Genesis Regained: Creation not Creationism

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*The first part of the article concerns the theological doctrine of creation, which is not to be confused with the theory of creation*ism. *The doctrine of creation is that there is only one unoriginated being, God, on whom all else depends for existence. Since this doctrine is chiefly associated with the first two chapters of* Genesis*, I start by examining them. My purpose is to arrive at a proper understanding of them relative to their place in the canon and their own internal structure. My conclusion is that when read properly, i.e., as covenant, the text neither yields scientific information nor needs to be reconciled to science. But this conclusion is not then hitched to the hasty inference that science and religion have nothing to do with one another. On the contrary, in the second part I argue that no theory can avoid being regulated by some divinity belief or other, so that there are no religiously neutral theories.*

1. Introduction

The first part of this article concerns the theological doctrine of creation, which is not to be confused with the theory of creation*ism.* The doctrine of creation is that there is only one unoriginated being, God, on whom all else depends for existence. It goes on to say that God has called into existence *ex nihilo* everything found in, and true of, the temporal/spatial cosmos. In biblical language, God created everything "visible or invisible" so *prima facie* that includes not just things and events but also every kind of properties and laws, and all the potentialities that have unfolded since the cosmos was called into being. What this tells us about God can be summed up the way Calvin put it: "… that from which all other things derive their origin must necessarily be self-existent and eternal."[1]

1 J. Calvin, *Institutes*, I, v, 6.

This much is common to Jews, Christians, and Muslims, but in what follows I will speak only as a Christian, leaving it to Jewish and Muslim thinkers to say how closely they can agree with what I have to say about this doctrine. I find it to be both reiterated and presupposed throughout the biblical scriptures, but chiefly associated with the early chapters of *Genesis*. And since it is those chapters that loom large in discussions of science and religion, it is those chapters I will focus on. My purpose will be to arrive at a proper understanding of that text relative to its place in the biblical corpus and its own internal structure. My conclusion will be that its accounts of creation in six days and the origin of humans are profoundly and thoroughly religious, and are so in a way that neither yields scientific information nor needs to be reconciled with scientific information. I realize that this doesn't sound like anything new. What will be different about my presentation of it is that it will be based on the text itself rather than a sharp partitioning of humans into natural and non-natural sides, or a wave-of-the-hand dismissal of the text as, say, poetry.

The second part of this paper will not, however, proceed to the conclusion often drawn by those sharing my view of *Genesis.* Often that view of the text is then hitched to the hasty inference that religious belief and science have nothing – or almost nothing - to do with one another. In opposition to that position, I will argue that all theories are regulated in a fundamental way by whatever they take as self-existent, and that no theory can fail to contain or presuppose some such belief. Moreover, I will argue that self-existence is the defining characteristic of divinity, so that the control of theories by a belief about what is self-existent is the same as control by a divinity belief and thus amounts to *religious* control of all theories. That is to say, any theory not regulated by the biblical doctrine of creation will inevitably be controlled by an alternative religious belief, a belief in something other than God as divine and in all else as dependent on that alternative divinity. But in any case there are no religiously neutral theories.

2. The text of Genesis: Chapter 1

Any reading of *Genesis* will unavoidably be conditioned by the reader's assumption as to the basic character of the biblical corpus as a whole. One way of raising this issue is to ask the question: "What would you say is the central theme of the whole Bible?" In my opinion there can be only one plausible candidate for this theme, the idea of *covenant.* The books included in the collection we call "Bible" are one and all records of God's covenant dealings with humans. And that includes *Genesis*! This simple

point is often forgotten by those who try to read it as a handbook of the history of the universe or an encyclopedia covering virtually every sort of topic. Instead of seeing it as the prologue to the covenant with Moses, they lop it off from its context and read it as something entirely foreign to that covenant. But read in its covenantal context, the central purposes and intent of the text become clear: it is to identify the Covenant Maker as the Creator of heaven and earth, to identify the covenant receiver as humans created in the image of God, and to make clear the connection between this edition of God's covenant making and all the previous covenant-editions.

This means that the reading of this text must everywhere assume the doctrine of creation. It must therefore assume that God has created time, space, and all else that is found in the cosmos. And that entails that God's calling all else into being cannot have literally been in time or in space any more than that God literally had vocal chords and spoke. So the "days" of creation cannot possibly be construed as solar days, eras, or any other stretch of time. That this is understood in the text itself is shown by the fact that it speaks of three creative "days" prior to the creation of the sun moon and stars. To take these days as periods of time flies in the face of the text's comment that the sun, moon, and stars have been created for "seasons, days, and years", so that demarking periods of time cannot have already existed. It also flies in the face of simple logic, since it is self-contradictory to say there were days before the creation of days (a point already recognized by St Augustine in the 5th cent. CE). Moreover, taking the days to be periods of 24 hours is also inconsistent with God's Sabbath rest on the seventh day, as his rest from creating has been going on ever since. To summarize this point: the theological doctrine of creation holds the being of God to be outside time and above all laws since he created them all. And this requires that there can be no description of God's creating time and laws. There is just nothing we could conceive or say that is not time-bound and subject to the many kinds of laws that govern our existence. The account given in the text is therefore highly anthropomorphic, and to take it as literal description violates the very doctrine it teaches and affirms a logical absurdity.

Moreover the internal structuring of the days by the text is further evidence they were not intended to be taken as literal time-frames. Consider the obvious correspondence between what God makes on the first three days with what he does on the last three:

Day 1	Day 2	Day 3
light/ darkness	atmosphere/sea	sea/land

Day 4	Day 5	Day 6
sun/moon/stars	birds/sea life	plants/animals/humans

I find this to be too prominent a feature of the text to be dismissed as accidental (here, at least, we have intelligent design!). But if it is intentional, then what it seems meant to convey is an order of purpose rather than time. What God makes on the first three days is conveyed as providing the background conditions for what he intended to make on the last three days, so that this should be read as a *teleological* order. (That it should be read as a teleological *rather* than as chronological, has already been argued; it follows from God's transcendence of time according to the doctrine of creation.)

Why, then, does the account choose to use the anthropomorphism of a work-week? Here too, the answer lies in the relation of early *Genesis* to the covenant of which it is a part. For one of the Commandments of that covenant is that the faithful are to work for six days and rest on the seventh. So God's creating is anthropomorphized to be an example for human work in the proper rhythm of life.

3. The text of Genesis: Chapter 2

This is the section of the text that has resulted in so much of the controversy about evolutionary theory. Whereas evolution posits a long, gradual development of life forms including humans, the text speaks as though at one moment there were no humans and at a subsequent moment there were. Whereas evolution says humans are descended from earlier hominids, the text sets them apart from all other living things. While evolution sees no difference in the origination of men and women, the text says that the first man preceded the first woman.

But once again, the apparent conflicts are the result of reading the text as a scientific treatise rather than as covenant. To see how this is so, consider the all-important question: what is a human? This is a crucial issue that cannot be avoided either for understanding the text or for doing science. When anthropologists discover remains, how are they to determine whether or not they're human? Is a human a featherless biped? A being that walks upright and uses tools? A being that makes tools? A being that uses language? A being that has ethical beliefs? I think it can be shown that no science can answer this question, but that all such beliefs are brought to science from the philosophical and religious assumptions of each thinker. But whether you agree with me about that or not, one thing is clear: *Genesis answers this question.* And whether you agree with its

answer or not, you must see that answer as controlling its account of human origins. In its identification of the covenant receiver, the text describes humans as being created not "after their kind", but "in the image of God" for fellowship with God. Let me rephrase that point in non-biblical language: a human is a *religious* being. The first appearance of humans on earth is therefore the same as the appearance of religious consciousness on earth. It is not the appearance of a particular skeletal structure or of a particular cultural achievement. It was instead the beginning of the capacity in creatures to ask the question of origins: the origin of their world and of themselves. Restated in terms of the doctrine of creation, it was the capacity to frame beliefs as to what is divine (self-existent), and to understand themselves in relation to divinity. So it is the beginning of that capacity, and God's activation of it, that the text regards as the origin of humans on earth. [This crucial point about what counts as a human seems to be lost to current discussions, but it was recognized by the church Fathers (Lactantius, e.g.) and reiterated by Calvin (*Inst* . 1, ii, 1, 2, 3)]. This is why the text is not concerned with whatever natural processes may have preceded the first humans, or how long those processes may have taken. It is interested only in the event before which there were no humans and after which there were, because that event includes the glorious news that the Creator of the cosmos has graciously offered himself in covenant relation to humans.

What, exactly, is the event by which God brought about the first appearance of humans? Keeping in mind *Genesis's* view of what a human is, I find the account to teach that it was *God's speaking and making himself known to Adam.* God had brought into being creatures made of the same stuff as everything else and subject to death. But God also brought it about that one type of those creatures acquired the capacity to ask the question of their origin, to receive the answer by knowing God, to obey God, and thus to avoid death. And God first actualized that capacity in the being called Adam by speaking to him and making himself known. The act by which God did that is described in the words: "God breathed on him the breath of life and man became a living soul." The word "breath" is the same in Hebrew as the word "spirit" so it conveys several things at once: it is by the spirit (breath, command) of God that man has appeared from the dust of the earth, and it is by the breath (spirit, speech) of God that man hears God's offer of love and fellowship (Comp. Job 33:4). So while Adam's arising from the dust of the ground makes him alive biologically and thus subject to death, his responding to God's love makes him fully human and enters him into a covenant relation that can deliver him from death.

This focus on humans as fundamentally religious beings can now control our reading of the rest of the account. It leads, I believe, to taking the formation of Adam from the dust of the ground as partly figurative. That is, I see the text as conveying the nature of humans by means of a story about God "making" them. Thus the remark that Adam was made of the "dust of the ground" is not intended as a description of an act but of Adam's nature. The point is that because he is made of the same stuff as everything else, he is subject to death. (Notice how the expression "dust of the earth" is always associated with mortality in scripture: Comp. Ps. 22: 15, 30:9, 40:25;Ecc. 3:20; Is. 26:19; Dan. 12:2, e.g.) It is also why the sentence of death for disobedience is phrased "from dust you came and to dust you shall return." And making death for humans to be the result of disobedience carries the obvious implication that obedience includes God's special protection from death. The point is that standing in right relation to God is not an extra added to human life, but the most basic condition for it. For sure, humans depend on sunlight, water, air, and food, but these are penultimate dependencies. Ultimately humans live by standing in right relation to God so that if they continue in that relation they will never die. (Such demands and promises are the central features of the concept of a covenant, so even though that term is not explicitly used in the text at this point, the idea is clearly present.)

The same figurative language is employed in the story about Eve. Here, too, her nature is expressed in a "making" story intended to convey that she was of the same nature as Adam. That this is the intent is shown from the context: she is the only proper mate for the man, and he calls her "bone of my bone and flesh of my flesh". Moreover, the follow-up commentary includes the remarks that "For this reason a man leaves his father and mother and cleaves to his wife …" and also that for the woman "… her desire shall be toward her husband …" In addition, the text represents both the man and the woman as created for fellowship with God since both are held responsible for breaking that fellowship. Thus there are good textual reasons to reject any reading that sees it as offering a description of an act of God's rather than as a description of the nature of humans. If this interpretation is correct so far it can also clear up another point about Eve, namely, that her humanity is represented as dependent on Adam's. For since it is contact with God's word that is the last step in becoming human, Eve's humanity derives from Adam's in the sense that she received the covenant information from him rather than directly from God.

Sometimes it is objected at this point that if there were a long evolutionary

development leading up to the appearance of humans, we could expect there to be more than just two of them. Surely there would have been many such beings appear at roughly the same time. But notice that *Genesis* doesn't rule that out. From chapter 4 onward the children of Adam and Eve are represented as traveling among, in fear of, and marrying from, other people. These other people are not explained, but that is understandable given the covenantal focus of the text (it is covenantal history not broadly human history). But if many beings with a religious capacity appeared at roughly the same time, then even though the text focuses only on the first of them, we could expect there to be others in short order owing to the spread of religious belief. Adam and Eve would still be the progenitors of the human race in the religious sense of being the first to know God, the first to be put on covenant probation, and the first to be offered a covenant of redemption following their failure in that probation. So it is important in this connection that, contra Augustine, neither *Genesis* nor any other text of the Bible actually says they were the biological progenitors of all other humans.[2]

I conclude therefore that so far as the text of *Genesis* is concerned there is no reason for a theist to reject in advance the evidence for the theory that there was a gradual development and diversification of life forms, including a line that led to humans. What there is reason to reject, however, is any view of such a development that takes it to be the whole story and so takes a human to be defined merely biologically or even biologically plus culturally. Tillich was right when he said:

> The famous struggle between the theory of evolution and the theology of some Christian groups was not a struggle between science and faith, but a struggle between a science whose faith deprived man of his humanity and a faith whose expression was distorted by biblical literalism… A theory of evolution which interprets man's descent from older forms of life in a way that removes the infinite, qualitative

2 I find no warrant for the view that Adam and Eve were to be biological ancestors of all humans anywhere in the Hebrew Scriptures or the New Testament. The nearest thing to a comment on the topic is Adam's remark in calling Eve "the mother of all living"; but that is in connection with the promise of God that one of her descendents will be the Messiah. So it too should be taken in the full sense of "life" which includes the right relationship to God, rather than merely biological descent. This point is even clearer in the New Testament which holds Jesus to be the Messiah and therefore the "new Adam". His headship of the human race is explicitly and exclusively religious, as he wasn't the biological ancestor of anyone.

3 *The Dynamics of Faith* (New York: Harper & Row, 1957), 83.

difference between man and animal is faith not science.[3]

4. The nature of religious belief

Let's start with the observation that every religious tradition regards something or other as divine. Is there anything all their divinities have in common that could serve to define "divine"? Theism aside, even a brief examination of only a few religions is sufficient to show that the natures of their divinities appear hopelessly contrary. For example, the divinity of Hinduism, Brahman-Atman, is not a being let alone a person, is not distinct from the universe, and has no description save that of being infinite. I suggest, however, that instead of looking for a common element in the natures of the many divini*ties*, we look for a common element in the *status* of divinity. That is, rather than try to locate commonality among the ideas of what is divine, we look for a common element in what it means to be divine. The difference can be illustrated by the two ways we could answer the question "Who is the president of the US?" One answer would be to describe the person who holds the office; the other would be to describe the office irrespective of who holds it. This difference is important because I have found that while there are a host of incompatible descriptions as to who or what is divine, there is unanimous agreement concerning what it means to be divine! In every tradition I know of the status of divinity is always *that of having non-dependent reality*.[4] The divine is always that on which all else depends (if it is believed there is anything else) while it does not itself depend on anything whatever. There have been many names for this status: absolute, self-existent, ultimate reality, uncaused and unpreventable, metaphysically necessary, etc. Moreover, not every tradition bothers with any of them. In some traditions everything is traced back to an original divinity that has no explanation and the matter is dropped. But in such cases the same status is conferred on that divinity by default because so far as the account goes it is independent while all else depends on it.[5]

4 This definition doesn't rest only on my own reading, however. It was held by virtually every pre-Socratic thinker, by Plato and Aristotle, and by virtually every medieval as well. In the 20th century alone it was rediscovered and advocated by: William James, Norman Kemp Smith, Mircea Eliade, A.C. Bouquet, Herman Dooyeweerd, Hans Kung, Paul Tillich, Robert Neville, and C.S. Lewis, to name but a few.

5 In many traditions the term "god" is used for a being that is not divine as I have defined it because the gods have an origin. So for Hesiod and Homer, e.g., the gods arise from Chaos or Okeanos and it is the latter which have no origin. Such beings are therefore gods in the sense of possessing more divine power than humans and by being immortal. For this reason from now on I will distinguish between that which is divine per se and that which is divine in the secondary sense of being merely superhuman.

But even if the status of non-dependent reality is common to all divinity beliefs, is the converse also true? Are all beliefs in non-dependent reality divinity beliefs? The answer can only be, yes. I have developed this point at length elsewhere and can only summarize it briefly here. But let me start with the observation that many people have hard time with this point because their idea of religious belief is narrowly culture-bound. They have a proto-type in mind – the tradition they're most familiar with – and they judge all beliefs as religious or not depending on how similar they are to their favored proto-type. This, however, is an utterly misleading way to tackle the issue. For example, do all religious beliefs inspire worship? Surely not. Brahman Hinduism includes no worship as there is no personal being to receive praise or intercession. Neither does Theravada Buddhism practice worship. Is it necessary for a belief to be in a god or gods to be religious? Again the answer must be no, as there are forms of Hinduism and Buddhism that do not believe in any gods.[6] In fact, there are counter-examples to every other proto-type of religious belief as well. There are religious traditions that have no ethic attached to them (ancient Roman religion and Shintoism), or that do not believe in life after death. Some even believe in divinities that are evil rather than good: Plato believed in an evil world soul as well as a good one, and the Dakota Indians had an evil Great Spirit.

Sometimes it is objected to this that materialism assumes matter/energy to have the status I've said defines divinity, so this can't be right because materialism is the opposite of religion. But that, too, is a narrowly culture-bound idea. Ancient Greek mystery religions worshipped what they called "the ever-flowing stream of life and matter", and one form of Hinduism presently regards matter (along with souls) as divine. Clearly these beliefs ascribe to matter the status that others ascribe to God, Brahman-Atman, the Tao, Wakan, Zurvan, Mana, and so on. So why should belief in matter as divine be thought to be non-religious just because it occurs in a theory rather than a cultic tradition?

To sum up: no matter how hard we try to find common characteristics to religious beliefs other than what I've called the status of divinity, they all turn out to have exceptions. To be sure, when such beliefs occur in scientific theories they have a different employment. In theories they are used to construct explanations, whereas in cultic traditions they are used

6 Atheism is not, therefore, the opposite of religion but the rejection of only one type of it.

to prescribe ways of acquiring the proper personal relationship to the divine. But that difference is a matter of emphasis, not exclusion. Divinity beliefs are also used by cultic traditions to explain, and they carry personal implications for life when employed by theories. The upshot is that there is no good reason to deny the religious character of a divinity belief solely because of the context in which it occurs or is presupposed.

Stated formally the resulting definition is as follows:

- A belief B is a religious belief IF:
- it is a belief in something or other as divine *per se* no matter how that is further described, or
- it is a belief about how the non-divine depends upon the divine *per se*, or
- it is a belief about how humans come to stand in proper relation to the divine,
- where the essential core of *per se* divinity is to have the status of unconditional non-dependence.

Taking this as my point of departure I will now argue that: 1) any overview of the nature of reality cannot fail to be regulated by some divinity belief, and 2) any theory of science cannot fail to be regulated by some overview of the nature of reality. It is on this ground that I deny there can be any such thing as a religiously neutral theory. More specifically, I claim that scientists cannot avoid conceiving the nature of the postulates of a theory in accordance with the way they understand the nature of reality generally. This is why theorists who all accept, say, atomic theory have widely different ideas of what its postulates *are*, depending on whether they have a physicalist, phenomenalist, idealist, rationalist, dualist, Kantian, or Pythagorean, etc., view of reality. This is not a trivial matter because the explanatory power of a theory is significantly altered depending on just how the natures of its postulates are conceived.

Here we have come upon what I see as the most basic, pervasive, and important of the ways religious belief impacts science. Unfortunately it's also the most neglected. Please notice that it's a two-step relation. It claims that scientific theories are interpreted in the light of some view of the nature of reality, while any view of the general nature of reality turns on what is regarded as divine. So while this proposal sees the relation of religious belief to science as more than simply ruling out theories that flatly contradict revealed truths, its alternative is not to treat Scripture as an encyclopedia which answers scientific questions nor does it import miracles to fill explanatory gaps.

5. Divinity beliefs, metaphysics, and science

The central issue for metaphysics is to offer a theory as to the general nature of reality. To do this, metaphysical theories have traditionally picked one or two *kinds* of properties-and-laws exhibited to our experience and enthroned that choice as the nature of those realities that either: 1) comprise everything without exception, or 2) are what generate everything else. I'll now offer a brief list of examples of such theories using italicized adjectives to designate the kinds and unitalicized nouns to designate the entities proposed as having independent existence: *mathematical* numbers, *physical* matter, *sensory* perceptions, and *logical* Forms. There have also been dualist theories that combined two metaphysical ultimates: *logical* Forms and *physical* matter, *sensory* perceptions and *logical* categories, *logical* minds and *physical* bodies, and so on. For example the Pythagoreans held that everything is comprised of numbers and their relations; Plato and Aristotle held that the cosmos is produced by the relation of Forms to matter; Hobbes, Smart, and the Churchlands, have claimed all is exclusively physical; Hume, Mill, and Mach held that all is sensory; and Kant and the Logical Positivists took all we can experience and know to be sensory/logical. In each case what drives these theories is what they take to have independent existence (divinity).

But even if that's true about metaphysics, is it really the case that scientific theories are in turn regulated by metaphysics? Can't at least the natural sciences declare their independence from philosophy? To see why this is impossible we need only ask: is it possible for a science to explain without specifying the nature of its postulates? Surely not. It's not enough simply to say, for example, "there are atoms". We have to know what *kind* of thing an atom is in order to know what it can explain. At the same time, the nature ascribed to any postulated entity or process would have to reflect its metaphysical underpinnings. For unless a postulate is thought to have the same nature as reality generally, its explanatory power would have to be relativized to something else that is of that same nature.

Let's stick with atomic theory as an example of this point. Ernst Mach held reality to be of an exclusively sensory nature: all we experience, know, and conceive are sense perceptions. So he held atoms to be "useful fictions."[7] By contrast Einstein held reality to be a combination of physical

7 See "The Conservation of Energy" in Ernst Blackmore's *Ernst Mach* (Berkeley: University of California Press, 1972), 49.

matter and logical/mathematical order, so he took atoms to be purely physical postulates of purely rational thought.[8] Over against these views, Heisenberg held atoms to be not only physical but also – and more importantly – mathematical in nature (a view he himself said "…fits with the Pythagorean religion …").[9] In each case these thinkers understood atomic theory in the light of how they viewed reality generally, and their view of reality was in turn regulated by what they took to be divine.

Of course, not all theorists make clear their metaphysical and religious commitments as did the ones just cited, and not every theory actually contains such claims. But even if a theory fails to specify its ontological and religious basis, it cannot avoid at least tacitly presupposing some view of reality and of divinity.[10] For that reason the right understanding of the relation of divinity beliefs to scientific theories cannot be that of harmonizing them. No consistent theory can fail to be compatible with its own presuppositions, any more than it can be truly compatible with other interpretations of it that have contrary presuppositions. Harmonization is therefore either unnecessary or impossible. In fact the whole notion of harmonization arises from the idea that divinity beliefs and scientific theories have independent but equally reliable sources: the book of nature understood by reason, and the book of God understood by faith. But on that point I think Calvin got it right rather than Augustine when he remarked that Scripture provides the spectacles through which the book of nature must be read. The sources of knowledge are not independent of one another since there are as many interpretations of any theory as there are views of reality, and at least as many views of reality as divinity beliefs. The understanding of nature is not neutral, unbiased, and the same for everyone. It is religiously controlled – not only for the theist but for everyone.

For these reasons, and in this sense, I maintain there is a distinctively theistic perspective for the interpretation of all theories. The central point of the perspective is the full force of the doctrine of creation: *nothing in creation has independent reality.* That doesn't just mean nothing in

8 *Ideas and Opinions* (New York: Bonanza Books, 1954), 11, 290-291.
9 *Physics and Philosophy* (New York: Harper, 1958), 72-73.
10 By "presuppose" I mean a broadly epistemic belief condition rather than a strictly logical truth condition. A more precise statement of the relation is that a belief q presupposes a belief p, when: 1) p and q are not the same belief, 2) one must believe p in order to believe q, 3) q is not in fact inferred from p, and 4) p is not believed on grounds of q.

creation is independent of God, but also that nothing in creation is what generates everything else in creation because that is a status that belongs only to God. The perspective therefore prescribes a radically anti-reductionist program for theories.[11]

Now reductionist theories come in two flavors: eliminative and causal dependency. The eliminative version claims that it has located in the cosmos the independently existing kind of realities because they are the only realities; all else is dismissed as a mistake. The causal version claims to have located the independently existing kind of realities on the ground that they produce all the other kinds of entities or properties that are admitted to be real. The first version is reductionist in the sense that it eliminates all we (seem to) experience except the one kind of entities and properties it says are real. The second is reductionist in the sense that all

11 It should be clear that what is meant here is ontological reduction and not every sense of that term. It has nothing to do with, say, its use in connection with the "reduction' of heat to molecular motion in place of the phlogiston theory. A more precise formulation of the objectionable senses of reduction are as follows:

A. Strong Reduction

1). *Meaning Replacement*. The nature of reality is exclusively that of X, so that all things have only the X kind of properties and are governed only by the X kind of laws. This is defended by arguing that all *terms* supposed to have non-X meaning can be replaced by X-terms with no loss of meaning, while not all X terms can be replaced by non-X terms with no loss of meaning. (Berkeley, Hume, and Ayer used this strategy to defend phenomenalism.)

2). *Factual Identity.* The nature of reality is exclusively that of X, so that all things have only properties of the X kind, and are governed only by the laws of that kind. This is defended by arguing that although the *meaning* of non-X terms cannot be reduced to that of X terms, their *reference* may be to exclusively X-things all the same. The selection of the kind(s) of terms that correspond both extensionally and intentionally to the nature of reality is defended on the basis of its explanatory superiority. The argument tries to show that for anything whatever the only or best explanation is always one which primitive terms and laws are of the X kind. (J.J.C. Smart defended materialism this way.)

B. Weak Reduction

1). *Causal Dependency.* The nature of reality is basically that of X (or X and Y) because it is the X-ness of things that generates the other properties and laws true of them. There is thus a one-way causal dependency between them: non-X kinds of properties and laws can't exist without the X kind, while the X kind can exist without any other kinds. (Aristotle and Descartes both defended theories in which certain kinds of properties constituted the "substance" in everything and all other kinds of properties were accidental or secondary to substance.)

2). *Epiphenomenalism.* This is much like the causal dependency version of reduction except that the non-X kinds of properties are thought to be much less real, and non-X laws are denied altogether. All proper explanations must therefore be phrased in X terms and laws despite the fact that we experience non-X properties. (Huxley and Skinner argued that states of consciousness are epiphenomena of bodily processes or behavior.)

other kinds of entities and properties are reduced in status and importance relative to the kind that causes them. Along with most theists I reject the eliminative version as flat-out incompatible with both our divinity belief and our experience of the world around us. But unlike the majority of theists I also reject the causal version as well on the grounds that it gives to some aspect of creation the status of being that on which all the rest of creation depends – a status that belongs only to God. [12]

Please notice here that it is not dependency alone that makes a theory reductionist, since the eliminative version doesn't make any dependency claim. Rather, it is the diminished reality of whatever is reduced. In eliminative reduction, every aspect of the cosmos is reduced to nothing in favor of the one that is taken as divine. In the causal version, other aspects of the cosmos are regarded as real but have a second-rate reality relative to the divine kind of things that produce them. Causal reduction thus over-estimates the importance of the kind of properties-and-laws it has elevated to divine status, and correspondingly under-estimates the explanatory role of the other kinds. Theism, by regarding all aspects of creation as equally dependent on God, can regard all its aspects as equally real and thus avoid reducing the status of any kind of properties-and-laws relative to any other.[13] And it is exactly the reduced status of these kinds relative to one another that has caused serious divisions within the sciences. This is because it is the deification of particular kinds of properties and laws, and the consequent reduction of the rest to them, that has led to the competing metaphysical -isms listed earlier (think of the different views of an atom). By offering the alternative of an irreducibly pluralistic metaphysics, theism can present a salutary gift to the scientific enterprise, and it is to this more pervasive and constructive project that I would urge theists to

12 This point was well expressed by St Gregory Palamas: "Christians cannot admit any intermediate substance between God and creatures, nor any mediating hypostasis." [See John Meyendorf, *A Study of Gregory Palamas* (Faith Press, 1964), 130.] The basis for this is the NT teaching that only Christ in his divine nature mediates between God and creation both for salvation and by sustaining its existence (Col. 1: 15-17).

13 This claim often sounds odd due to the way, say, biotic properties seem to require a physical basis. But the sort of ontology I have in mind recognizes that point while still maintaining that there exist biotic laws and objective biotic potentialities for nonliving things that are necessary (but not sufficient) conditions for the appearance of distinctly biotic properties in living things. Important distinctions also need to be made between the active and passive ways things can possess properties, as well as between the actual and potential ways such properties are possessed. The upshot is that while there are physical preconditions for the *realization* of biotic properties, the biotic, as a distinct kind of properties and laws, is not produced by the physical ... See *The Myth of Religious Neutrality,* pp. 212-216.

turn their attention. For in fact, such a non-reductionist view of reality is more than just a hope, since one such metaphysics was brilliantly worked out in the last century by the Dutch philosopher, Herman Dooyeweerd.[14]

6. Conclusion

So far I have referred only to the doctrine of creation as the ground for rejecting reductionist theories. But there are philosophical grounds as well. For both versions of ontological reduction turn on the claim that a particular kind of properties-and-laws qualifies the nature of whatever realities have non-dependent existence. So, for example, both forms of materialism claim that the ultimate realities are exclusively *physical* even though they admit they can't tell us precisely what those realities are. So let's try the thought experiment of conceiving of anything as purely physical. Take any example you wish and strip it of all its non-physical properties. Take away its every connection to time, quantity, space, perception, logic, and language. What is left? When I try this experiment I get nothing whatever. And if that result is denied, then it will be up to its denier to tell us what are we to make of allegedly physical entities that are not temporal, quantitative, spatial, connected to perception, or logically distinct. On this ground I contend that we cannot so much as frame the idea of anything as purely physical – or purely sensory, or purely logical, or purely any other kind of properties found in creation. And in that case reductionist claims literally don't know what they're talking about. In this respect reductionist claims are like the expression 'square circle'. We can say the words but we have no idea to go with them. So, too, for "purely physical" or "wholly sensory", etc. Reduction theorists can say the words, but they have no idea what the expression they form means.

To sum up: since all theories are regulated by some divinity belief or other, theists are not engaging in special pleading when they wish their interpretation of the sciences to be regulated by belief in God. And we have every right to be fed up with the smoke-screen claim that materialists, rationalists, positivists, *et al.*, are "secular" and religiously neutral, while theists are biased. We should not, therefore, as a result of this smoke screen, try to insulate science as much as possible from our belief in God. Rather, we should allow our interpretations of theories to be regulated by our denial that anything in creation is divine as the counter-

14 The major work containing this ontology is *A New Critique of Theoretical Thought* (Lewiston: Edwin Mellen Press, 1997, 4 vols.) I have summarized its main claims and arguments in the last three chapters of *The Myth of Religious Neutrality*.

point to the non-theistic deifications of various aspects of creation. It is such deifications, not theism, that actually bring divinity beliefs into science itself notwithstanding their attempts to disguise them as non-religious. Theistic regulation, on the contrary, means allowing belief in God to regulate theories by providing a view of created reality that eschews reduction. In this way it keeps its divinity belief out of science itself while freeing science from the fate of lurching from one dead-end reductionism to another.