombies (a zombie being defined as a physical duplicate of some conscious being but entirely lacking conscious experiences; see Chalmers 1996, 94–99), and so on, does not suffice to show that such a possibility really exists. Perhaps such intuitions are mistaken, due to a limited capacity for forming intuitions. Further, our intuitions are not fixed, but fluid.

They are subject to modification as our understanding of natural phenomena develops.

Chalmers's argument from the failure of logical supervenience to ontological dualism presupposes that the concept of consciousness is a stable, crystallized concept; it presupposes our *current* first-person concept of consciousness. But science, any science, has a temporal dimension. Scientific concepts transform over time, and typically under the influence of progress in neighboring sciences. The consciousness concept is likely to be a target of modification, because, although the word is now in everybody's mouth, there is not much agreement on what it means. Maybe we cannot now imagine how the objective reality of the brain makes possible the subjectivity or what-it's-like-ness of consciousness, but that does not remove the possibility that in the future we will be able to make the consciousness-world connection transparent.

As scientific knowledge progresses, our intuitions expand with it. This immediately hints at the general flaw of the conceivability arguments employed by many dualists. Thought experiments like Jackson's knowledge argument thrive on our capacity to imagine things. But the conceivability or inconceivability of a situation does not say anything about the existence or nonexistence of that situation. That we can *imagine* disembodied existence (e.g., out-of-body experiences) does not imply that such a mode of existence is *really* possible. The same is true of zombies: that we can imagine a situation in which two beings are physically identical but only one of them has conscious experiences does not say anything about the metaphysical possibility of zombies. And our intuitions are not fixed: several decades of further progress in the neural sciences may undermine our ability to imagine a situation in which zombies, disembodied beings, and so on, exist. Perhaps we really are, as Dennett and the Churchlands have notoriously claimed, fooled by the appearance of consciousness; perhaps it is really something else. We cannot rule this out on a priori grounds.

The history of science has shown many examples of explanatory gaps being closed. How could light possibly be physically instantiated? That particular explanatory gap between the phenomena of light and physics seemed too wide and too deep to be bridged. Light was simply "too odd" to be captured in the framework of physical science. In the dark days of the gap, it was impossible to conceive how light could possibly arise from mere physical processes. But after Maxwell's theory we know better. Light consists in electromagnetic radiation (I borrow this example from Paul Churchland 1996). Similarly, in the seventeenth century, it was inconceivable to both Huygens and Leibniz that Newton's notion of gravitational attraction could be compatible with materialism and mechanism. Their intuitions proved to be ill-founded, because today gravity remains one of the central parts of contemporary physics. And our intuitions with regard to psychological phenomena should be mistrusted as well. Mackie

gives the telling example of Cicero, who could not believe that memories are represented in the brain. Again, now we know better. Just as Locke's (and Newton's) personal explanation for gravity—that it, like conscious thought, must have been superadded by God to material bodies (see Stuart 1998, 355–59)—has been refuted as a mystification, the concept of consciousness is likely to be properly naturalized. There is no reason to conclude on a priori grounds that consciousness shows that dualism and personal explanation are inevitable.

Against Logical Physicalism. A growing number of authors have recognized that theism should not ignore what empirical science has to say about human nature. Developments in science have made dualism a fairly dubious position to entertain at best. Dualism is an unlikely and unnecessary view of human nature. Even phenomenological consciousness may be within the reach of natural science. Or, to put it more carefully, we no longer have reason to say that consciousness is a miraculous, God-given phenomenon. Even consciousness must be considered a natural phenomenon, and what is more, it must have arisen from physical processes. Although at present we have no real clue as to what the final theory of consciousness will look like, it is realistic to say that it must somehow be implemented or realized in physical mechanisms (probably in the central nervous system). That mental functions are implemented in brain processes does not mean that these functions must be identified with these processes, that they are *nothing but* these processes. The phenomena of consciousness must still be taken seriously, even after we have learned how the brain does the trick.

Explanation in science requires the unveiling of necessary relations holding between distinct properties, and these cannot be obtained in the case of consciousness according to the Lockean argument. Chalmers's argument is that physicalism fails because logical supervenience fails in the case of consciousness. But this cannot be correct. Logical supervenience is not necessary for physicalism (although it might plausibly be for reductionism). Nonreductive physicalism dismisses logical supervenience as too strong a requirement for physicalism. A failure of logical supervenience (if there is such a failure) does not establish the failure of physicalism and the truth of dualism. The fact that truths about consciousness are not logically entailed by the truths about the physical structure of the world does not imply that the *properties* referred to by the concepts in which these truths are expressed fall in ontologically distinct categories (Levin 1997, 94). Science has committed itself to physicalism, but science is certainly not committed to logical supervenience. What science is mostly searching for are *naturally* necessary connections between phenomena, and not *logical* connections between descriptions of these phenomena. The ontological integrity of higher-order properties remains untouched after science

has discovered what properties they are naturally connected with at the physical level. On the contrary, the former properties are vindicated because they are grounded in the natural world. For Chalmers, mere natural connections do not suffice, because consciousness is in that case acknowledged to be a brute fact, a fact that is not explicable any further. But explanation has to stop somewhere, and there may come a time when we feel that we possess a bona fide naturalized theory that explains consciousness although the facts about consciousness are not logically entailed by the physical facts. Newton's inverse square law does not show us "why bodies *have to have* gravitational attraction" (Searle 1992, 101–4).

What would count as having fully explained, having made fully intelligible, a link between two phenomena or properties anyway (Flanagan 1992, 118–25)? Water has been (reductively) explained by H_2O , but this still has not given us an answer to the question of *why* water is H_2O . It may be argued that it is logically (though not metaphysically) possible for water to have a different physical structure (say, XYZ) and therefore to be logically nonsupervenient. The empirically well-established and (perhaps metaphysically necessary) scientific proposition "water is H_2O " turns out to be brute and inexplicable too. Someone may always come along (a water mysterian) who calls into doubt the conceptual link between water and H_2O , who is "antecedently convinced of the mysteriousness of water and no amount of scientific data is going to change that perspective" (Hardcastle 1997, 64–65). It would seem that natural (nomological) necessity or perhaps, somewhat stronger, *metaphysical* necessity (supported by Kripkean a posteriori necessity) is all that is requisite for the physicalist (Tye 1995, 63–64); it certainly grants us a lot of explanatory power by uncovering the functional or physical natures of natural phenomena (Robb 1998, 529).

What the Kripke/Nagel/Jackson family of thought experiments shows at most is just that reductionism about consciousness must be considered false—it is highly unlikely that first-person phenomenological properties are logically entailed by (or can be identified with) third-person physical properties. They do not, however, establish the falsehood of physicalism except on an unrealistically strong construal of physicalism. To see this, we must, following Flanagan (1992, 98), distinguish between *ontological* (Flanagan says "metaphysical") *physicalism* and *logical* ("linguistic") *physicalism*. Ontological physicalism just states that everything that exists is physical or at least constituted by the physical. According to logical physicalism, it is possible in principle to capture all truths about the natural world in the conceptual framework of rock-bottom physics. At most, Jackson's argument shows that *logical* physicalism is wrong—Mary does probably learn something new, because the facts about, say, what it is like to see red are not entailed by her perfect knowledge of the entire book of nature—whereas we still have every reason to believe that *ontological* physicalism is true.

So Chalmers is right that phenomenal properties do not logically supervene on physical properties, but this does not warrant his leap into (naturalistic) dualism. The failure of logical supervenience does not add up to an argument for dualism. Facts about human phenomenology are not deducible from a full specification of the facts about the physical structure of the world, but this only means that physics lacks the resources to capture the higher-level facts about phenomenological consciousness. According to nonreductive physicalism, there is “nothing *fundamentally* ontologically new” (Chalmers 1996, 125) about mental, including phenomenological, properties. Consciousness does not stand alone in escaping logical supervenience and reduction. My view is that consciousness, like other mental phenomena, must be a higher-order property of physical processes. Though consciousness depends naturally on the physical, it probably does not do so conceptually. Although the natural facts are either determined by or identical with the physical facts, physics cannot capture all that is explanatorily interesting about nature. Although nonreductive physicalism takes physical properties as in some sense basic, at the same time the physical facts do not exhaust the natural facts. This does not imply dualism, as Chalmers thinks, because we can have ontological physicalism without logical physicalism. Contra Chalmers and the mysterians, this results in a *weak* form of property dualism (see also Hardcastle 1996, 16) that at the same time recognizes the fact that psychological properties are constituted by physical properties. The ontological primacy of physical properties is not disputed.

TAKING STOCK

Nonreductive Physicalism and Theism. In what is almost a kind of von Münchhausen maneuver, dualism and theism appear to try to pull each other up by the hairs. They are often presented as a kind of package deal. According to Taliaferro and others, theism requires dualism to make sense of the God-world relation and to secure a territory for theology alongside science. Dualism, on the other hand, needs theism to explain (at least) the mental side of the mind-body chasm. The latter dependence is exemplified in the property of consciousness.

Taliaferro, Swinburne and others claim that consciousness calls for theistic rather than naturalistic explanation. As one other theistic author puts it, “the prospects for an adequate explanation of the correlation of phenomenal qualia with physical properties are more promising on theistic than on naturalistic assumptions” (Adams 1995, 172). Many have maintained that the explanatory gap between qualia and the mechanisms of the brain is so wide and so principled—we cannot even imagine how it *could* be closed—that it is misguided to seek an explanation in the (downward) direction of certain physical properties. On the contrary, it could perhaps be sought in the (upward) direction of divine properties. If it cannot be

matter and natural processes, it must be God who sustains the correlations between phenomenal and physical properties. However, the antiphysicalist argument from consciousness that we have investigated rests on a mistaken conflation of physicalism and reductionism. The argument may thwart reductionism, not physicalism. One can be committed to physicalism (and a fortiori naturalism) without being committed to reductionism about consciousness. In addition, the failure of logical supervenience for consciousness does not license either the position of ontological dualism (disparate or integrative) or a strong form of property dualism. I have stressed that dualism is a position that must be avoided, because it just puts mystery upon mystery. Similarly, personal “explanations” do not explain, because they only serve to mystify the problem.

Nowhere in this paper do I deny the difficulty of the riddle of consciousness or try to downplay its significance. What I claim is that to take its complexity as an argument for its unsolvability—and for the need for personal, theistic explanation—is mistaken. Swinburne’s argument from the oddity of consciousness and the concomitant arguments for (integrative) dualism are hardly convincing. One cannot rule out on a priori grounds the possibility of a scientific solution to the problem of consciousness. As I have claimed, it is much too early to call upon the *ignorabimus* (“we will never know”) about consciousness and to make a leap into faith and mysterianism.

To suppose (as in a personal, theistic explanation) that consciousness is something superadded or annexed to matter by the action of God is to succumb to an unnecessary mysterianism. For theology, it offers no comfort to reduce God to a god of the gaps filling in the explanatory gap of phenomenal consciousness. What I claim is that, extrapolating from the past (and current) successes of natural science, it is a legitimate bet that consciousness *arises* from the brain and that it can ultimately be accounted for in the objective categories of natural science.

All in all, my analysis points in the direction of nonreductive physicalism. Dualism, being superfluous, must be banished from the philosophy of mind. Consequently, we cannot count on a god within whose properties can be safely projected onto the god without. We cannot have “an integrative understanding of consciousness and the mind of God” (Taliaferro 1994, 341), at least not when this presupposes a mistaken view of human nature, and theism (if there is to be any) has to live with it. A truly integrative theism must live with premises that are at least compatible with naturalism in the philosophy of mind.

Afterthought: The Power of Rethinking. My analysis has resulted in a deflationary approach to the dualist image of humanity. Now that we have found that mind-body dualism lacks credibility, the question remains what logical support is left for theism. Did the mistaken dualist view of

human beings result in equally mistaken extrapolations and projections to the image of God? Or are dualist conceptions of persons, though discredited in psychology, still experientially valid and inspiring as images for God? Some developments in theology suggest that they are not and that the concept of God needs to be reassessed.

These questions have not been decided. However, I did suggest the power of rethinking, because our dualist and personalist intuitions are revisable. Theism can perhaps be similarly revised, so that we do not need to tie the fate of theism to the fate of mind-body dualism. The classical image of humanity offered a local and time-bound set of metaphors and analogies for theism, and this suggests that, as our ideas about nature change with the expansion of scientific insight, more suitable metaphors and analogies may become available that may lead to a renewed rapprochement of the presuppositions of science and theology. Under the impact of scientific (and technological) developments, the traditional image of God may be reconstructed just as much as the traditional image of humanity has come to be reshaped.

As we have seen, there has always been something anthropocentric about our conceptions of God, but why should we construct a humanlike God? To view God in our own image gives the impression of a highly parochial stance, as Xenophanes of Colophon's *reductio ad absurdum* illustrates: "if cattle and horses or lions had hands, or were able to draw with their hands and do the works that men can do, horses would draw the forms of the gods like horses, and cattle like cattle, and they would make their bodies such as they each had themselves" (Kirk and Raven [1957] 1971, 169, fragment 15). There is no good reason to credit God with qualities we humans have, let alone with qualities we once mistakenly thought we had.

A number of authors have suggested that the anthropocentric, personalistic analogy is incorrectly exploited by classical theism (Eaves and Gross 1992; Kaufman 1993; McFague 1993; 1987). These authors have all asserted that the anthropocentric agential metaphor, according to which the spiritual is assigned metaphysical priority, should be replaced by new metaphors and analogies, commensurate with contemporary thinking about reality. The traditional and now unfashionable set of theistic concepts and metaphors must be reconstructed to bring it in closer harmony with the predicament and wisdom of today.

What Kaufman and McFague object to most are the ideas of control, dominance, and sovereignty implied by the anthropocentric model. God is seen as an agent, a person. God is pictured as lord, king, creator, or father. However, it is no longer persuasive to model our conception of God after a no-longer-tenable conception of the human agent. Hence, the concept of God must be revised. The envisaged theological reconstruction, as McFague (1987) calls it, involves the removal of the radical separation of all dualities that go with more classical forms of theism, namely, the

dualities of spirit and matter, of God and world, of supernature and nature. With the emergence of the dualistic image of God, then, theology may have gone off the track. The anthropomorphic image of God may be nothing but a patristic mistake rooted in the outmoded idea of the metaphysical prevalence of mind or spirit over matter. This idea was absent in classical antiquity (Heimsoeth 1922). In classical thought, the mind was conceived as a natural entity among other natural entities. Mind was a proper part of the cosmos; it could be accounted for in the same set of objective categories and concepts that was applied to the rest of the natural world. As Heimsoeth has made clear, only with Plotinus and in particular Augustine and other church fathers, did mind become something metaphysically special and exalted. The idea of the absolute “Vorrang des Bewußtseins” (primacy of consciousness) (Heimsoeth 1922, 127) gained widespread support. The conscious mind was no longer tied to the spatial/material world; it was elevated beyond objective being. The idea was that through the conscious mind, humans could have a privileged and intimate rapport with God, culminating in the possibility of life after death.

The new understanding of God in which a theological reconstruction could eventually result can, according to its proponents, avoid these dualistic preoccupations. The reconstruction will place emphasis on a view of God and world that stresses their *unity and reciprocity* (McFague 1987, 19). For this revision of the image of God, we must draw upon the well-attested findings and conceptual resources of the natural (and historical) sciences to accommodate our modern views about the cosmos (Kaufman 1993, 42, 326, 435). Kaufman, McFague, and Eaves and Gross agree on the point that a holist, dynamic, evolutionary, and ecological understanding of the God-world relation is called for. The suggested holism in theology parallels the ongoing naturalistic unification of mind and world in the human case. Human beings are embedded in an extensive and complex causal web. They are the products of intricate genetic, evolutionary, and historical processes. In addition, they exist in virtue of these causal processes. The material basis of life should not be ignored. This calls for a change of perspective, that is, for “a recognition that the cosmos is not adequately conceived as wholly dependent on an outside creator, but that the future, and even the very survival, of creation is a matter for dialogue between humanity and the ecosystem. That is, there is reciprocity, intimacy even, between the human and divine worlds” (Eaves and Gross 1992, 270). The patristic subordination of the natural world to the spiritual (Heimsoeth 1922) must be rejected, not only in the human case but in the case of the divine as well. Thus, the deflationary approach to dualism may ultimately result in a deflationary approach to classical theism with its personalist and anthropocentric metaphors of God. The dualities of spirit and matter, of God and world, of supernature and nature, of this life and the afterlife, may well have to be given up (cf. Kaufman 1993, 325–27).

Theism may ultimately have to do without the projection of disembodiment. One consequence of this is that the patristic disparagement of matter and nature would have to take its leave. The “package deal” of dualism and theism must be given up. Were that the case, science and religion would perhaps no longer be antithetical.

NOTES

1. TOE is defined thus: “a single all-embracing picture of all the laws of Nature from which the inevitability of all things seen must follow with impeachable logic” (Barrow 1991, 1).
2. Dawkins (1997) has qualified this view as “obscurantism.”
3. Baker and Morris say that close examination of Descartes’ work does not support the expansion thesis. They introduce a distinction between Cartesian dualism and Descartes’ dualism. As their points are largely historical points, nothing in the following depends on this.
4. As Galen Strawson has noted (1994, 2), when one defines *naturalism* in terms of the rejection of the supernatural, this leaves the notion somewhat indeterminate, because “we do not know the limits of the natural.”
5. For reasons of both limited space and simplification I am not here interested in the difference between local and global supervenience. I follow Chalmers and restrict my discussion of supervenience to the distinction between natural and logical supervenience, because this distinction brings to the fore a number of interesting points with regard to the discussion.
6. Here and in the following I have chosen to modify Chalmers’s notation. Where Chalmers speaks about A-facts (or properties), I refer to ϕ -facts (or properties); where Chalmers refers to B-facts (or properties), I talk about ψ -facts (or properties).
7. Logical supervenience entails natural supervenience, though not the other way around (Chalmers 1996, 37).
8. Note that a reductive explanation does not equal a reduction. A genuine reduction is found only in case we can *identify* two phenomena (see Chalmers 1996, 43).
9. Stump (1995) asserts that Thomas Aquinas rejected mind-body dualism, which he portrayed as a Platonic influence. However, on the basis of textual evidence, Taliaferro favors the view that Aquinas was an integrative dualist (Taliaferro 1994, 230).

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