

# METHODOLOGICAL NATURALISM AND PHILOSOPHICAL NATURALISM: CLARIFYING THE CONNECTION

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**Abstract:** In response to the charge that methodological naturalism in science logically requires the a priori adoption of a naturalistic metaphysics, I examine the question whether methodological naturalism entails philosophical (ontological or metaphysical) naturalism. I conclude that the relationship between methodological and philosophical naturalism, while not one of logical entailment, is the only reasonable metaphysical conclusion given (1) the demonstrated success of methodological naturalism, combined with (2) the massive amount of knowledge gained by it, (3) the lack of a method or epistemology for knowing the supernatural, and (4) the subsequent lack of evidence for the supernatural. The above factors together provide solid grounding for philosophical naturalism, while supernaturalism remains little more than a logical possibility.

An attack is currently being waged in the U.S. against both methodological naturalism and philosophical naturalism. The charge is that methodological naturalism, by excluding a priori the use of supernatural agency as an explanatory principle in science, therefore requires the a priori adoption of a naturalistic metaphysics. The disquiet over naturalism is rooted most immediately in the implications of Darwin's theory of evolution; hence, the specific focus of the attack against naturalism is evolutionary biology.<sup>1</sup> The aim of this paper is to examine the question of whether methodological naturalism entails philosophical naturalism.<sup>2</sup> This is a fundamentally important question; depending on the answer, religion in the traditional sense—as belief in a supernatural entity and/or a transcendent dimension of reality—becomes either epistemologically justifiable or unjustifiable. My con-

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clusion is that the relationship between methodological naturalism and philosophical naturalism, although not that of logical entailment, is not such that philosophical naturalism is a mere logical possibility, whereas, given the proven reliability of methodological naturalism in yielding knowledge of the natural world and the unavailability of any method at all for knowing the supernatural, supernaturalism is little more than a logical possibility. Philosophical naturalism is emphatically not an arbitrary philosophical preference, but rather the only reasonable metaphysical conclusion—if by reasonable one means *both* empirically grounded and logically coherent.

### DEFINITION OF NATURALISM

I am addressing the subject of naturalism in contrast to traditional supernaturalism, which means belief in a transcendent, non-natural dimension of reality inhabited by a transcendent, non-natural deity. Although I have relied to some extent upon contemporary naturalists, I have drawn heavily from the work of American philosophical naturalists of the first half of the twentieth century. These thinkers, the groundbreakers of modern American naturalism, were knowledgeable enough about science to understand its important implications. Moreover, their work is still recent enough for the science on which they relied not to have been radically superseded; there have been no major “paradigm shifts” which would force them now to alter the scientific foundations of their views.<sup>3</sup>

I shall use “methodological naturalism” and “philosophical naturalism” to mean what Paul Kurtz defines them to mean in the first and second senses, respectively:

First, naturalism is committed to a methodological principle within the context of scientific inquiry; i.e., all hypotheses and events are to be explained and tested by reference to natural causes and events. To introduce a supernatural or transcendental cause within science is to depart from naturalistic explanations. On this ground, to invoke an intelligent designer or creator is inadmissible. . . .

There is a second meaning of naturalism, which is as a generalized description of the universe. According to the naturalists, nature is best accounted for by reference to material principles, i.e., by mass and energy and physical-chemical properties as encountered in diverse contexts of inquiry. This is a non-reductive naturalism, for although nature is physical-chemical at root, we need to deal with natural processes on various levels of observation and complexity: electrons and molecules, cells and organisms, flowers and trees, psychological cognition and perception, social institutions, and culture. . . .<sup>4</sup>

Methodological naturalism and philosophical naturalism are distinguished by the fact that methodological naturalism is an *epistemology* as well as a procedural protocol, while philosophical naturalism is a *metaphysical* position. Although there is variation in the views of modern naturalists, Kurtz’s definition captures these two most important aspects of modern naturalism: (1) the reliance on scientific method, grounded in empiricism, as the only reliable method of acquiring knowledge about the natural world, and (2) the inad-

missibility of the supernatural or transcendent into its metaphysical scheme.<sup>5</sup> Kurtz's current definition is consistent with Sidney Hook's earlier one:

[T]here is only one reliable method of reaching the truth about the nature of things . . . this reliable method comes to full fruition in the methods of science, . . . and a man's normal behavior in adapting means to ends belies his words whenever he denies it. Naturalism as a philosophy not only accepts this method but also the broad generalizations which are established by the use of it; *viz*, that the occurrence of all qualities or events depends upon the organization of a material system in space-time, and that their emergence, development and disappearance are determined by changes in such organization. . . . naturalism as a philosophy takes [the word "material"] to refer to the subject matter of the physical sciences. Neither the one [philosophical naturalism] nor the other [science] asserts that only what can be observed exists, for many things may be legitimately inferred to exist (electrons, the expanding universe, the past, the other side of the moon) from what is observed; but both hold that there is no evidence for the assertion of anything which does not rest upon some observed effects.<sup>6</sup>

## SCIENTIFIC VIEWS OF NATURALISM

Since methodological *and* philosophical naturalism are founded upon the methods and findings, respectively, of modern science, philosophical naturalism is bound to take into account the views of scientists. As Hilary Kornblith asserts, "Philosophers must be . . . modest . . . and attempt to construct philosophical theories which are scientifically well informed."<sup>7</sup>

Arthur Strahler, a geologist who has taken particular interest in the claims of supernaturalists to be able to supersede naturalistic explanations of the world, points out the essentiality of naturalism to science:

The naturalistic view is that the particular universe we observe came into existence and has operated through all time and in all its parts without the impetus or guidance of any supernatural agency. The naturalistic view is espoused by science as its fundamental assumption.<sup>8</sup>

Clearly, the first statement refers to philosophical naturalism. Strahler's point in the second statement, however, is that science must operate *as though* this is true. So philosophical naturalism serves *minimally* as a *regulative*, or methodological, principle in science, for the following reasons given by Strahler:

[S]upernatural forces, if they can be said to exist, cannot be observed, measured, or recorded by the procedures of science—that's simply what the word "supernatural" means. There can be no limit to the kinds and shapes of supernatural forces and forms the human mind is capable of conjuring up "from nowhere." Scientists therefore have no alternative but to ignore the claims of the existence of supernatural forces and causes. This exclusion is a basic position that must be stoutly adhered to by scientists or their entire system of evaluating and processing information will collapse. . . . To find a reputable scientist proposing a theory of supernatural force is disturbing to the community of scientists. If the realm of matter and energy with which scientists work is being influenced or guided by a supernatural force, science will be incapable of explaining the information it has collected; it will

be unable to make predictions about what will happen in the future, and its explanations of what has happened in the past may be inadequate or incomplete.<sup>9</sup>

This is clearly a methodological objection to supernaturalism on Strahler's part. Introducing supernatural explanations into science would destroy its explanatory force since it would be required to incorporate as an operational principle the premise that literally *anything* which is *logically* possible can become an actuality, despite any and all scientific laws; the stability of science would consequently be destroyed. While methodological naturalism is a procedural necessity for science in its study of the natural world, it is also the rule for philosophical naturalism since the naturalist world view is constrained—and thereby stabilized—by methodological naturalism.

Strahler ventures onto the turf of philosophical naturalism when he points out how supernaturalism's *lack* of methodology renders it metaphysically sterile, in effect pointing out the inseparable connection between epistemology and metaphysics:

In contrasting the Western religions with science, the most important criterion of distinction is that the supernatural or spiritual realm is unknowable in response to human attempts to gain knowledge of it in the same manner that humans gain knowledge of the natural realm (by experience). . . . Given this fiat by the theistic believers, science simply ignores the supernatural as being outside the scope of scientific inquiry. Scientists in effect are saying: "You religious believers set up your postulates as truths, and we take you at your word. By definition, you render your beliefs unassailable and unavailable." This attitude is not one of surrender, but simply an expression of the logical impossibility of proving the existence of something about which nothing can possibly be known through scientific investigation.<sup>10</sup>

Although I am generally in agreement with Strahler, I differ with him on one point. Although it is logically impossible to prove the existence of something about which nothing can be known at *all*, it is not logically, but *procedurally*, impossible to prove the existence of something about which nothing can be known *through scientific investigation*. Scientific investigation is a procedure based on an empiricist epistemology. The fact that there is no successful *procedure* for knowing the supernatural does not logically preclude its being known *at all*, i.e., through intuition or revelation. The problem is that there is no *procedure* for determining the legitimacy of intuition and revelation as ways of knowing, and no *procedure* for either confirming or disconfirming the supernatural content of intuitions or revelations.

My objection notwithstanding, Strahler is making an essential point which the philosophical naturalist also makes: the methodology of science is the only viable method of acquiring reliable knowledge about the cosmos. Given this fact, if there is no workable method for acquiring knowledge of the supernatural, then it is procedurally impossible to have knowledge of either a supernatural dimension or entity. In the absence of any alternative methodology, the metaphysical claims one is entitled to make are very strictly limited. The philosophical naturalist, without making any meta-

physical claims over and above those warranted by science, can demand from supernaturalists the *method* that legitimizes *their* metaphysical claims. In the absence of such a method, philosophical naturalists can not only justifiably refuse assent to such claims, but can deny—tentatively, not categorically—the existence of the supernatural, and for the same reason they deny the existence of less exalted supernatural entities like fairies and ghosts: the absence of evidence.

Strahler makes another point that is important to the understanding of philosophical naturalism: the metaphysical adequacy of supernaturalism is inversely proportionate to the explanatory power of science. The more science successfully explains, the less need or justification there is for the supernatural as an explanatory principle. Strahler, quoting E. O. Wilson, asserts that the explanatory power of science diminishes the metaphysical adequacy of supernaturalism by explaining even religion:

Most importantly, we have come to the crucial stage in the history of biology when religion itself is subject to the explanations of the natural sciences . . . sociobiology can account for the very origin of mythology by the principle of natural selection acting on the genetically evolving material structure of the human brain.

If this interpretation is correct, the final, decisive edge enjoyed by scientific naturalism will come from its capacity to explain traditional religion, its chief competitor, as a wholly material phenomenon. . . .<sup>11</sup>

However, many people reject the application of scientific method to the phenomenon of religion and, though they adopt the methodology of naturalism to inquire about a natural entity or object or to solve a practical problem, they simultaneously assent to existential claims about the supernatural. Sterling Lamprecht, in *Naturalism and the Human Spirit*, says that some philosophers “accept a kind of empiricism for purposes of scientific procedure and practical affairs, but all the time hold that the existences and occurrences thus empirically found require some further ‘explanation’ to make them ‘satisfactory’ or ‘intelligible.’”<sup>12</sup> These philosophers hold that what is learned scientifically must still be explained from within a more comprehensive, non-naturalistic metaphysics, in effect adopting the supernatural as a causal explanation. Strahler, however, in his remarks about using the supernatural as a causally explanatory principle while simultaneously acknowledging the sufficiency of scientific method to provide causal explanations of the natural world, maintains that using the supernatural as an *additional* causal explanation is logically contradictory as well:

A specific event of history in a specific time segment must fall into either (a) divine causation or (b) natural causation. Our logic is as follows: ‘If *a* [divine, supernatural causation], then not *b* [natural causation]. If *b*, then not *a*.’ To follow with the proposal ‘Both *a* and *b*’ is therefore not logically possible. Moreover, one cannot get out of this bind by proposing that God is the sole causative agent of all natural causes, which in turn are the causative agents of the observed event. This ‘First Cause/Secondary Cause’ model, long a standby of the eighteenth-century school of natural theology . . . adds up to 100 percent supernatural creation.

Consider the analogy of cosmic history as an unbroken chain [of causal explanations] made from all possible combinations of two kinds of links, *a* [supernatural cause, as in religion] and *b* [natural cause, as in science]. . . . When a theist declares any link in the chain to be an *a*-link (whereas all the others are *b*-links), an element of the science set has been replaced by an element of the religion set. When this substitution has been accomplished, the entire ensuing sequence is flawed by that single antecedent event of divine creation and must be viewed as false science, or pseudoscience. The reason that replacement of a single link changed the character of all ensuing links is that each successor link is dependent upon its predecessor in a cause-effect relationship . . . that divine act can never be detected by the scientist because, by definition, it is a supernatural act. There exists only the claim that such an act occurred, and science cannot deal in such claims. By the same token, science must reject revelation, as a means of obtaining empirical knowledge.<sup>13</sup>

Under the theistic model, according to Strahler, any recognition of natural causation is logically nullified by the simultaneous assertion of supernatural intervention, either actual or merely possible. Even while differing with Strahler on the *logical impossibility* of invoking both natural and supernatural explanations—it is logically conceivable if the supernatural and natural causes operate at different ontological levels—one must recognize that invoking supernatural explanations is illegitimate because of the *procedural impossibility* of ascertaining the facticity of the supernatural cause itself, not to mention its intervention in the chain of natural causes. This points to the metaphysical implications of methodological naturalism: if supernatural causal factors are methodologically permissible, the cosmos one is trying to explain is a non-natural cosmos. Conversely, if only natural causal factors are methodologically and epistemologically legitimate as explanations, then only a naturalist metaphysics is philosophically justifiable.

Let us consider now the comments of Wesley Elsberry, in “Enterprising Science Needs Naturalism”:

While the subjective appreciation of a role for supernatural causation may be important to personal fulfillment, it does not afford a basis for objective knowledge, nor can it be counted as a means of comprehending the universe in a scientific manner. . . .

I will connote “naturalism” as “proposing only natural mechanisms for physical phenomena” rather than “asserting that only natural mechanisms have existence.” . . . Science is incompetent to examine those conjectures which cannot be tested in the light of inter-subjective experience or criticism. The assertion that “only natural mechanisms have existence” is equivalent to the claim that “no supernatural causes exist.” That is an example of proving a negative, and can only be regarded as a statement of faith, since it requires omniscience on the part of the claimant. . . . humans cannot establish a supernatural cause by experimental reproduction of that cause. No human is capable of producing a supernatural cause. . . . natural and supernatural causation are confounding: suspected supernatural causation may simply be due to currently indiscernible natural causes. Because of the confounding nature of the interaction, the only way to establish supernatural causation is through the elimination of all natural alternatives. This is simply another case of proving a negative, which is an intractable problem. . . .<sup>14</sup>

Elsberry's point is a methodological one: in explaining the natural world, one can not invoke the supernatural because of its methodological inaccessibility, and no successful method other than the naturalistic one is available in scientific explanation. However, Elsberry's methodological point has metaphysical implications. If supernatural causation as a methodological principle "does not afford a basis for objective knowledge," the implication is that methodological naturalism *does* afford one. If supernatural causation cannot be "counted as a means of comprehending the universe in a scientific manner," the implication is that methodological naturalism can be so counted upon. And comprehending the universe in a scientific manner is the goal of philosophical naturalism.

Steven Schafersman, also a scientist, makes the same point as Elsberry:

[N]aturalism is a methodological necessity in the practice of science by scientists, and an ontological necessity for understanding and justifying science by scientists. . . . The alternative to naturalism is supernaturalism. . . . [T]he foundations of science . . . will not be epistemologically reliable unless naturalism is either true or assumed to be true, since by not doing so, part of reality will remain unexplained and unexplainable.<sup>15</sup>

Schafersman's point here is that, given the (procedurally but not logically) necessary exclusivity of methodological naturalism in science, any view of the cosmos other than a naturalistic one becomes unjustifiable. The philosophical naturalist would expand upon this by adding that given the procedurally necessary exclusivity of methodological naturalism in science and *the unavailability of any other workable method for grounding any claims with existential import*, any metaphysical view of the cosmos other than the naturalistic one is epistemologically unjustifiable.

The point is not that supernaturalism is *logically* impossible; rather, the point is that, from both an epistemological and a methodological standpoint, supernaturalism has not proved its mettle, whereas methodological naturalism has done so consistently and convincingly. Supernaturalism has not provided the epistemology or the methodology needed to support its metaphysics, whereas naturalism has, although the invitation to supernaturalism to do likewise is a standing one, as Schafersman indicates: "except for humans, philosophical naturalists understand nature to be fundamentally mindless and purposeless. . . . Of course, this doesn't eliminate the possibility of supernatural mind and purpose in nature; the only requirement would be the demonstration of its existence and mechanism, which is up to the supernaturalist to provide. We are still waiting."<sup>16</sup>

## METHODOLOGICAL NATURALISM IN PHILOSOPHY

Naturalist philosophers ground their philosophical naturalism in both the failure of the supernaturalist to meet Schafersman's challenge and in the success of methodological naturalism in science. This is because the reliability of knowledge depends on the method by which it is obtained, and as Schafersman says, "science, solely because of its method, is the most suc-

cessful human endeavor in history. The others don't even come close."<sup>17</sup>

Lamprecht defines philosophical naturalism as "a philosophical position, empirical in method, that regards everything that exists or occurs to be conditioned in its existence or occurrence by causal factors within one all-encompassing system of nature, however 'spiritual' or purposeful or rational some of these things and events may in their functions and values prove to be."<sup>18</sup> The emphasis in this definition is on the exclusivity of methodological naturalism. This exclusivity is not mandated a priori; the philosophical naturalist justifies it on the basis of the explanatory success of science and the lack of explanatory success of supernaturalism.

The upshot is that methodological naturalism—the exclusive reliance upon scientific method for a cumulative explanation of the natural world—does provide an epistemologically stable foundation for a metaphysics, even if it is not a logically sufficient one. It does so not by disproving supernatural claims—methodological naturalism has neither the means nor the obligation to disprove either the existence of the supernatural or its causal efficacy. Rather, methodological naturalism enables us to accumulate substantive knowledge about the cosmos from which ontological categories may be constructed.<sup>19</sup>

John Herman Randall defines naturalism as "not so much a system or body of doctrine as an attitude and temper . . . essentially a philosophic method and a program" which "undertakes to bring scientific analysis and criticism to bear on all the human enterprises and values so zealously maintained by the traditional supernaturalists. . . ."<sup>20</sup> He clearly understands naturalism to be dominated by method, marked by a skeptical attitude toward claims which cannot be substantiated with public, sharable, empirical evidence. The basis of this skepticism is the recognition that the only method of obtaining such evidence is the method of inquiry which, though not confined *exclusively* to science, has been most refined and perfected in science, and the recognition of the lack of any successful method for acquiring knowledge in any non-natural field.

Methodological naturalism does exclude the supernatural as an explanatory principle because it is *unknowable by means of scientific inquiry*, whereas philosophical naturalism, both by definition and because of the methodological and epistemological inaccessibility of the supernatural, excludes the latter from its *ontological* scheme. Even though there are some variations among naturalists, the following statements by Sidney Hook are not likely to be contested:

[S]cientific method is the refinement of the canons of rationality and intelligibility exhibited by the techniques of behavior and habits of inference involved in the arts and crafts of men; . . . the systematization of what is involved in the scientific method of inquiry is what we mean by [methodological] naturalism, and the characteristic doctrines of [philosophical] naturalism like the denial of disembodied spirits generalize the cumulative evidence won by the use of this method. . . .<sup>21</sup>

These may well sound like fighting words to the supernaturalist, and

since those who wish to allow the supernatural as an explanation cannot produce conclusive evidence that it exists, their insistence upon appealing to it sometimes amounts to a challenge to the naturalist to produce evidence that it does *not* exist, or that it is *not* a causal factor in natural phenomena. However, the challenge is empty—first, because both the methodological and the ontological burdens of proof fall upon the supernaturalist, and second, because proving the *non*-existence of the supernatural is, by the nature of the task, impossible. Not only is it not the aim of methodological naturalism to prove the *non*-existence of the supernatural, but the attempt to prove a *negative* existential claim in any event makes no sense: nothing can count as *positive* evidence of non-existence. Hook cites the challenge and responds to it:

Let the naturalist prove [says the challenger] . . . that there can be no other kind of knowledge, that there can be none but empirical fact! And unless *he* can prove it, *he* is a question-begging a *priorist*. . . .

But here, too, the naturalist need undertake to do no such thing. Is there a different kind of knowledge that makes . . . [the supernatural] an accessible object of knowledge in a manner inaccessible by the only reliable method we have so far successfully employed to establish truths about other facts? Are there other than empirical facts, say spiritual or transcendent facts? Show them to us. . . .

Is there a method *discontinuous* with that of rational empirical method which will give us conclusions about what exists on earth or heaven, if there be such a place, concerning which all qualified inquirers agree? Tell us about it.<sup>22</sup>

Hook asserts that “The crucial point . . . is that we are *not* dealing with a question of pure logic but of existential probability . . . there is a reasonable habit of inference with respect to belief or disbelief about natural fact which we follow with respect to supernatural fact. And it is still a reasonable habit of belief despite the claim that the supernatural fact is of a different order. For however unique it is, . . . it is reasonable to extend the logic and ethics of discourse to it.”<sup>23</sup> He further emphasizes “a weighty point” by saying that

whoever says that . . . [the supernatural] exists must give reasons and evidence. *The burden of proof rests on him* in the same way that it rests on those who assert the existence of anything natural or supernatural. . . . It rests with the supernaturalist to present the evidence that there is more in the world than is disclosed by our common empirical experience.<sup>24</sup>

And he is seconded by Lamprecht:

[E]xistence is always a matter of fact . . . whether it be God’s existence or any other existence that is being investigated. . . . The existence of God is an open [logical] possibility. . . . From the standpoint of any naturalism . . . all matters of existential status can be determined by no other than uncompromisingly empirical means.<sup>25</sup>

Methodological naturalism does not disallow the logical possibility that the supernatural exists. To assert categorically that there is no dimension that transcends the natural order is to assert that human cognitive capabil-

ities are sufficient to survey the whole of what there is; such a claim would amount to epistemological arrogance. But neither does methodological naturalism allow that logical possibility is sufficient warrant for the attribution of existence. At least the naturalist position is well established with respect to the kind of cognitive capabilities we do have. The supernaturalist, on the other hand, makes an assertion for which there is *no* epistemological justification when claiming that humans can know in any sense other than the natural one.

Therefore, the *belief* of the supernaturalist is on neither a logical nor an evidential par with the *disbelief* of the naturalist. What Hook says about the existence of God can just as well be used here with reference to any supernatural belief:

[T]he admission that the existence of God cannot be demonstrated is often coupled with the retort that neither can his non-existence be demonstrated—as if this puts belief and disbelief on an equally reasonable footing, as if no distinction could be made between the credibility of purely logical possibilities, i.e., of all notions that are not self-contradictory. It is a commonplace that only in logic and mathematics can the non-existence of anything be “demonstrated.” If we are unjustified in disbelieving an assertion save only when its contradictory is demonstrated to be [logically] impossible, we should have to believe that the universe is populated with the wildest fancies. Many things may exist for which we can give no adequate evidence, but the burden of proof always rests upon the individual who asserts their existence.<sup>26</sup>

Supernatural claims are existential claims, i.e., they have existential import, and so are subject to the same evidentiary requirements as claims about the natural order.<sup>27</sup> Yet despite this, even though no method which does *not* depend upon empirical verification has ever been demonstrated for ascertaining conclusively the truth of existential claims, supernatural claims are beyond the reach of these requirements. *Paradoxically, supernatural claims are the kind of propositions for which empirical evidence is required, but impossible to obtain.* The cognitive apparatus has not been identified through which one can know the supernatural.

Supernatural claims are, admittedly, *semantically* meaningful as explanatory principles, i.e., we understand what is *meant* by a proposition such as, “God designed and created the universe.” However, the only feature of supernatural claims which can make them workable as explanatory principles is their existential import, and this is the Achilles heel of supernatural explanation. Supernatural claims are grounded on the presumed existence (or the presumably *demonstrated* existence) of a supernatural dimension of reality and the existence of any entities which inhabit it. The question is whether a supernatural claim, despite being an existential *claim*, is also a viable *existential* possibility or merely a logical possibility.

“Existential possibility” is understood here as meaning both (1) logical possibility—the absence of logical contradiction, and (2) the availability of specifiable, describable, and necessary ontological conditions which must obtain for a thing to be or to become actual. *Existential* possibilities are those

which we can justifiably expect to be actualities now or in the future (or which were actualities in the past), and logical possibilities are a larger class of possibilities containing those which we can envision without logical contradiction, some of which also are or may be actualities, but others of which we either never expect to occur or the actuality of which we cannot confirm in any way. Claims about the natural world are both existential possibilities and logical possibilities. Some possibilities, however, can never be anchored to experienced reality via intersubjective, verifiable, empirical data and are thus merely logical. Although they have existential import, they remain logical possibilities *only*, in which one may believe but for which one has insufficient, maybe even no, evidence or justification. The supernatural is such a possibility because conclusive verification of its reality is beyond human capability; there is no method by which to do this.

Existential possibility is easy to specify with respect to empirically verifiable propositions. For example, in order for a winged horse to be existentially possible, the *concept* of a winged horse must be logically consistent, i.e., thinkable without contradiction, which it is, and the gene necessary for wings must be present in the equine genome, which it is not. Therefore, a winged horse is existentially impossible, although not logically so. The ontological conditions are physical, but they do not in fact obtain. On the other hand, a chicken with teeth is a genuine existential possibility since the concept is logically consistent and chickens do in fact have a gene for teeth which merely remains unexpressed.

What analogous conditions may be specified for the existential possibility of supernatural entities? Again, there must be no logical contradictions in the concept of a supernatural entity. So, for example, the concept of a being which can exist without physical substance of some kind must be thinkable. Yet even the concept is not clearly possible in this first respect. If one is thinking of something with no measurable physical dimensions or detectable physical presence, one can plausibly argue that one is thinking about *nothing*. Even if the stipulation is made that a non-physical, supernatural entity is detectable only by its physical *effects*, one is still faced not only with the traditional, irresolvable dualism, but with the problem that one can, even in principle, detect only the phenomena which are being question-beggingly designated as “effects,” and not the supernatural phenomenon which is posited as the cause. Therefore, not only are the questions of both existence and causal efficacy begged, but one is still essentially thinking about something which can simultaneously be conceived as both “something” and “nothing,” a logical impossibility.

The logical difficulties aside, what ontological conditions can be specified for the existential possibility of a supernatural entity? In order for a non-physical, supernatural entity to exist, what must obtain? Such describable, specifiable, and necessary conditions do not seem to be available. The mind draws a blank.<sup>28</sup>

Saying that the supernatural is a logical possibility, then, is not saying very much. It is logically possible that I can go to the window, jump out, and

fly to the next building. But there are no conclusive reasons to believe that I can do this and many good reasons to believe that I cannot. An existential claim to which one wishes to commit epistemically must be more than a mere logical possibility. If one is concerned with the justification of belief in terms of truth and falsity rather than with pragmatic justification, such commitment must be accompanied by some positive evidence which points to the truth of supernatural belief. There must be empirical evidence for any claim with existential import, and any area of human thought, including religion, in which existential claims are made is subject to the criteria by which existential claims are tested. Consequently, claims about the supernatural are *logically* possible, but their status as *existential* possibilities remains problematic.

Clearly, the problem of whether the supernatural is an existential possibility is not merely a methodological problem, but also the epistemological one of how the truth of supernatural propositions is to be ascertained. Sidney Hook asks, "Are the laws of logic and the canons of evidence and relevance any different in philosophy from what they are in science and common sense?"<sup>29</sup> His answer is that the rules of logical reasoning and evidence do not change simply because that which is subject to scrutiny is asserted to be beyond their reach. The minute an adherent of such a claim asserts its truth, the same rules apply. Every area of human inquiry is subject to the same logical and evidential analyses, and the person who maintains that the supernatural is not subject to the *traditional* rules of logic and evidence bears the burden of producing those that are relevant. Methodological naturalism, on the other hand, asserts the continuity of analysis, meaning that, in turn, philosophical naturalism asserts ontological continuity—a cosmos without the ontological bifurcations of supernaturalism.<sup>30</sup> This position carries no burden of proof of any kind with respect to the supernatural, for it makes no existential claims over and above what can be empirically established by universally applicable methods.

These difficulties suffice to explain why supernaturalism cannot be appealed to in explanation of natural phenomena, whereas the demonstrated success of methodological naturalism suffices to show why it is the only justifiable explanatory principle. According to Hook, "This sounds very dogmatic, but is really an expression of intellectual humility that seeks to avoid unlimited credulity. It does not doubt that we possess scientific knowledge but leaves open the question of what we can have knowledge about. . . . Such humility does not assert that the experience of knowledge exhausts all modes of experience or that scientific knowledge is all-knowing."<sup>31</sup>

The methodological naturalist is concerned with what is to count as unambiguous confirmation for an existential claim. Methodological naturalism does not provide an *exhaustive* inventory of what exists and what does not. Rather, its specific aim is to discern and specify any aspects of reality for which there *is* sufficient warrant.<sup>32</sup> It permits the cumulative gathering and grounding of information about the bounded field we call the natural world, the epistemological boundary of which is constituted by its empirical

accessibility. So in adopting the methodology of science, we are able to make defensible pronouncements about what exists in the natural order, but about nothing that may transcend it. For the latter type of claim we would need another method.

## PHILOSOPHICAL NATURALISM

Understanding methodological naturalism as the adoption of a skeptical temperament which emphasizes the scientific analysis of all areas of human inquiry, we now may examine the precise nature of the connection between methodological naturalism and philosophical naturalism.

For the philosophical naturalist, method is everything, so philosophical naturalism stands or falls with its reliance on methodological naturalism—as Lamprecht says, “with its acceptance of a strictly empirical method and its refusal to believe a matter of great moment when no evidence can be found.”<sup>33</sup> Kornblith acknowledges philosophical naturalism’s reliance upon scientific method: “In metaphysics . . . we should take our cue from the best available scientific theories. . . . Current scientific theories are rich in their metaphysical implications. The task of the naturalistic metaphysician . . . is simply to draw out the metaphysical implications of contemporary science. A metaphysics which goes beyond the commitments of science is simply unsupported by the best available evidence. . . . For the naturalist, there simply is no extrascientific route to metaphysical understanding.”<sup>34</sup>

Adopted in the sciences because of its explanatory and predictive success, methodological naturalism is the intellectual parent of modern philosophical naturalism as it now exists, meaning that philosophical naturalism as a world view is a generalization of the cumulative results of scientific inquiry. With its roots in late 19th-century science in the aftermath of Darwin’s *The Origin of Species*, it is neither the a priori *premise* nor the logically necessary *conclusion* of methodological naturalism, but the well grounded *a posteriori result*. Yet because the philosophical naturalist begins with method, not metaphysics, methodological naturalism *does* impose constraints on what can be included in philosophical naturalism’s metaphysical scheme, constraints necessitated by its empiricist epistemology. Methodological naturalism need not (and does not) assume a priori that empiricism is the only conceivable avenue of truth or that intuition and revelation are non-existent, and therefore non-functional as forms of cognition. Neither need it assume a priori (nor does it) that the supernatural is non-existent. It *does* function in the absence of convincing *evidence* that intuitive or revelatory claims are genuinely cognitive, and in the absence of any clear epistemological or metaphysical progress made on the basis of such claims. Likewise, it functions not only in the absence of any clear consensus regarding the ontological status of the supernatural or supernatural entities, but in the unlikelihood that there is any way to reach a consensus. The only way to make any existential claims beyond those warranted by methodological naturalism is to produce the methodology by which these claims

can be legitimately credited with belief. If that method cannot be produced, then any claims which cannot be justified by means of methodological naturalism cannot be warranted at all.

So then, how does naturalism move from method to metaphysics? Sidney Hook asserts that “Scientific method does not entail any metaphysical theory of existence. . . .”<sup>35</sup> This means only that methodological naturalism’s reliance upon scientific method for acquiring knowledge about the natural world does not thereby *logically necessitate* the metaphysical conclusion that nothing exists beyond nature. To claim such entailment would require that one be omniscient, able to eliminate all other metaphysical possibilities as untenable. But Hook also says that “‘method’ is dogged by a pack of metaphysical consequences . . . a ‘pure’ method which does not involve reference to a theory of existence is as devoid of meaning as a proposition which does not imply other propositions.”<sup>36</sup>

Exclusive methodological naturalism does have metaphysical implications, and the metaphysical implications of the *exclusive* use of scientific method are the same, i.e., philosophical naturalism, whether the latter is presupposed in an a priori fashion or whether it is a generalization founded on the result of the method’s consistent application. Insofar as methodological naturalism can accept as evidence for belief only what scientific method judges reliable, it does define what is an acceptable world view by limiting what one can justifiably assert.

Although philosophical naturalism is not logically entailed by methodological naturalism, there are a number of other possible relationships between methodological naturalism and philosophical naturalism. The first possibility is that methodological naturalism merely permits, or is logically consistent with, philosophical naturalism. Though true, this claim is completely trivial and, as such, provides no substantive reason to link the two at all.

The second, but very far-fetched, possibility is that methodological naturalism logically *precludes* philosophical naturalism because, as previously noted, a claim of entailment would require omniscience. This possibility is untenable since philosophical naturalism makes no claim of omniscience. It rests on methodological naturalism as the necessary condition of reliable knowledge of the natural world, but not as exhaustive of what can be known.

The third possibility is that methodological naturalism is not connected in any essential way either to philosophical naturalism or any other metaphysical view, but that it is compatible with all and prescriptive of none.<sup>37</sup> Certainly, it is possible to compartmentalize one’s thinking, acknowledging methodological naturalism as the only viable *methodology* with respect to the *natural* world, while simultaneously believing in, for example, the existence of a *supernatural* world. (This is not to say that the latter is reasonable, but that it is an actually held view as well as a logically possible one.) But this alternative presupposes the simultaneous possibility of a unitary, empirical methodology and a *dualistic* metaphysics consisting of a natural world within the framework of or ontologically contiguous with the supernatural. Either

it requires the denial of the need for another methodology and epistemology, or it implies that there is an *additional* methodology and a different epistemology for the supernatural. Moreover, the two methodologies and epistemologies must be procedurally and logically compatible.

Since the claim that methodological naturalism is compatible with anything other than philosophical naturalism requires the so far indefensible claim that there are an additional but logically compatible methodology and epistemology, the fourth possibility constitutes the only viable relationship between methodological naturalism and philosophical naturalism, which is this: Taken together, the (1) proven success of methodological naturalism combined with (2) the massive body of knowledge gained by it, (3) the lack of a comparable method or epistemology for knowing the supernatural, and (4) the subsequent lack of any conclusive evidence for the existence of the supernatural, yield philosophical naturalism as the most methodologically and epistemologically defensible world view.<sup>38</sup>

This is where philosophical naturalism wins—it is a *substantive* world view built on the cumulative *results* of methodological naturalism, and there is nothing comparable to the latter in terms of providing epistemic support for a world view. If knowledge is only as good as the method by which it is obtained, and a world view is only as good as its epistemological underpinning, then from both a methodological and an epistemological standpoint, philosophical naturalism is more justifiable than any other world view that one might conjoin with methodological naturalism.

## PHILOSOPHICAL NATURALISM'S ONTOLOGICAL CATEGORIES

In the face of what I consider a compelling case for philosophical naturalism, I must also point out that philosophical naturalism is not an epistemologically airtight metaphysics for two reasons: (1) Since it tracks the developments of science and depends upon its methodology, it is marked by not only the groundedness but also the tentativity of scientific understanding. (2) Neither can it be a guaranteed certainty until the nonexistence of the supernatural can be conclusively established. But this lack of epistemological certainty is emphatically not a weakness, but rather the strength, of philosophical naturalism. One never has “proof” of a comprehensive world view if proof is defined strictly as logical demonstration, and exactly the same is true of *any* comprehensive metaphysical view, meaning that none enjoys the security of absolute certainty. Naturalists, grounding their metaphysics in science, learned from Descartes’ failed attempt to ground science upon metaphysics that science cannot proceed under the constraint of a priori certainty. David Papineau explains this:

[The argument] that philosophy needs firmer foundations than those available within empirical science . . . depends on the assumption that knowledge needs to be certain, in the sense that it should derive from methods that necessarily deliver truths. Once you accept this requirement on knowledge, then you will indeed demand that philosophical knowledge in par-

ticular should come from such arguably incontrovertible methods as introspection, conceptual analysis, and deduction; and the epistemological status of science will remain in question until such time as philosophy succeeds in showing how it too satisfies the demand of certainty. . . .

If you hold that knowledge requires certainty, then you will hold that philosophy needs to come before science. If you reject this demand . . . then you will have reason to regard philosophy as continuous with science . . . the onus surely lies with those who want to exclude relevant and well-confirmed empirical claims from philosophical debate to provide some a priori rationale for doing so. . . .<sup>39</sup>

The problem with the demand that a world view be privileged with a priori certainty is that if one starts with non-empirical basic beliefs—assumptions gleaned from introspection, conceptual analysis, or deduction—there is no guarantee that any basic belief, or any of the contents of introspective reflection, or any of the concepts analyzed, or any of the premises from which deductions are derived, will be at all consistent with human experience or with science. What is needed is a metaphysics in which, very simply, (1) there are no logical contradictions and (2) for which there is the greatest evidential justification—in short, one which places the least strain on rational credibility. Absolute certainty is not required, nor is it even possible given naturalism's reliance upon science for its ontological categories. Moreover, given that philosophical naturalism, a generalization of the results of scientific method, consequently shares the advantage of the self-correction of science, a priori certainty is not even desirable.

Philosophical naturalism, rather than constructing a world view from a priori ontological categories, constructs a world view ordered by categories constructed from the ground up, so to speak, on the basis of empirically ascertained knowledge of nature; its categories are just as stable, or just as fluid, as scientific explanations themselves. Actually, except for its one most stable category, "nature," philosophical naturalism commits itself a priori to no particular ontological categories, and to no *ultimate* categories at all. For the philosophical naturalist, ontological categories are not a priori primitives, but a posteriori derivatives of scientific theories and common human experience. As such, the ontological categories of philosophical naturalism are not scientifically restrictive, meaning, very importantly, that they are subject to any adjustments to which scientific theories are subject and can be altered as scientific understanding changes. William R. Dennes, in *Naturalism and the Human Spirit*, points out that philosophical naturalism has a history of such revisions: "The last half-century has seen a striking shift in what may be called the basic, as contrasted with the derivative, categories employed in naturalistic philosophy. Older interpretations in terms of matter, motion, and energy . . . have given way to interpretations in terms of events, qualities, and relations. . . ."<sup>40</sup>

Naturalism's ontological categories may actually be regarded as superfluous since they do not in any way add to the substantive understanding of the cosmos afforded by science. Even when invoked, naturalistic categories never stipulate any specific existential characteristics; the term "quality," for example,

can not specify any *particular* existential quality.<sup>41</sup> They are merely organizational categories which “tidy up” or schematize what we know scientifically.

Indeed, for the philosophical naturalist, the very *existence* of metaphysics as an independent philosophical discipline is questionable. It is clearly not a discipline which has added in any substantive way to our knowledge of the world, as admitted by Kornblith: “What does have priority over both metaphysics and epistemology, from the naturalistic perspective, is successful scientific theory, and not because there is some a priori reason to trust science over philosophy, but rather because there is a body of scientific theory which has proven its value in prediction, explanation, and technological application. This gives scientific work a kind of grounding which no philosophical theory has thus far enjoyed.”<sup>42</sup>

Hook certainly does not see in metaphysics a discipline which adds to the cumulative knowledge of the world:

I do not believe that there is any consistent usage for the term “ontological.” I . . . propose that we call “ontological” those statements which we believe to be cognitively valid, or which assert something that is true or false, and yet which are not found in any particular science. . . . For example . . . There are many colors in the world; Colors have no smell or sound. . . . Thinking creatures inhabit the earth.<sup>43</sup>

Such statements are true but uniformly trivial, requiring no specialized methodology in order to be known, but derived simply from reflection upon non-specialized observations.

It is clear that the ontology of philosophical naturalism is itself theoretical in the scientific sense: it is an explanation, albeit much more general than a scientific one, of what is warranted as knowledge, why we do *not* have certain other kinds of “knowledge,” and why we therefore *cannot* lay cognitive claim to ontological categories such as the supernatural. It is not a categorical rejection of the supernatural, but a constantly tentative rejection of it in light of the heretofore consistent lack of confirmation of it. And rather than accepting methodological naturalism a priori as the only reliable methodology for acquiring knowledge about the cosmos, it accepts it rather as a methodology the reliability of which has been established historically by its success and the absence of any successful alternative method for acquiring knowledge about either the natural world or a supernatural order. *The general rule for philosophical naturalism is this: the more of the cosmos which science is able to explain, the less warrant there is for explanations which include a divine or transcendent principle as a causal factor.*

For the philosophical naturalist, the rejection of supernaturalism is a case of “death by a thousand cuts.” Since its inception, methodological naturalism has consistently chipped away at the plausibility of the existential claims made by supernaturalism by providing increasingly successful explanations of aspects of the world which religion has historically sought to explain, e.g., human origins. The threat faced by supernaturalism is not the threat of logical disproof, but the fact of having its explanations supplanted by scientific ones.

Paul Kurtz correctly perceives the implications of methodological naturalism in evolutionary biology, viz., the implications of the fact that the methods of studying humans are fundamentally the same as those of studying the rest of the natural world: The more knowledge of human biological existence yielded by the reliance upon methodological naturalism, the less need or justification for supernatural explanations. Kurtz says, "The new critics of Darwinism properly perceive that, if the implications of Darwinism are fully accepted, this would indeed mean a basic change in the outlook of who we are . . . ." <sup>44</sup> This is because modern evolutionary biology is the product of Darwin and his successors' exclusive reliance upon methodological naturalism. Indeed, the problem for non-naturalist philosophies is that science, with its historical track record of explanatory success, has progressively crowded out non-naturalist explanations of the cosmos. This expansion and confirmation of scientific knowledge, combined with the absence of any other reliable methodology, results in the increasing marginalization of non-naturalistic world views.

The gaps in scientific knowledge which have historically functioned as entry points for divine creativity are considerably narrower than they were just a generation ago. Every expansion in scientific knowledge has left in its wake a more shrunken space of possibilities from which to infer the plausibility of supernaturalism. Science is yielding an increasingly expansive and supportable picture of continuity between humans and other life forms, and between living organisms and the rest of the cosmos from whose elements, such as the carbon produced during the evolution of stars, these organisms are constituted. The more expansive the continuity, the firmer the foundation for the inference from methodological naturalism to philosophical naturalism, and the less plausible the non-naturalistic explanations.

Since philosophical naturalism is an outgrowth of methodological naturalism, and methodological naturalism has been validated by its epistemological and technological success, then every expansion in scientific understanding lends it further confirmation. For example, should life be genuinely created in the laboratory from the non-organic elements which presently comprise living organisms, this discovery would add tremendous weight to philosophical naturalism. Should cognitive science and neurobiology succeed conclusively in explaining the phenomenon of human consciousness, mind-body dualism would be completely undermined, and philosophical naturalism would again be immeasurably strengthened. <sup>45</sup>

For philosophical naturalism, this is *better* than logical entailment, which would make it the only permissible conclusion of methodological naturalism. Relationships of logical necessity need not reflect any state of affairs in the world, whereas expansions of empirically verifiable knowledge *always* do. The known world expands, and the world of impenetrable mystery shrinks. With every expanse, something is explained which at an earlier point in history had been permanently consigned to supernatural mystery or metaphysical speculation. And the expansion of scientific knowledge has been and remains an epistemological threat to any

claims which have been fashioned independently (or in defiance) of such knowledge. We are confronted with an asymptotic decrease in the existential possibility of the supernatural to the point at which it is wholly negligible.

One reason that belief in the supernatural remains widespread, despite its negligibility, is that, as discussed earlier, it cannot be proven wrong, and the epistemological insulation provided by its inaccessibility is accorded the weight of evidence despite the fact that it carries no evidential weight at all. The supernatural remains logically possible, and thus an option for belief, only because it is not susceptible to confirmation or disconfirmation on the basis of evidence. *But this status is permanent—the metaphysical status of supernaturalism as at most a logical possibility will never change.* To become more than a logical possibility, supernaturalism must be confirmed with unequivocal empirical evidence, and such confirmation would only demonstrate that this newly verified aspect of reality had all along never been supernatural at all, but rather a natural phenomenon which just awaited an appropriate scientific test. Supernaturalists have not succeeded in providing such a test, but the naturalist has all the time in the world, and is prepared to give the supernaturalist all the time in the world, to make the attempt. In the meantime, the philosophical naturalist can point to the constantly expanding success of science in explaining what once were thought intractable mysteries or fixed categories of experience and reality.

To say that we live in a natural world, situated in a universe governed by natural laws, even if these laws are considered nothing more than invariable regularities, is to say a great deal, the major points of which are specified by Kurtz:

Today, it is possible to defend . . . naturalism . . . on empirical scientific grounds. Naturalism thus provides a cosmic interpretation of nature. The universe is basically physical-chemical or material in structure, it is evolving in time; human life is continuous with other natural processes and can be explained in terms of them. To defend naturalism today is to say something significant, for it is an alternative to supernaturalism . . . [which] is unsupported by scientific evidence.<sup>46</sup>

This means that we are saying—again, tentatively rather than categorically—that we do not live in a supernaturally governed cosmos, and every expansion of scientific understanding, especially the understanding of human existence, e.g., of consciousness and the origin of life, solidifies and confirms this denial.

Science, because of its reliance upon methodological naturalism, lends no support to belief in the supernatural. Consequently, philosophical naturalism, because of its own grounding in methodological naturalism, has no room for it either. While for the supernaturalist, this absence may be the chief complaint against both science and methodological naturalism, for the philosophical naturalist, it is the source of the greatest confidence in both.

## NOTES

1. See Robert Pennock, *Tower of Babel: The Evidence Against the New Creationism*, chapter 4, "Of Naturalism and Necessity," (Cambridge: The MIT Press, 1999), 181–214.

2. In this paper, I shall use the term "philosophical naturalism," instead of "metaphysical" or "ontological" naturalism, although all three are synonymous and may be understood in every use of the former term.

3. *Naturalism and the Human Spirit*, ed. Yervant H. Krikorian (New York: Columbia University Press, 1944).

4. Paul Kurtz, "Darwin Re-Crucified: Why Are So Many Afraid of Naturalism?" *Free Inquiry* (Spring 1998), 17. Kurtz also defines a third, ethical sense of naturalism, which falls outside the concern of this paper.

5. Arthur Danto says the following: "There is . . . room within the naturalist movement for any variety of otherwise rival ontologies . . . it is a methodological rather than an ontological monism . . . leaving [philosophers] free to be dualists, idealists, materialists . . . as the case may be." See "Naturalism," in the *Encyclopedia of Philosophy* (New York: Collier Macmillan Publishers, 1967), 448. Contrary to Danto, however, dualism—either mind/body, natural/supernatural, or man/nature—and idealism do not seem reasonable for naturalists given the current state of science. The non-reductive, monistic materialism of most current naturalism is evidenced in several ways: (1) methodological naturalism's reliance on empirical inquiry makes impossible any epistemological appeal to the supernatural as an explanatory principle; (2) philosophical naturalism's exclusive adherence to this empirical methodology makes any dualistic ontology unverifiable if the dualism includes any non-physical entity, such as a supernatural entity which cannot be grounded in empirical evidence; and, (3) given modern naturalism's reliance upon science for the construction of its ontological categories, it receives no support for dualism from science. Given the current data to support the hypotheses emanating from cognitive science and neurobiology regarding the constitution of mind from physical processes in the brain, viewing the material world as a product or manifestation of mind is becoming less and less plausible, making idealism correspondingly less plausible. The same is true for mind-body dualism. (See E. O. Wilson, "The Mind," in *Consilience: The Unity of Knowledge* (New York: Alfred A. Knopf, 1998). The unlikelihood of any kind of dualism, a position defended by John Dewey, is also pointed out today by Hilary Kornblith: "It is surely clear that science does not currently offer any support to dualism, there being no research projects which make any reference to non-physical stuff. While it is also clear that current science is incomplete, this should give no comfort to dualists. One cannot draw conclusions about the existence of particular sorts of things from the fact of our present ignorance." See "Naturalism: Both Metaphysical and Epistemological," in *Philosophical Naturalism*, ed. Peter A. French, Theodore E. Uehling, Jr., and Howard K. Wettstein, vol. 19, *Midwest Studies in Philosophy* (Notre Dame: University of Notre Dame Press, 1994), n51.

6. Sidney Hook, "Naturalism and First Principles," in *The Quest for Being* (Buffalo: Prometheus Books, 1961), 185–86.

7. Hilary Kornblith, "Naturalism: Both Metaphysical and Epistemological," 50.

8. Arthur N. Strahler, *Understanding Science: An Introduction to Concepts and Issues* (Buffalo: Prometheus Books, 1992), 3.

9. *Ibid.*, 13–15.

10. *Ibid.*, 286. Kornblith asserts that metaphysics and epistemology must go together, as "these projects present important constraints on one another" and are "mutually reinforcing." In "Naturalism: Both Metaphysical and Epistemological," 39.

11. E. O. Wilson, *On Human Nature* (Cambridge: Harvard University Press, 1978), 192; quoted in Strahler, *Understanding Science*, 339. For a similar, more recent statement on the possibility of explaining religion naturalistically, see E. O. Wilson,

*Consilience: The Unity of Knowledge*, chapter 11, "Ethics and Religion" (New York: Alfred A. Knopf, 1998).

12. Sterling Lamprecht, "Naturalism and Religion," in *Naturalism and the Human Spirit*, ed. Yervant H. Krikorian, 18. See also Steven D. Schafersman, "Methodological Naturalism and Ontological Naturalism," in "Naturalism Is an Essential Part of Science," <http://humanism.net/~schafesd/naturalism.html>; accessed May 26, 1999. Cited with permission.

13. Strahler, *Understanding Science*, 345–46.

14. When Elsberry says that natural and supernatural causation are "confounding," he presumably means that one cannot differentiate, describe, or identify a separate, supernatural causal factor. Wesley Elsberry, "Philosophy and the Practice of Science" in "Enterprising Science Needs Naturalism," <http://www.dla.utexas.edu/depts/philosophy/faculty/koons/ntse/papers/Elsberry.html>; accessed May 26, 1999. Cited with permission.

15. Schafersman, "What Is Science?" in "Naturalism Is an Essential Part of Science."

16. Schafersman, "Naturalism and Materialism," in "Naturalism Is an Essential Part of Science."

17. Schafersman, "What Is Science?"

18. Lamprecht, "Naturalism and Religion," 18.

19. "The burden of proof rests entirely upon those who assert that there exists another kind of knowledge over and above technological, common sense, empirical knowledge, and the scientific knowledge which is an outgrowth and development of it." Sidney Hook, *The Quest for Being*, 217.

20. John Herman Randall, "The Nature of Naturalism," in *Naturalism and the Human Spirit*, ed. Yervant H. Krikorian, 374.

21. Sidney Hook, *The Quest for Being*, 173–74.

22. Sidney Hook, "For an Open Minded Naturalism," *Southern Journal of Philosophy* vol. 13, no. 1 (Spring 1975), 132.

23. *Ibid.*, 130.

24. *Ibid.*, 131–32.

25. Lamprecht, "Naturalism and Religion," 31–32.

26. Sidney Hook, *The Quest for Being*, 97.

27. "Existential import" is defined as "The commitment to the existence of certain objects that is entailed by a given proposition." Baruch A. Brody, "Glossary of Logical Terms," in *The Encyclopedia of Philosophy*, 1967 ed.

28. The supernaturalist response that the supernatural's existence is necessarily unconditioned is hollow—an ad hoc response to the problem of establishing existence. We may just as plausibly, if not more plausibly, claim that the existence of the cosmos itself is unconditioned. As least we are making this claim about something the existence of which is not in doubt. As it happens, we have in the scientific theory of the Big Bang conditions which explain the existence of the cosmos. When we are asked about the ultimate cause of the Big Bang, we draw a blank not because a supernatural explanation is sufficient or even required at this point, but because the incompleteness of current scientific knowledge does not logically permit an appeal to supernatural causation. Such an explanation would be an appeal to ignorance. Neither would a supernatural explanation be a genuinely ultimate explanation. An ultimate explanation is one after which there is not even a logical possibility of asking another question, but one can always ask another question following a causal explanation: one can ask for the cause of the supernatural cause, etc., etc., to the point of absurdity. Explanation stops at the point at which no further data can be obtained, either practically or in principle.

29. Hook, *The Quest for Being*, 177.

30. For a discussion of the concept of continuity of analysis, with some discussion of John Dewey's position on ontological continuity, see Thelma Z. Lavine,

“Naturalism and the Sociological Analysis of Knowledge,” in *Naturalism and the Human Spirit*, ed. Yervant H. Krikorian, 183–209.

31. Sidney Hook, *The Quest for Being*, 214.

32. “Naturalists . . . seek by discipline to distinguish the varying degrees of probability which ideas seem to have, to accept as beliefs only those ideas that are well accredited, and to entertain any further ideas only as hypotheses or hopes or fancies.” See Lamprecht, “Naturalism and Religion,” 18.

33. *Ibid.*, 37.

34. Kornblith, “Naturalism: Both Metaphysical and Epistemological,” 40.

35. Sidney Hook, “Naturalism and Democracy,” in *Naturalism and the Human Spirit*, ed. Yervant H. Krikorian, 42.

36. Sidney Hook, *The Metaphysics of Pragmatism* (Chicago: Open Court Publishing, 1927), 6.

37. See Arthur Danto’s comment and my response in note 5.

38. Schafersman says the same thing from the scientist’s viewpoint: “Is [philosophical] naturalism true? We may think so, but we can’t know for certain. Naturalism’s truth would presumably depend on [the question of] the existence of the supernatural realm. If there were empirical evidence for the supernatural or a logical reason to believe in the supernatural without such evidence, then naturalism would be false. If we knew for certain that the supernatural did not exist, then naturalism would be true. But if there is no evidence for the supernatural and no reason to believe in it despite the lack of evidence. . . the supernatural could still possibly exist without our knowledge. Such a lack of evidence and reason forces one to be agnostic about the existence of the supernatural and thus about the ultimate truth of naturalism. However, because of such lack of evidence and logical argument, it is more reasonable to disbelieve the supernatural and believe that naturalism is true.” In Schafersman, “Definitions,” in “Naturalism Is an Essential Part of Science.”

39. David Papineau, *Philosophical Naturalism* (Oxford: Blackwell Publishers, 1993), 4.

40. William R. Dennes, “The Categories of Naturalism,” in *Naturalism and the Human Spirit*, ed. Yervant H. Krikorian, 270–71. Dennes is referring to the changes in philosophical naturalism resulting from the advent of modern biology with Darwin and of modern physics with relativity and quantum theory.

41. Dennes, “The Categories of Naturalism,” 284–86. He writes, “by making serious use of the category of quality, but at the same time insisting that no categorial systems can determine what qualities are manifested . . . contemporary naturalism has freed itself from the objection leveled against earlier naturalism that it excluded from existence . . . any qualities experienced or imaginable. . . . The explanation of any entities will consist in hypotheses, grounded in evidence and appreciably confirmed by evidence . . . any other procedure would be a surrender either to mendacity or to fantasy.” Hook affirms this view: “That first principles must be justified before we can achieve assured knowledge is a view seemingly held by some philosophers but rarely by anyone else. Scientists, for example, have satisfactorily solved problem after problem without feeling called upon to solve the problem of justifying their first principles.” Hook, *The Quest for Being*, 174.

42. Kornblith, “Naturalism: Both Metaphysical and Epistemological,” 49.

43. Sidney Hook, *The Quest for Being*, 168.

44. Kurtz, “Darwin Re-Crucified,” 17.

45. Science is proceeding incrementally toward these goals. According to Daniel Dennett, materialism is already the accepted point of view in the explanation of mind: “The prevailing wisdom, variously expressed and argued for, is materialism: there is only one sort of stuff, namely matter—the physical stuff of physics, chemistry, and physiology—and the mind is somehow nothing but a physical phenomenon.” See Daniel Dennett, *Consciousness Explained* (Boston: Little, Brown & Co., 1991), 33. See also Patricia Smith Churchland, “Can Neurobiology Teach Us

Anything About Consciousness?" *Proceedings and Addresses of the American Philosophical Association* vol. 67, no. 4 (January 1994), 23: "In assuming that neuroscience can reveal the physical mechanisms subserving psychological functions, I am assuming that it is indeed the brain that performs those functions—that capacities of the humans [sic] mind are in fact capacities of the human brain. . . . it is a highly probable hypothesis, based on evidence currently available from physics, chemistry, neuroscience and evolutionary biology." See also Merlin Donald, *Origins of the Modern Mind: Three Steps in the Evolution of Culture and Cognition* (Cambridge: Harvard University Press, 1991), especially the conclusion, "Exuberant Materialism," 381: "Mental materialism used to be a bad label. . . . But lately mental materialism is back, with a vengeance." See also Steven Pinker, *How the Mind Works* (New York: W. W. Norton & Co., 1997), x: "the mind is a system of organs of computation designed by natural selection."

46. Kurtz, "Darwin Re-Crucified," 17.