

CONTRIBUTIONS OF TIPLER'S OMEGA POINT THEORY

by Frank T. Birtel

Abstract. An attempt to discover what can be learned from the recent work of Frank Tipler on the Omega Point theory requires an analysis of his framework of understanding from scientific, philosophical, and theological perspectives. A critique of his crucial ideas, and of the salient points raised by some of his critics, can then be undertaken within the compass of his strengths. A critique of the critiques of Tipler's work allows one to evaluate the extent and limitations of his contributions.

Keywords: being; cosmology; determinism; eschatology; eternity; existence; God; Many Worlds; Omega Point; physics; quantum theory; reductionism; resurrection; science-religion integration; teleology; theology.

The publication of *The Physics of Immortality: Modern Cosmology, God and the Resurrection of the Dead* (Tipler 1994) has evoked responses ranging from outrage to incredulity. Many commentators and reviewers impute crass motives to the author or charge him with disservice to science, to religion, or to both. These reactions usually are prompted by his having challenged strongly felt, widely accepted, but undefended assumptions about the relation between scientific and religious explanations. To assert, however, that scientific-theological synthesis is, a priori, untenable, or at best romantic fantasy, is to fall short of seriously analyzing or refuting Tipler's claims. The present analysis strives to follow Hegel's dictum: "True refutation must engage the force of the opponent and must place itself within the compass of his strength; the task is not advanced if he is attacked outside himself and the case is carried in his absence" (Hegel [1812-13] 1929, 215). Tipler must, therefore, be taken

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seriously as a cosmologist making very strong claims for scientific explanation.

Tipler calls for a radical change in the way one talks about ultimate human concerns. But what is his framework of understanding? Is the Omega Point theory consistent and coherent within that framework? Are the hypotheses compatible with scientific and theological expectations? Does the theory provide useful or illuminating insights? The theologian must examine Tipler's model, compare it with his or her own, articulate what new insights emerge, and only then point to conflicts and arguments pro and con. The scientist criticizing the technical development of the model must be concerned not only with its errors but with the possibility of refining the theory, correcting its flaws while preserving its basic cosmological assumption that life continues forever. The philosopher must try to uncover the metaphysical and epistemological underpinnings of the project and the extent to which these support a model of critically rational value for understanding human beliefs and the world.

In any case, two issues must be separated: (1) the worthwhileness of such a project independent of whether Tipler's model is useful, and (2) the explanatory usefulness of the model itself. The ability to construct any integrative model worth considering, regardless of its eventual success or failure, encourages the possibility of the integration of science and religion. What could be dismissed before, must now be presumed possible.

In all of these considerations extreme care must be taken by the critics to minimize the distortions caused by Tipler's exaggerations in applying his theory, his arrogance of style, and his inappropriate usage of certain words, all of which can divert the reader from the essential content of the book. Tipler's theory would surely have gone unnoticed had he presented it in modest, understated terms. The techniques he adopted instead may catch the public's attention but once having done so lose their relevance and obscure the central theme.

ASSUMPTIONS

About Reality. For Tipler, being consists of all possible rationally consistent relationships, whereas existence is a predicate for those relationships that can be observed. Relationships are brought into existence when they become observed or observable; existence is a subset of being. In one sense this attitude recalls the Platonic "really real." There is no surprise here, since most scientists are closet Platonists—what they name in logically consistent theories is for

them really real. As for existence, postmodern science, particularly quantum mechanics, denies the independent existence of the object-in-itself and corrects the Kantian idea of the object-in-the-subject by recognizing that reality reveals itself only through (subject-object) interactions. What can be experienced is rational, and humans can know it. This essentially Christian assumption is arguably the basis for the fertility of Western science. Furthermore, Tipler implicitly acknowledges a critically rational trust that reality is one, true, and good (integral, meaningful, and valuable), thereby rejecting any form of modern nihilism. God is the personal ultimate reality, knowable only through experienced reality.

About Knowledge. Although Tipler takes great pains to distinguish between ontological reductionism and determinism, his blatant espousal of reductionism disturbs the reader who assumes that ontological reductionism implies a determinism destructive of free will. Of course, if nature did not afford indeterminacy at every level of organization, such an assumption might be justified. But postmodern science knows otherwise. The fear of an implicit determinism emerges in the form of the undefended assertion that physics (or any science, or any scientific explanation) has inherent limitations which prevent it from encompassing theological questions. This is not simply a recognition that human knowledge in general is limited, lacking in certainty, subject to revision, and incomplete. Rather, the categorizing of experience as scientific or theological is taken to have ontological foundation. Such a view sees reality cut into chunks, domains, each of which somehow speaks a different language, and it imposes on each domain limitations which go beyond both the linguistic limitations embodied by the basic concepts of the field of inquiry and the limitations of computer capacity that prevent one from grasping complicated relationships in conceptually reduced terms. Domain limitations are not, however, ontological, but linguistic. The world in no way specifies the proper language to use in speaking of it. Does not the espousal of extremely limited applicability come close to challenging trust in the potential integrity of reality itself? From Tipler's point of view the reduction of aspects of theological concepts to physics provides one with enhanced confidence and/or with additional means to assess the truth claims of such complex relationships.

A more profound analysis of this work seems to reveal that the major stumbling block for its critics is rationalism rather than reductionism. Not all of the theological assertions encountered in the book are reduced to physics. Philosophy, biology, information theory,

economics, mathematics, and history all play interpretive roles in the exposition. Often a rational explanation (i.e., an explanation which could be mirrored by a mathematical model), not strictly a physical explanation, seems to suffice for the development of the theory. (Here mathematics is understood as the language of abstract relationships.) That this is acceptable to the author comes as no surprise, since "being" and "consistent relationships" are basically interchangeable concepts for him. If one regards mathematics as the language of relationships, then reduction actually consists in giving a description theoretically susceptible to mathematical analysis. This reduces language but not reality. What the critics are really resisting is Tipler's use of this type of rational redescription of theological discourse.

Those who want to limit the application of scientific discourse seldom explain why. Two possible assumptions may be inferred from their position: (1) some knowledge comes from a source other than human experience and/or there are multiple, methodologically inconsistent paths for rendering experience intelligible or (2) the basic concepts of any specialty are insufficient for depicting more complex levels of organization. Critical realists stress a uniform methodology for knowing, differentiated only by the emphasis put on various components of the process. To assume any part of (1) tacitly necessitates a form of dualism which would effectively isolate scientific knowledge from other forms of knowledge. But science and critical realism reject such dualism. Alternatively, to assume (2), as do some critical realists who hold the theory of emergent properties, is likewise to espouse a form of dualism. For the ability to evolve into complex organizations must either be present and recognizable at lower levels of organization or be added as something new at higher levels. In any case, if concepts of a field are sufficiently basic, then the discipline must be involved at all levels of increased complexity. Nondualists (holists) need a Nietzsche to tell them honestly about the seriousness of the death of dualism.

About God. Unless one understands the mathematical concept of a completion, all kinds of inadequacies of the Omega Point God are generated by the terminology. Many take the word *completion* in a nontechnical sense. Tipler's God is not anemic, although Tipler's actual reference is restricted to God's relationship to histories with intelligent observers. By inference, as the ground of being, his God is actually all consistent potentialities, the Whiteheadian account of the primordial nature of God. The Omega Point exists independently of what it completes and still may be described as

embracing all of world histories and all subsets of world histories. (Topologically, the sphere is a completion—in one sense—of the two-dimensional Euclidean plane. The North Pole is the completion point and all paths in the plane which are unbounded eventually converge to that point. Now the North Pole considered in relation to the plane has definite properties with respect to planar paths. Relative to other geometric objects the North Pole may and does exhibit other relationships.) Furthermore, since Tipler is a Many-Worlder, even in relation to intelligent observers, God is a God for more than hitherto conceived.

CRITIQUE

Theological Insights. To some, that intelligent life should be unique to this planet is improbable, both scientifically and theologically, in the light of the sheer size of the universe. But cosmology establishes that the universe must be vast for there to be any intelligent life. No less generous a universe could accommodate the evolution of intelligent life anywhere. As a replacement for the assumption of intelligent life elsewhere, the Many Worlds (Everett or Many Histories) interpretation of quantum mechanics offers a richness of perspective hitherto unknown. The Many Worlds assumption is winning increasing numbers of converts among the world's most distinguished physicists, including Stephen Hawking, Muray Gell-Mann, Richard Feynmann, and Steven Weinberg; the mathematics of quantum mechanics seems to force such an interpretation. This interpretation is essential to the development of Tipler's Omega Point theory and consistent with his ontology.

Since theology develops in response to heresy, the Many Worlds interpretation should elicit serious theological reaction, though that appears not yet to have occurred. In this scenario, God is the source, support, and goal of existences in many worlds. Tipler states in the eternal life postulate, the basis of his Omega Point theory, that life continues to the end of time. The Omega Point boundary condition for the universal wave function reduces essentially to the statement of that assumption:

The wave function of the universe is that wave function for which all phase paths terminate in a (future) Omega Point, with life continuing into the future forever along every phase path in which it evolves all the way into the Omega Point. (Tipler 1994, 181)

Penrose defines precisely what is meant by the boundary of space-time. World lines are said to end in the same point on this boundary

if they remain in causal contact until the end of time. Barrow and Tipler (1986) show that information processing can continue only in closed universes which end in a single boundary point and only if the information processing is ultimately carried out throughout the entire closed universe. Thus the content of the Omega Point boundary condition is the assumption that life continues into the future forever.

Suppose that this assumption does not obtain. Then present cosmological theory projects a universe without life. What effect would this conclusion have on fundamental trust in reality's meaning? Have theologies adequately faced its implications? If God had transcendent intentions for life, eventually not needing a universe to implement them, then how could the integrity (unity) of reality become an object of trust? Reality *as a whole* would be fragmented into the relevant and the irrelevant. Since nihilism fundamentally denies the oneness (truth, goodness) of reality, a universe eventually devoid of intelligent life would be the strongest argument imaginable for the ultimate truth of nihilism.

Those involved in the science-religion dialogue unanimously reject the concept of a "fiddling" God. Nothing could be more destructive of scientific convictions than belief in a God who intervenes *directly* in human history. Yet religions embrace the concept of God's providential control over human history. Peacocke, for example, offers one proposal for meeting this impasse, viz., God acts in the world through top-down causation: the state of the system as a whole has an influence on the behavior of its component units.

Might we not properly regard the world-as-a-whole as a total system so that its general state can be a "top-down" causative factor in, or constraint upon, what goes on at the myriad levels that comprise it? I suggest that these new perceptions of the way in which causality actually operates in our hierarchically complex world provide a new resource for thinking about how God could interact with that world. (Peacocke 1990, 158)

Tipler mathematicizes Peacocke's top-down concept in his formation of the universal wave function with the result that the Omega Point "providentially" draws all paths containing life to itself without compromising the free development of each historical trajectory. To visualize God's action in the world through the mechanism of top-down causation does not diminish the relevance of either religious experience or revelation. Religious experience is always human experience, and revelation is mediated through human agency. The effect of the future in determining the present ought to be recognizable in history.

The concept of efficacious grace has a history of bitter theological

conflict. Tipler's information-theoretic insight about the consistency of God's omniscience and omnipotence with free will certainly illuminates this controversy. Each event contains information coded only in the event, even though the event is present in the Omega Point. God's Providence thus becomes an ultimate Providence and not an attribution of God's Will in each event. In classical theodicy, evil too often becomes the source of good; hence God becomes (although it is vehemently denied) the source of evil. Experience undeniably points to the existence of senseless evils. Tipler offers an account that does not minimize this negativity. In his model every particular experience in every history is essential; none is superfluous or un consequential; evil comes from nature or man and is overcome by God. Theological models assert this by using inconsistent language. Science contributes insights which enable less confusing and ambiguous formulations.

If religion is to support a trust in the meaningfulness of reality, it must come to grips with death, which (in the absence of resurrection) clearly epitomizes nonmeaning for each individual. Without some new life for each person, meaning could only stand on the corpses of the downtrodden, persecuted, tortured, slaughtered, and mangled masses. The Christian tradition rejects salvation without the possibility of individual salvation for all. Modern theologians (cf. Küng 1978, Schillebeeckx 1991, Pannenberg 1984) define salvation in terms of the experience of *this reality* without its negatives (threats to meaning). What is more is left to God! The model Tipler constructs meets the minimal Christian requirement. But it also allows for the possibility of higher levels of implementation within the Omega Point.

Scientific Insights. Science has always been insecure when talking about the future. Nevertheless, as Tipler points out, the visible universe is only a tiny fraction of reality; the future, therefore, comprises almost all of space and time. Cosmology usually concentrates on the brief period from the Big Bang to the present, although the same theory predicts that the universe is almost certain to continue for another hundred billion years. Thus, if prediction is a serious concern, the future behavior of the universe, and of intelligent life in the universe, constitutes a proper domain for serious cosmological investigation. Since the behavior of the universe is chaotic (unpredictable) on all small scales, intelligent life can manipulate the future only on very large scales. Of course, considerations of this type easily lead to the eternal life postulate, not just for Tipler, but for physicists such as J.B.S. Haldane, J.D. Bernal,

P. A. M. Dirac, and Freeman Dyson as well. A commitment to the use of mathematics to examine these issues is no more or less than a commitment to rationality using the language of relationships. Only a dualistic inheritance would try to remove certain areas from rational scrutiny.

Science, like all knowledge, is revisable. Hence the danger of commitment to specific scientific theory as a mode of explanation makes explanations vulnerable. So what? Great thinkers of the past—Aristotle, Augustine, Maimonides, Thomas, and Teilhard de Chardin among them—have made such commitments. In fact, the commitment of each to the science of his time was a crucial element of their successes. All of the science used corresponded to reality to the extent that it worked. Successful applications cannot be accounted for in any other way. The contingent nature of any explanation assures that it will need to be corrected. Therefore, rather than timidity in the use of science, boldness is called for; Tipler hears the call.

The validity of revolutionary science as science has often been denied. One example may suffice. In awarding the Nobel Prize for physics to Albert Einstein, the Nobel committee emphasized that the award was for his work on the photoelectric effect and not for relativity theory, which they regarded as metaphysics, not physics. The revolutionary quality of Tipler's theories may not be comparable, but the reactions they have provoked are strikingly similar.

Tipler's critics, by claiming that life, love, evil, resurrection, and God are much more than Tipler conceives, seem to require that the model, metaphor, or analogy used to formulate the Omega Point theory be conceptually complete. The question should be, rather, whether the relations Tipler concentrates upon constitute a valid (perhaps partial) clarification of these concepts. After all, information theory is a fairly inclusive framework for examining relationships.

Philosophical Insights. The critical realists' description of what constitutes human knowledge and of how human knowledge is gained, together with their understanding of truth-content, frequently raises questions about their lack of a fully articulated ontology. Many regard critical realism to be a purely methodological analysis. Although Tipler formally eschews critical realism, he nevertheless operates in the critical realist context, and his ontology is fully consistent with critical realist epistemology in identifying "being" and "relationships." He departs from a critical realist position by denying the emergence at higher levels of complex organization of

properties which are not derivable from an examination of the parts. Emergence is, of course, an intellectual device for avoiding ontological reductionism. But, as presented earlier, emergence theory is also a form of dualism. The argument that quantum gravity is nondeterministic provides an alternate escape from the assumed consequences of a reductionist stance. And the ultimate basis for nondeterminism Tipler finds ontologically and logically irremovable, as a result of the Godel incompleteness theorem or its variant is the four-manifold nonclassification theorem.

The principal epistemological component of modern science, which accounts for its success, is the rejection of teleology as a means of explanation (cf. Monod's principle of objectivity, Monod 1971). Some would assert that teleological explanation is characteristic of theological thought and that its presence in Tipler's work furnishes further evidence of his theory's nonscientific quality. This criticism appears superficial. Modern science rejects, not structure explaining teleology, but the reverse, teleology explaining structure. Indeed, purposes and goals arising from structure abound in nature. Omega Point theory maintains that the future influences the present because of the structure of the future. Even more to the point, however, modern theological thought begins with experience, deriving teleological conclusions from the very structure of experience. From this perspective, Tipler, modern science, and theology are epistemologically compatible. A theology from above would be incompatible.

The Omega Point theory embraces the idea of progress to the very end and so, of necessity, shuns both eternal return and heat death. Tipler's arguments for the rejection of eternal return, which are based on general relativity and quantum gravity, convincingly dispel a doctrine Nietzsche recognized as having other dire philosophical consequences. Philosophy itself does an inadequate job of rejecting eternal return and would do well to examine Tipler's argument. Like the belief in eternal return, expectation of the heat death of the universe makes the universe seem pointless. Any plausible argument against either of these ideas reestablishes hope, raises the possibility of progress, and adds to the critically rational basis for believing that reality has meaning.

The possibility of a scientifically and philosophically coherent model for eternal life and resurrection of the body—no matter how outrageous—forces rationalistic opponents of these religious realities into a defensive posture. Precisely the inability of the human imagination to cope experientially with their hope for an afterlife (particularly with the demise of dualism) raises doubts and suspicions

about the actual possibility. It is not just the lack of plausibility of an afterlife but rather the absence of any possible conception of such a life after death which tests faith. Right or wrong, Tipler devises a nondualistic model. No longer can the skeptic throw ashes to the winds to demonstrate the impossibility of replication. Again, whether true or false, plausible or implausible, the existence of any consistent and coherent model is an argument against peremptory dismissal of the hope religion offers for life after death.

In judging the model of resurrection outlined in the Omega Point theory one must refrain from imposing ontological categories other than Tipler's own. One ought only ask if the resurrection and eternal life described in this work are appropriate to the identity of "being" and "relationships." Perhaps what Tipler offers will not satisfy human existential insecurity, but this failure probably originates within a framework of understanding that does not coincide with Tipler's reality. Does the Omega Point theory address Tipler's existential angst as scientist and searcher for belief? Could reality be the reality of this cosmologist? And what would be lost if it were? If postmodern science is to be taken seriously, theology and philosophy can no longer view science with a purely positivistic interpretation, going about their business as if science were irrelevant in its deepest implications. Failure to take science seriously in the past has resulted in progressive philosophical and theological retreat.

The Physics of Immortality addresses many issues, but ethics is mostly neglected. By implication ethics serves humans, not God. Fact and value are joined. This will not worry anyone who regards ethics as based in an understanding of what it means to be human and who is motivated by the practical response of acting to eliminate non-meaning from reality. Inability to theoretize meaning is answered in practice. Those who, rightly or wrongly, see ethics rooted in religion will have more difficulty.

CRITIQUE OF THE CRITIQUE

Perhaps readers' skeptical reactions to Tipler's reduction of faith to reason (or theology to science) are somewhat justified. Belief always precedes knowledge! Why should one trust that reason is reasonable without first deciding to trust in a meaningful reality? Tipler's basic decision to trust that reality has the potential for meaning permeates and motivates the entire treatise, but what he conveys to the reader is closer to a naive realism with respect to postmodern science and the attitude that only scientific knowledge deserves any allegiance at all.

In two senses, he is right. Knowledge when reduced is susceptible

to more intense criticism and more accurate formulation. If comparisons between two fields of inquiry are not possible because of noncomparable terminology, coherence and consistency become questionable and harder to ascertain. Also, if the ultimate objective of all knowledge is a unified meaning, which goal assumes the integrity of reality, then every field of inquiry is relevant to every other. Hence, for theology to ignore physics or physics to ignore theology limits both searches for meaning (see Pannenberg 1981). What could be more relevant to theology than the insights offered by the most fundamental (furthest reduced) understanding of reality?

In other ways Tipler is wrong, particularly in his failure to recognize that all knowledge is partial and incomplete. To assume that the relationships important to physics, although fundamental, are sufficient to describe all more complex relationships requires too much faith in their completeness and a lot more rational justification. On the other hand, to uncover the implications of these relationships in all other relationships is a *sine qua non* of any inquiry. Basing his argument purely and simply on the Bekenstein bound—a linchpin of the Omega Point theory—Tipler appreciates human inability to know things under their most reduced aspects; nonetheless, he takes the attitude that what can be said most clearly can be said in this way.

Tipler's attitude toward fundamental science causes him to overextend the Omega Point model by trying to subsume too much within its explanatory framework. In one respect all cosmological models are global, and global models affect local detail, but not all local details submit to global analysis. Tipler would say some information is coded only in the local, even though the global contains the local situation. At many points, Tipler needs to claim that theological understandings are *at least* what his model purports but that these understandings may certainly contain *more* than any one model could uncover. Tipler might be forgiven his hubris in view of the claims of some theologians to understand the meaning of reality. Neither scientists nor theologians have cornered the market on bigotry.

Tipler's quasi-naive realism with respect to science matches his tendency toward a quasi-fundamentalist approach to theology. Modern theologians (e.g., Schillebeeckx 1991) caution that Christian identity can be preserved only by reinterpretation of the tradition within the sociohistorical and existential context of a particular time. Static interpretations tend to lose the meaning of the Christian tradition for the present. Nevertheless, Tipler repeatedly compares postmodern scientific insights with medieval theological interpretations. The definitiveness and lack of nuance of older formulations

without a doubt makes modeling easier, but also unfortunately makes it less authentic.

Faith cannot live only by way of experience. Faith is never consummated in a pure fullness of experience. It also contains reflection put into words, the formation of concept and interpretation, the beginnings of which are given along with the experience itself. Experiences must also be assimilated rationally; this is also part of the nature of experiences of men and women. Thus ultimately experiences of faith develop into propositions of faith, statements in which, for example, the Christian tradition of experience is to some degree formulated. Religious experiences are translated into the language of faith, into statements of faith, and now and then even into dogmas; they are ultimately also thematized in well-ordered theological laws—in a constantly diminishing certainty of faith and increasing human risk. (Schillebeeckx 1991, 27)

Tipler's Omega Point theory can hardly escape this "increasing human risk." The basic nature of his thematization becomes apparent in his attempt to apply it to the Jewish, Christian, and Islamic traditions with equal force. What is common must be elemental and unnuanced. But this feature is exactly what supports the value of his enterprise.

CONCLUSION

Scholars generally acknowledge the seminal contribution of Pierre Teilhard de Chardin to the integration of scientific and religious thought. *The Phenomenon of Man* (Teilhard de Chardin 1975)—mystical enough to comfort theologians, rational enough to intrigue scientists—remains a model against which future efforts must be evaluated. In fact, it would be difficult to imagine any successful integration of science and religion departing significantly from the Teilhardian scheme.

A paleontologist in the first half of the twentieth century, without intellectual access to the subsequent, global results of modern cosmology, Teilhard de Chardin based his insights on the theory of evolution and the Christian tradition of his Jesuit priesthood. Scientists find fault with his concept of radial energy because of its vitalist implications and with his presentation of evolution because of its directedness. But evolution does grope toward greater complexity, and radial energy can be interpreted by Tipler's universal wave function. In any case, positive reception given Teilhard de Chardin by theologians and scientists alike raises some questions about the dominant responses to *The Physics of Immortality*: scientific dismissal and theological outrage.

Tipler, whether he likes it or not, is firmly in the Teilhardian tradition; the reaction his work evokes, however, is not. Could the reason

be that Tipler's emphasis is different, more scientific and less theological (mystical)? Scientists can turn away, but theologians are threatened. Thus evidence continues to mount that mere dialogue between science and religion will not suffice. If theology is an attempt to give intelligibility to human history described in religious terms, then the scientific enterprise cannot be separate. Reality is one! Reality is integrated! What can be known of God is known through the mediation of this universe, and the task of searching for that meaning of which God is the source, support, and goal is the ultimate task of every rational inquiry.

In an earlier guest editorial in *Zygon* (Birtel 1993), I isolated four issues fundamental to the possibility of integrating science and religion: epistemological assumptions, the necessity for progress, the use of a structural teleology, and central concern for the eschatological insight of religion in preference to the ethical. Each of these areas is addressed, whether effectively or not, in Tipler's Omega Point theory. There are numerous writings promoting dialogue between science and religion, but these all fail to address the fundamental, underlying basis of the conflict and so do not move toward integration. *The Physics of Immortality* is the best attempt yet offered to integrate science and religion.

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