

Paper Title: Transforming Foundations—Philosophical, Theological, and Scientific
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Abstract:

“You cannot shelter theology from science, or science from theology; nor can you shelter either of them from metaphysics, or metaphysics from either of them. There is no shortcut to truth.” [A. N. Whitehead; Religion in the Making; New York: Fordham University Press, 1996; p. 79.]

Guided by Whitehead’s observation, this paper attempts to demonstrate how the philosophical and theological foundations of the religion-science dialogue can be revised so as to promote that dialogue. Towards this goal, the paper is organized as follows: (1) the first section presents a general discussion of the three key terms—theology, science, and metaphysics (or speculative philosophy); (2) the second section focuses on process philosophy and process theology, presenting both a general introduction and a more specific discussion of a few notions that are especially pertinent to the science-religion dialogue; (3) the third section illustrates some of the ways in which philosophical and theological foundations might be changed, and the effects on the science and religion dialogue that such changes might have; for example, using a process perspective could nudge the science-religion dialogue in a more cooperative direction.

Taking both the spirit of Whitehead and Whitehead’s suggested metaphysics seriously can change how the interactions among theology, science, and metaphysics occur, thereby transforming all three disciplines and enhancing the dialogue.

Biography:

John M. Sweeney is the Managing Director of the Center for Process Studies, Claremont, California and an Adjunct Instructor at the Claremont School of Theology. Prior to working at the Center (January 2000), John taught introductory philosophy and religion courses at several California community colleges, including ten years at San Diego City College. Dr. Sweeney completed his Ph.D. (1993) at the Claremont School of Theology in process thought and religious education. John’s education includes an M.A. (Philosophy; Psychology) from the University of Nebraska-Lincoln; an M.Div. (Philosophy of Religion; Psychology and Religion) from Union Theological Seminary, New York City; and an A.B. (Religion-Philosophy & Mathematics) from Illinois College, Jacksonville, IL. Dr. Sweeney serves as the coordinator for the LSI supported program, “Dialogues Concerning Religion and Natural Science”, of the Center for Process Studies.

Paper Text:

Introduction:

At a religion and science conference which I attended (and at which I worked) in October 2004 (Combs, 2005; Reid, 2005), I witnessed the following episodes:

A biologist used Picasso's *Guernica* painting as an example of how science can physically, objectively describe an event or thing, but how that scientific description does not encompass all the meaning and/or value conveyed by the event or thing. The natural world, according to this biologist, can be completely explained by scientific knowledge; however, matters of meaning and value are outside the realm of science.

A different biologist remarked that scientists should spend more time in the humanities' library.

A third biologist stated that, perhaps, scientists should be required to study philosophy before becoming too specialized in a particular science.

Yet, when questioned regarding their worldviews, that is the metaphysics and values that provide the background for their practice of Darwinian biology, each of these scientists claimed to be objective in their practice, that such meaning and value discussions as may occur were limited to the evaluation section of their papers and books. All three biologists acknowledged a realm of value and meaning, but that realm, each claimed, did not intrude into their scientific practice.

While there are a number of observations to be made regarding the vignettes above, only one will be mentioned now, and two will be discussed later. The two to be mentioned later involve the "power of the past" and the role of "novelty" (both notions are discussed in Section 2 below). For now, just one:

We have here the strongest general forces (apart from the mere impulse of the various senses) which influence men (sic), and they seem to be set one against the other—the force of our religious intuitions, and the force of our impulse to accurate observation and logical deduction (Whitehead, 1925, pp. 181-182).

The recognition by each biologist that there is "more" (that is, there are meaning, values, the humanities, philosophy) than describing the natural world suggests an awareness, on some level, of a "religious intuition." However, the response of each biologist to the inquiries regarding their worldviews also suggests that this intuition is to be kept separate from the "impulse to accurate observation and logical deduction," that for each of these scientists the latter impulse is currently more powerful than "religious intuition." While the two impulses may not have been at war with one another at the conference, they clearly were to be kept apart from each other. Whether or not these two impulses, and the worldviews involved with each of them, really can be kept separate is important. "At issue here is the way we understand ultimate reality and humanity, the very nature of existence (Ellis, 2005, p.1)."

1. “You cannot shelter theology from science, or science from theology; nor can you shelter either of them from metaphysics, or metaphysics from either of them.”

As the introductory vignettes suggest, there remains an attitude that theology, taken broadly to involve religious intuitions, religions, values, meaning, etc., should indeed be sheltered from science. Similarly, science is to be sheltered from theology. Each field of study is to be kept in its own compartment, and never should the language-games commingle. However, as the ongoing debates involving evolutionism-creationism, global warming, abortion, euthanasia, et. al., indicate, trying to keep theology and science in separate compartments is increasingly difficult. The two impulses to which Whitehead refers do indeed seem to be “set one against the other.”

One set of factors involved in the science-religion debate is how each of the fields involved—theology, science, and metaphysics—is conceived. Process thought, including both process philosophy and process theology as developed in the tradition of thought that has emerged from the work and the spirit of Alfred North Whitehead, offers one approach by means of which the science-and-religion dialogue can be promoted, and that approach begins with revising the foundations upon which science, theology, and metaphysics are based. (There are other types of “process thought”, such as Hegelian, Jamesian, Teilhardian, etc. but the focus of this paper is on the tradition stemming from Whitehead.) Towards explaining such revisions, the remainder of this section presents some comments on religion (or theology), science, and metaphysics. Section 2 presents a brief introduction to Whitehead’s “philosophy of organism” (his words for his metaphysical proposals). Section 3 illustrates some of the ways in which the religious, scientific, and philosophical foundations might be changed, and the effects such changes might have on the dialogue; this section also presents some of the difficulties involved with making the suggested revisions.

a. Religion/Theology:

One of Whitehead’s most quoted statements regarding religion comes from Religion in the Making: “Religion is what the individual does with his (sic) own solitariness (Whitehead, 1996, p. 16).” However that is not all Whitehead says about religion and focusing on this quote alone tends to emphasize an individualism that is not present either in Religion in the Making or in Whitehead’s other philosophical works. Within Religion in the Making the following also can be found:

Religion is founded on the concurrence of three allied concepts in one moment of self-consciousness,

These concepts are:

1. That of the value of an individual for itself.
2. That of the value of the diverse individuals of the world for each other.
3. That of the value of the objective world which is a community of derivative from the interrelations of its component

individuals, and also necessary for the existence of each of these individuals (Whitehead, 1996, p. 59).

The moment of religious consciousness starts from self-valuation, but it broadens into the concept of the world as a realm of adjusted values, mutually intensifying or mutually destructive (Whitehead, 1996, p. 59).

Religion is world-loyalty (Whitehead, 1996, p. 60).

Whitehead regularly suggests that religion involves both an individual and a community, or individuals within communities. Balancing solitariness with world-loyalty also demonstrates one of the traits of process thought which is that of a “both-and” approach to all issues, as opposed to an “either-or” approach. Hence, in a religion-science dialogue (or debate) there are, from a process perspective, truths to be gained from all positions, though no one position has all the Truth.

Whitehead’s evaluation of religion also reflects the both-and approach. “Religion is the late refuge of human savagery (Whitehead, 1996, p. 37),” and yet, “Religion can be, and has been, the main instrument for progress (Whitehead, 1996, pp. 37-38).” Religion is both “the ultimate ideal” and “the hopeless quest.”

Religion is the vision of something which stands beyond, behind, and within, the passing flux of immediate things; something which is real, and yet waiting to be realized; something which is a remote possibility, and yet the greatest of present facts; something that gives meaning to all that passes, and yet eludes apprehension; something whose possession is the final good, and yet is beyond all reach; something which is the ultimate ideal, and the hopeless quest (Whitehead, 1925, pp. 191-192).

b. Science:

Whitehead was a mathematician, logician, and mathematical physicist, and was familiar with the science of his era (late 1800’s into the 1940’s). He was not an outsider criticizing that with which he was unfamiliar; rather Whitehead could, perhaps should, be viewed as a constructive critic.

Science, as implied in the Introduction above, emerges from “the force of our impulse to accurate observation and logical deduction (Whitehead, 1925, p. 182).” Further, this impulse is one of the strongest, according to Whitehead, that human beings have. Usually repressing or ignoring impulses does no good in the long run; the impulse needs to be acknowledged, integrated, and dealt with in an appropriate fashion. Humans have dealt with this impulse by explaining, in various ways such as with divinities, demi-urges, demons, and later natural law, the various phenomena that occur in the world. “Science is concerned with the general conditions which are observed to regulate physical phenomena . . . (Whitehead, 1925, p. 185).”

While the development of science has led, and continues to lead, to amazing technological developments (antibiotics, space-travel, the steel plow, the HP Deskjet 6840, etc.), there also continue to be debates, more or less heated, regarding various scientific issues, such as the cause(s) of the mass extinction of the dinosaurs, how

consciousness can emerge from inert matter, how evolution really works, etc. Science should not be taken to have discovered the Truth, at least not just yet.

The fate of Newtonian physics warns us that there is a development in scientific first principles, and that their original forms can only be saved by interpretations of meaning and limitations of their field of application—interpretations and limitations unsuspected during the first period of successful employment (Whitehead, 1978, p. 10).

David Ray Griffin, a scholar in the process tradition of Whitehead and Hartshorne and Emeritus Professor, Claremont School of Theology, Claremont, California, has discussed the development of various types of scientific naturalism in a number of works (cf. Griffin, 2001, pp. 20-51; Griffin, 2004). One of the notions developed by Griffin, taking a cue from Whitehead, is that scientific naturalism need not be understood as materialistic and atheistic, though that is the common understanding. Further, Griffin does acknowledge that this usual understanding of scientific naturalism is not compatible with “any significantly religious worldview whatsoever (Griffin, 2004, p. 1).” The development of this religiously incompatible form of scientific naturalism occurred as the Cartesian-Newtonian worldview broke apart. “The seventeenth-century synthesis, therefore, had a mechanistic doctrine of nature, a dualistic doctrine of the human being, and a supernaturalistic view of the universe as a whole (Griffin, 2001, p. 12).” As science progressed, both the “supernaturalistic view of the universe” and the “dualistic doctrine of the human being” became more and more discredited, until only the mechanistic view of nature remained.

On the other hand, the type of scientific naturalism suggested by Griffin is minimal; it is

. . . the doctrine that the universe involves an extremely complex web of cause-and-effect relations; that every event occurs within this web, having antecedent causal conditions and causal consequences; and that every event exemplifies a common set of causal principles (Griffin, 2004, pp. 1-2).

This form of naturalism does not require atheism, but it does rule out supernaturalism, if supernaturalism is taken to require a Divine Being who both exists outside the web of cause-and-effect relations and can interfere with the web at will. Developing all the implications of this “minimal” view of scientific naturalism is an expansive task, and there are a number of naturalistic theisms that can be developed, of which process theology is one. The Divine may be beyond the facts of nature in our world, but not of the Nature of the Cosmos (whether there be a universe or multiverses).

Another result of the Cartesian-Newtonian worldview, and the subsequent breaking down of that worldview, was the emergence of a materialistic philosophy. In Cartesian dualism, mind and matter were two distinct kinds of substances. With the development of science and with the ongoing difficulty in explaining how two such different kinds of substances could interact, the material substance took precedence; the study of matter in all its permutations and the natural laws describing the behavior of that

matter became the primary goals of science. Whitehead's own studies led him to a different view:

. . . a philosophy of nature as organic must start at the opposite end to that requisite for a materialistic philosophy. The materialistic starting point is from independently existing substances, matter and mind. . . . The organic starting point is from the analysis of process as the realization of events disposed in an interlocked community. . . . In fact by reason of my own studies in mathematics and mathematical physics, I did arrive at my convictions in this way (Whitehead, 1925, p. 152).

The "philosophy of nature as organic" is introduced in Section 2 below. Before that discussion, however, some comments on metaphysics and on the relationships among theology (or religion), science, and metaphysics.

c. Metaphysics:

Within process thought generally, and Whitehead's philosophy in particular, "Metaphysics is a description. . . . The tests of accuracy are logical coherence, adequacy, and exemplification (Whitehead, 1996, pp. 88-89)." Whatever Cosmic views may be proposed, each view is to be, at the minimum, a proposal as to how the World, or Cosmos, operates, and any given proposal is to be tested in a variety of ways—with respect to logic, adequacy, and exemplification. If the metaphysical proposal does not meet all the criteria (and it is unlikely that any of them will completely), then the proposal is to be changed.

Whatever is found in 'practice' must lie within the scope of metaphysical description. When the description fails to include the 'practice,' the metaphysics is inadequate and requires revision. . . . Metaphysics is nothing but the description of the generalities which apply to all the details of practice (Whitehead, 1978, p. 13).

If a metaphysical proposal cannot explain some aspect of the world, such as the placebo effect or playing the cello or what happens on a soccer field, then the metaphysical proposal is not complete; it needs adjustment. All experience needs explanation.

Further the basic rules from any given metaphysical proposal are always in effect; that is, there is never an instance in this Cosmos when the basic rules do not apply. "The metaphysical first principles can never fail of exemplification. We can never catch the actual world taking a holiday from their sway (Whitehead, 1978, p. 4)." If a rule is found to apply sometimes but not others, then the rule needs to be changed to account for all the data, e.g. from Aristotle's worldview to a Copernican worldview and so on. While laying out a once-for-all set of metaphysical rules is highly unlikely to succeed, the task is to keep investigating so that the proposals become more and more accurate.

d. Relationships:

Given the emphasis that all “practice” is to be accounted for within any given metaphysical proposal as well as the guiding quote for this paper, finding that there are relationships among theology, science, and metaphysics is to be expected. All three fields of study influence each other, though the details of how those influences work is variable. For example, findings in one field of study may have more or less direct influence on the development of one of the other fields of study.

The great point to be kept in mind is that normally an advance in science will show that statements of various religious beliefs require some sort of modification. . . . If the religion is a sound expression of truth, this modification will only exhibit more adequately the exact point which is of importance (Whitehead, 1925, p. 189).

Or, the case may be that the influence is more subtle, as in the vignettes at the beginning of this paper. “Every scientific memoir in its record of the ‘facts’ is shot through and through with interpretation (Whitehead, 1978, p. 15).” And that interpretation is based upon some set of worldviews, whether or not those views are acknowledged; “. . . all constructive thought, on the various topics of scientific interest, is dominated by some such scheme (of ideas), unacknowledged, but no less influential in guiding the imagination (Whitehead, 1978, p. xiv).”

Similarly with respect to religion, there is a metaphysics undergirding any given set of religious beliefs. The metaphysics may be more or less consistent and coherent, or may be very inconsistent, but either way there will be some set of metaphysical beliefs implicit in the religion.

Then again, there are scientific tenets and religious views that may have direct metaphysical implications. For example, if the scientific view is correct that molecules (and other small entities such as atoms, quarks, etc.) behave according to some set of universal rules or laws, then accounting for freedom and consciousness becomes quite difficult, if not impossible (Ellis, 2005, p. 6).

Each molecule blindly runs. The human body is a collection of molecules. Therefore, the human body blindly runs, and therefore there can be no individual responsibility for the actions of the body. If you once accept that the molecule is definitely determined to be what it is, independently of any determination by reason of the total organism of the body, and if you further admit that the blind run is settled by the general mechanical laws, there can be no escape from this conclusion. . . . Either the bodily molecules blindly run, or they do not. If they do blindly run, the mental states are irrelevant in discussing bodily actions (Whitehead, 1925, pp.77-78).

And with a lack of freedom and consciousness, comes a corresponding difficulty in accounting for moral responsibility and for self-awareness. The complex of issues involving freedom and consciousness has ramifications for religion—for example, how does the Divine interject free will into this Cosmos without violating the cause-and-effect web of relationships; for science—for example, how can the discoveries in science be

explained except as the result of determination by blindly running molecules; and for metaphysics—for example, how can the emergence of consciousness occur from inert matter, that is matter without any internal experience?

2. “Abide with me; fast fall the eventide.”

An Introduction to a Philosophy of Organism:

Twice in *Process and Reality* (Whitehead, 1978, pp. 209 & 338), Whitehead quotes “Abide with me; fast falls the eventide,” the first line of a Christian hymn (“Abide with Me,” *New Century Hymnal*, Pilgrim Press: Cleveland, OH, 1996. #99). For Whitehead, this one line expresses one of the major concerns in the history of thought—the relationship between stability and change, between permanency and flux. Hence, one of the goals of Whitehead’s metaphysical enterprise is to demonstrate how both stability and flux can be explained without either being made illusory or inferior. Perhaps one example of this change-permanence relationship can be found in the religion-science dialogue wherein science represents, but is not limited to, change--“Each molecule blindly runs. . . . the blind run is settled by the general mechanical laws, . . . (Whitehead, 1925, pp.77-78),” and religion represents, but is not limited to, permanence--“Religion is the vision of something which stands beyond, behind, and within, the passing flux of immediate things (Whitehead, 1925, p. 191).”

The phrase “philosophy of organism” was applied by Whitehead to his own metaphysics in *Process and Reality* (Whitehead, 1978, passim). While this metaphysics in its entirety is rather complex, a few of the key notions are presented, briefly, in this section. The notions introduced are (a) actual entities; (b) the ontological principle; (c) the power of the past; (d) novelty; and (e) hardcore common sense.

a. Actual Entities:

The philosophy of organism is based upon an event-metaphysics, and these basic events are called “actual entities” or “actual occasions.”

‘Actual entities’—also termed ‘actual occasions’—are the final real things of which the world is made up. There is no going behind actual entities to find anything more real. They differ among themselves: God is an actual entity, and so is the most trivial puff of existence in far-off empty space. But, though there are gradations of importance, and diversity of function, yet in the principles which actuality exemplifies all are on the same level. The final facts are, all alike, actual entities; and these actual entities are drops of experience, complex and interdependent (Whitehead, 1978, p. 18).

Actual entities combine in various ways, from quarks to whales, from protozoa to redwoods, from electrons to humans, from dirt to chairs.

Actual entities are “occasions of experience” containing both mental and physical feelings. Furthermore, these experiences build upon each other. In the human being, these experiential integrations sometimes result in sense-perception and consciousness. Unconscious, nonsensuous perception forms the basis for sense-perception and, later, consciousness. Consciousness and sense-perception are derivations. Most experience is

unconscious and primarily physical (Griffin, 2001, pp. 52-93 & 82-83). One of the effects of having actual entities as a fundamental characteristic of the Cosmos is that all explanations must involve some combination of actual entities.

b. The Ontological Principle:

Ontology is the study of being, including such topics as the nature of being or reality as such, the kinds of beings that exist, the nature of actual being, and the nature of relations. From the perspective of the philosophy of organism, every reality refers to, and involves some configuration of, actual entities. Whitehead calls this view the ontological principle (Whitehead, 1978, *passim*).

According to the ontological principle there is nothing which floats into the world from nowhere. Everything in the actual world is referable to some actual entity. It is either transmitted from an actual entity in the past, or belongs to the subjective aim of the actual entity to whose concrecence it belongs. (Whitehead, 1978, p. 244)

Whitehead is insistent. “Everything must be somewhere; and here ‘somewhere’ means ‘some actual entity’ (Whitehead, 1978, p. 46).” Also, when looking for causes or explanations, one is looking for at least one actual entity and more likely some configuration or combination of actual entities; “actual entities are the only reasons (Whitehead, 1978, p. 24).”

Further, all decision-making, at all levels, involves actual entities and “in separation from actual entities there is nothing, merely nonentity—‘the rest is silence’ (Whitehead, 1978, p. 43).” This decision-making involvement of actual entities also illustrates the interrelatedness of actual entities with each other. “An actual entity arises from decisions for it and its very existence provides decisions for other actual entities which supersede it (Whitehead, 1978, p. 43).”

c. The Power of the Past:

According to the philosophy of organism, the past exercises much influence on the present, especially through its role in the development of both simple and more complex individuals. One of the sources of this power of the past is in the sameness that occurs between previous events and subsequent events; sameness increases influence.

[A]ny likeness between the successive occasions of a historic route procures a corresponding identity between their contributions to the datum of any subsequent actual entity; and it therefore secures a corresponding intensification in the imposition of conformity. (Whitehead, 1978, p. 56)

The power of the past is especially evident in the notion of repetition. Repetition involves patterns of feelings being repeated. Repetition also involves actual entities ignoring novelty, or at least incorporating only minimal novelty, into themselves. In some cases this means that actual entities do not exercise as much freedom as they could. With repetition, the power and influence of the pattern being repeated builds. With

sufficient repetition, the pattern becomes a habit and correspondingly more difficult to alter; an intensity builds with repetition (Whitehead, 1978, p. 253). The more a habit is the result of intense repetition, the more difficult it becomes to alter that habit.

Consistent patterns of repetition yield permanence; the appearance of changing events yields flux.

The power of the past is responsible for the stability of the present and can be quite controlling. Creatures with less freedom, less awareness of freedom, are more likely to repeat the patterns of the past. The ongoing repetition of previous patterns can be, and often is, such that changing those patterns in any significant way is very difficult; for example, consider how difficult it is for many people to give up “bad” habits, or consider the influence of their Darwinian studies on the biologists in the vignettes.

d. Novelty:

Within the power of the past mentioned in the preceding subsection, the philosophy affirms the possibility of novelty entering into the process. Two of the primary ways by which novelty occurs involve the role of freedom and the lure of the Divine. Both of these factors are discussed below.

Whiteheadian thought integrates the self-creative role of the individual within the network of connections that constitute reality. As part of the description of “freedom,” Whitehead means the ability of an individual to contribute something, however minimal, to its own creation and to the future creation and self-creation of other individuals. This self-creative aspect is complicated; feelings and relationships are integrated in various ways with varying degrees of complexity. Despite the power of the past, individuals have the ability to change.

In the midst of reality much of what is done by individuals is forced or necessitated by events outside of the immediate control of the individual. The individual response is an indication of the degree of freedom obtained by the individual involved. Each and every individual, from the simplest subatomic events to the most complex beings, has some degree of freedom.

As mentioned in the section on “actual entities,” each entity is composed of mental and physical feelings or experiences. The combining of mental and physical feelings occurs throughout the various combinations of entities that occur, including human beings. Further, feelings and experiences are combined in ways that the individual is able to guide. Freedom involves an individual being able to select from among the various experiences that are flowing into the developing individual. Freedom builds upon the mental feelings contained in each actual entity. The more complex the individual is, the more potential freedom to select from among the mental feelings is available and the more variable can be the response to physical experience.

Incorporating freedom into the system at the earliest stages, or in the logical foundations, of the philosophy of organism provides at least two positive conditions. The first condition is a more consistent philosophical system than those systems in which freedom, especially human freedom, is an “add-on” or afterthought of some sort, resulting in difficulties for those systems, for example assuming that nature strictly follows (Newtonian) laws and then trying to explain human freedom.

The second positive condition provided by the incorporation of freedom into the foundations of the philosophy of organism is that it allows, without inconsistency,

adequacy to the belief, which all humans presuppose in practice, that human beings are morally responsible beings, a hardcore common sense notion (see 'e' following).

The Divine plays significant roles in Whitehead's philosophy of organism, and one of those roles is in presenting individuals with possibilities. In this role, the Divine "lures" the individual to choose an option deemed by the Divine to enhance the experience of the individual. In providing these possibilities, the Divine introduces novelty into both the life of the individual and the ongoing cosmological process. "Apart from God, there could be no relevant novelty (Whitehead, 1978, p. 164)." Further, the luring of creatures by the Divine goes on indefinitely, with adjustments made that take into account previous decisions. Each individual is constantly being presented with new possibilities by the Divine.

God's role...lies in the patient operation of the overpowering rationality of his (sic) conceptual harmonization. He (sic) does not create the world, he (sic) saves it: or, more accurately, he (sic) is the poet of the world, with tender patience leading it by his (sic) vision of truth, beauty, and goodness (Whitehead, 1978, p. 346).

As suggested in Section 1(b) above, and within the philosophy of organism, Divine influence never interrupts the web of cause-and-effect (Griffin, 2001, p. 6), nor is the Divine an exception to the metaphysical rules of any given cosmic epoch or Cosmos, as implied in Section 1(c) above. Freedom is inherent in Whitehead's metaphysical proposal; the Divine can neither violate nor eliminate that freedom. The philosophy of organism balances the power of the past, which is the basis of order and permanence, with novelty, as that novelty occurs through individuals' choosing from among the possibilities presented in the data from the past, even the biologists in the vignettes could acknowledge that there was more than science in this world, and in the lures provided by the Divine.

e. Hard-core Common Sense:

Whitehead suggests that "we must bow to those presumptions, which, in spite of criticism, we still employ in the regulation of our lives. Such presumptions are imperative in our experience (Whitehead, 1978, 151)." Griffin has developed this, and similar, remarks into a "hard-core common sense" criterion (Griffin, 2001, p. 5 & pp. 29-35). This hard-core common sense criterion suggests that there are certain "*notions that are inevitably presupposed in practice by all human beings* (Griffin, 2001, p. 5)." This criterion also suggests that any philosophy that overtly denies one of these practices while at the same time continues to use that practice could be viewed as violating the rule of noncontradiction.

One such notion is that human beings, at least, have some degree of freedom and are, therefore, morally responsible. Much of Christian Theology, for example, while in a muddle trying to balance God's omnipotence and omniscience with human free will, nevertheless holds that human beings are morally responsible for their "sins." Similarly, with the views of Freud and Skinner who, in their different ways, write as if human freedom is limited, if not nonexistent, and yet in the living of their lives acted with (apparent) freedom. Other possible hard-core common sense notions include, but are not

limited to, causality, time, and the existence of a world outside of ourselves. There may be debate whether or not a notion is hard-core common sense, but the key is to look, to see if the notion being discussed is actually presupposed in practice.

3. “There is no shortcut to truth.”

So, given all the preceding information, what foundations might get transformed, and how?

All three foundations—the philosophical, the theological, and the scientific—are subject to transformation. One way in which all three should be adjusted is in their consideration of all the evidence; that is, none of the three should exclude data just because it does not fit their proposed scheme. “It is easy enough to find a theory, logically harmonious and with important applications in the region of fact, provided that you are content to disregard half your evidence (Whitehead, 1925, p. 187).”

Also, all of the disciplines involved should take a more careful look at the “lens” or worldviews which underlay the various commitments made by each discipline, and the implications of those commitments. For example, as mentioned previously, freedom and moral responsibility seem to go together, and yet many systems of thought, whether theological, scientific, or metaphysical, have as one of their implications that there is no real freedom; at best freedom is an illusion. If there is no freedom, then there is no moral responsibility. Without moral responsibility, notions such as the will, love, justice, punishment, etc. appear to be in need of revision, if not elimination.

Another aspect of such complex transformations involves the increasing realization of the interconnections among all individuals, communities, and fields of study (cf. Margulis, 2004). As the environmental sciences continue their investigations, the fact that there are complex interrelationships among the various bio-climatic systems is becoming clearer, even if the details of those relationships are being explicated and debated. The scientific, religious, and philosophical foundations of the various perspectives involved in religion-science dialogues and debates should acknowledge the interconnections and realize the impact of these interconnections. Trying to remain separate in one’s own compartment is becoming less and less desirable or possible.

Process thought offers both a proposal and a spirit that can assist in the transformation of the foundations of the religion-science dialogue. The complex proposal suggested by Whitehead, Griffin, et. al., as briefly introduced in Section 2 above, provides a description of the metaphysical principles by which this Cosmos operates, as well as both explaining generally why the Cosmos is this way (the power of the past) and indicating how change can be guided so that the changes are real improvements (novelty). However, there is no guarantee of success; changes that initially appear to be helpful may turn out to have great risk associated with them, e.g. “splitting the atom.” Also, in a Cosmos in which each individual has some degree of freedom, the choices made by each individual may contribute to or detract from the efforts to improve the situation on this earth and in this universe; with freedom comes risk.

Unfortunately, there are, at least, two sets of difficulties in trying to transform the foundations of theology, science, and metaphysics, given the process perspective of this paper. One set involves the way in which process thought and especially the Whiteheadian version are viewed in the academy. The other set involves the way in

which both some, perhaps many, scientists and some, perhaps many, theologians view the integrity of their own fields of study.

First, some comments on the process-related set of difficulties. There are few institutions where a graduate degree focusing on process philosophy can be earned; there are a few more institutions where a graduate degree in process theology can be attained; and there are a few other institutions where a graduate degree in some other field (such as education) using process thought can be earned. Basically, process thought is not well received—reactions range from passé to hostility, and I have encountered both ends of this continuum, as well as a number of responses in between. There are several factors involved in this range of responses, but only three will be mentioned here—these are the three resistances that I have encountered most frequently in my teaching: (a) the technical vocabulary, (b) the challenge to tradition (views of God, substance thinking), and (c) the “we can explain everything” approach.

a. Technical Vocabulary:

One of the more common complaints about process thought involves learning yet another technical vocabulary. More than one student has complained about trying to figure out the meaning of words like “concrecence,” “prehension,” “primordial nature of God,” and so on. Certainly there are other words and phrases that can be used to introduce folks to process thought in a more enticing way; the technical vocabulary can wait for a more appropriate time. And yet, Whitehead did not just choose these unusual words to aggravate his readers. I suspect that Whitehead really was trying to show that a philosophy of organism was very different from the traditional philosophies, theologies, and approaches to science which he had read and in which he had been educated. The traditional words did not suffice to do the job, and so a new vocabulary was needed.

b. Challenges to Tradition:

A second concern raised in different ways by a number of students follows closely on the heels of needing a very different vocabulary. In various ways, students find the challenges process thought brings to them unsettling. Even as they find parts of process thought appealing, for example the emphasis on Divine love and tender care, many students find the degree of human responsibility as found in process thought to be a bit scary; they want a God who is in control and will guarantee that the “good” (whatever that is) will prevail, and the “bad” (whatever that is) will be punished. Similarly, many students want more stability than process thought provides; they want an unchanging soul, for example, that will live on--somehow, somewhere--after the body dies; the notion that humans may not have a soul, much less a substantial unchanging one, is disturbing. These types of student reactions to process thought can be explained, in large measure, by the “power of the past,” and this explanatory power often triggers another resistance.

c. Explaining Everything:

A third resistance originates in the claims for the explanatory power of process metaphysics. Being able, using a set of metaphysical principles, to explain all, or most all, that happens can be aggravating to folks; I have had students in my classes who have this reaction. Being able to demonstrate to students, for example, that most of their beliefs and behaviors are the result of the power of the past, a past they have for the most

part uncritically accepted is not always well received, and is frequently resisted. The reasons for this sort of resistance are, I suspect, mostly psychological in nature. On the other hand, there are some students who find process thought liberating, a good fit with thoughts they already were having, and full of mystery; there is so much to learn.

Now, some comments on the integrity issue. As the vignettes at the beginning of this paper suggest, even scientists who are willing to somewhat acknowledge religious intuitions are recalcitrant when it comes to admitting that their science might not be as objective as they believe it to be; investigating one's own worldview and how that worldview affects one's work can be unpleasant. For those scientists who do not acknowledge in any way the role of "something beyond," self-investigation of this sort seems highly unlikely, if not impossible. On the other hand, there are theologians whose work is either immune to scientific input because the two disciplines are kept in separate compartments or who are hostile to it because they believe that scientific input contradicts their particular inerrant scripture. Progress is likely to be slow, but even such conflict is indicative of the importance of maintaining science and religion dialogues.

The (ongoing) clash (between science and religion) is a sign that there are wider truths and finer perspectives within which a reconciliation of a deeper religion and a more subtle science will be found (Whitehead, 1925, p. 185).

Hence the science and religion dialogue is important. And metaphysics (philosophy) has a critical role to play in this dialogue.

Philosophy frees itself from the taint of ineffectiveness by its close relations with religion and science, natural and sociological. It attains its chief importance by fusing the two, namely religion and science, into one rational scheme of thought (Whitehead, 1978).

Philosophy can help us to find those "wider truths and finer perspectives" to which Whitehead refers as the discussion involving theology and science continues and deepens. "A clash of doctrines is not a disaster—it is an opportunity (Whitehead, 1925, p. 186)." Let us take advantage of the opportunities presented to us in the science and religion dialogue.

Conclusion:

In this paper I have attempted to present a perspective on the relationships among religion, science, and metaphysics from a "process" point of view; to suggest how a worldview based on process thought, especially on the tradition based upon the thought of Alfred North Whitehead could, if adopted, enhance all parties concerned—religion, science, and philosophy, even process philosophy; and to convey some of the "spirit" of Whiteheadian thought. The foundations of theology, science, and metaphysics can be transformed so that an increasingly more comprehensive and accurate picture of the Cosmos would emerge and be continually refined as more data is considered. "The proper test is not that of finality, but of progress (Whitehead, 1978, p. 14)." Whether such transformations will occur and whether progress will be made are open questions,

especially given the kinds of resistance mentioned in Section 3. However, I am a Chicago Cubs fan, and, if nothing else, we are a hopeful bunch. Keep a good thought--it helps!

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