CREATION AND THE SYMBIOSIS OF SCIENCE AND JUDAISM

by Norbert M. Samuelson

Abstract. It seems to me that the critical questions that science and natural philosophy raise for Jewish theology are the following: Does God evolve? Does the universe have or even need an interpretation, specifically with reference to the fact that most of the universe most of the time is uninhabitable, and there may be many more than one universe? Does the universe need a beginning? What is distinctive about human consciousness, intelligence, and ethics in the light of evidence for evolution from all of the life sciences? Finally, will both life and the universe end?

These questions are not only modern. They contain all the primary issues that have dominated rabbinic thought. That agenda can be summarized in six topics: How should we model what we believe about (1) God, (2) the world, and (3) the human being; and how should we understand the relations between them, that is, between (4) God and the world (or, creation), (5) God and the human (or, revelation), and (6) the human and the world (or, redemption)? In this paper I focus on the fourth issue, creation. My answer is presented in detail in my *Judaism and the Doctrine of Creation* (Samuelson 1994). Here I shall summarize my conclusions there concerning science, Jewish texts, and the correlation between them.

Keywords: asymptote; creation; René Descartes; ethics; Genesis; good; Hebrew Scriptures; inflationary universe; Jewish philosophy; Emmanuel Levinas; Moses Maimonides; motion; nothing; ontology; *or* (light); quantum mechanics; rabbinic authorities; redemption; science; singularity; space; thing; time; *tohu* and *bohu*; universe; John Wheeler; will of God.

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What Modern Science Affirms

My summary of what modern science has to say about the origin and general nature of the universe focuses around four topics: (1) the nature of the origin of the universe in relation to time, (2) the role of space in the story of creation, (3) the relation of the physical universe that creation produces to other possible universes, and (4) the relationship between the domains of science and ethics from a religious perspective. Each of these aspects of creation bears directly on how we should interpret specific texts in the Genesis narrative. These are, respectively, that (1) "in the beginning" God created (2) "out of nothing" (3) "heaven and earth," and (4) "it was good."

In the Beginning. Is the beginning of the universe an event in time? There are different ways to answer this question depending on what is meant by "time." The minimal answer is mathematical. Time is one of the dimensions in geometric space that corresponds to one of the variables in equations that describe motion in the physical universe. Assuming that the equations say something about reality, time is necessarily interconnected with, and in principle no different than, any other dimension in which the inhabitants are located, be the dimensions four or twenty-six. However, there does seem to be one important difference between time and any other dimension: everything in it seems to move in only one direction. Yet, our current common sense need not be true. There is at least one interpretation of quantum mechanics, that of John Wheeler, which claims that past and future are only directions beyond the horizon of an experienced present. Both are nothing except a limit on a process of life lived in the now. As such, both are the beginning and the end of absolutely everything, and they are something ideal rather than actual.

Out of Nothing. In what sense does modern physical cosmology claim that the universe was created out of nothing? There are different ways to answer this question as well, depending on what is meant by "nothing." If it is what is not a thing, again there are different answers, depending on what is meant by a *thing*. If things are material entities that have mass, photons are not things. If the term *thing* encompasses only particles, the pure energy that existed at the origin of our universe is not a thing. In both of these senses it follows that the world was created out of nothing.

It is interesting to note that the affirmation of creation out of nothing in modern scientific theory is in fact more radical than is found in classical Jewish thought. Some contemporary cosmologists affirm that beyond the horizon of the present expanding universe there is in fact nothing, not even space. Furthermore, many contemporary cosmologists will speak of the original so-called singularity from which our universe arose as something actual (i.e., something not just ideal) that was at a first moment in

the past a real nothing—something that occupied zero space and had infinite temperature and density.

Heaven and Earth. Is our universe the only universe? Again, there are different ways to answer this question, depending on what is meant by *universe*. If we mean "everything there is," then there is only one. This is not the only way, however, that this term is used. Sometimes it functions as a synonym for a domain. In this sense a universe is everything subject to the same set of rules. It is in this more restricted use of *universe* that the question becomes interesting, for, with reference to contemporary astrophysics, the different versions of what are now called collectively "inflationary universe models" all claim that our universe is only one among many.

It Was Good. What does modern science say about the relationship between scientific claims about truth and ethical claims about value? It is with respect to this question that there is a radical disparity between modern physics and rabbinic texts. The claim of modern physics is in fact stronger than the often-expressed statement that modern science is morally neutral. The truth is that modern science takes a definite stand on morality—that knowledge is morally neutral. As we shall see, all of the rabbinic sources considered assert that in some sense the universe is good and that understanding this judgment is an essential part of understanding the universe.

What the Rabbinic Authorities Affirm

Beyond the real differences in what various Jewish texts state about creation lies a surprising amount of consensus. The consensus may be summarized as follows: The present universe is to be pictured primarily as a set of interdependent processes that arise from an origin and are directed toward an end. In religious language, the end is called redemption and the origin is called creation. These processes are asymptotic in both directions. No matter how far we look into the future, the end will never be reached; at best it can only be approximated. Similarly, no matter how far we look into the past, the origin can never be discovered; it can only be approximated. As such, both extremes are not themselves part of the actual processes of the universe. They are ideals that define actual experienced directions. While the processes themselves are in space and time, their two terminal points are not. Consequently, both creation and redemption are atemporal.

The ultimate principles that the models of creation and redemption provide for understanding the present dynamic universe are God and space. God functions primarily to establish the ends toward which the universe moves. In this sense, creation teaches the identity of morality with the will

of God and asserts that the universe is moral. That is not to say that it is good. It says the opposite. What "is" is always to be understood as a movement toward an end. It is the end that is good. Because the universe is never at the end, the reality of God entails that whatever is only is to be made better. In this way, God functions on the model of creation as the teleological principle of everything. Conversely, space functions primarily to establish the chance-necessary-mechanical-mathematical causes from which the universe arose. On this view, space has ontological priority over every other candidate for existence. At first there is universally uniform space. Then space is differentiated by an act of divine will. Out of this space erupt events. Concrete substantive objects are the least primary of all candidates for existence. Objects exist only within dynamic events that define them, and the events themselves receive their nature from their spatial domains.

As space is prior to events, which are prior to objects—that is, as the nonsubstantive is prior to the substantive—so the indefinite is prior to the definite. What "is" at first is not definitely anything. It is simply undifferentiated space. What at first occurs through time is that this real vagueness becomes increasingly clear. Being clear is not something true of the experienced universe. Rather, it is a moral ideal toward which the space of the universe, and every process that it generates, tends but which it does not achieve. Similarly, as the indefinite is prior to the definite, so the negative is prior to the positive.

The universe and everything in it is not yet something. Rather, it is to be understood as a movement from what was absolutely nothing toward what will be absolutely something—from an infinitely remote endless quantity of total nothings toward an ideal single total something. Again, whereas the principle of the end is an ideal, thoroughly positive, thoroughly moral, thoroughly volitional God, the principle of the origin is a primordial, thoroughly negative, thoroughly amoral, thoroughly necessary space.

What these two models—God and space, redemption and creation—generate is a general picture of a universe that is dynamic more than static, infinite more than finite, moral more than amoral, and negative more than positive. Every individual thing and person has meaning only in the context of its participation in continually changing events in time and space. Taken in themselves, they are nothings that arose from nothing trying to become something in response to the (known or unknown) will of God. This is what emerges as the meaning of what Genesis entails when it says that at first space became something (on days one to three), then space produced objects that strive to become something (on days four to six), where the something that moves them is the end of sabbath rest (day seven).

Furthermore, this world is not unique. There were worlds before ours, and there will be worlds after ours. Our world arises out of the end of what came before. This is what Genesis calls *tohu* and *bohu*. That past end

is the space of our present origin, and our world contains within it the seeds of the world that will come after ours. For example, the initial *or* (light) and the upper regions of the waters created at the beginning of our world are intended solely to function in the next world. *Or* and the upper waters relate our world to the world to come as *tohu* and *bohu* relate the universe that was to our universe. All of this says that there can be no perfection (no divinity, if you will) in the lived world. Our world is neither good nor divine. Rather, it is the space that defines the constant struggle to attain the unattainable—God and the good. The universe in principle is neither good nor divine; its sole (moral and religious) worth is that it allows movement toward worth—moral value in politics (familial, national, and global) and religious value in worship.

Conclusions: On the Relationship between Science and Judaism

Any account by Jewish philosophers of what it should mean to affirm, contrary to contemporary physics, that the world is good will contain at least the following features: Values are not subjective; they are built into the created nature of the universe itself. However, those values are not necessarily the same as saying that human beings are and/or do good and evil. The sense in which the universe is good is radically different from any sense of this moral term as it functions in any current version of the problem of theodicy. The "good" spoken of here is a good appropriate to the mind of a deity whose laws will turn our sun into a red giant, at which point all that remains of inorganic substance and organic life (including human beings) will evaporate. It is also a "good" appropriate to a mind whose laws of thermodynamics make no distinction between human saints and sinners.

As long as we limit our focus on cosmology and cosmogony, Jewish philosophy, both classical and modern, will say that the value of the present universe is expressible through sets of equations whose infinitely remote origin and end is expressed by a limit, and that limit, in both cases, is God. The "good" of the world is a divine good, and a divine good (as Maimonides emphasized) need not be (and probably is not) a human good. It must be remembered, however, that God is not just the creator but also the revealer of the Torah and the redeemer of the world. It is from the perspective of revelation, not creation, that questions of human moral value begin to arise. Revelation is the source of the imperatives of the Torah that function as norms for Jewish life. Science may have something to contribute here as well, but the relevant sciences are not the physical ones.

The dominant tendency in contemporary Jewish philosophy has been to locate ethics within the domain of interpersonal relations. If the approach of Emmanuel Levinas is right, any philosophy that begins with the

isolated individual (be it a mind or a body) cannot succeed in grounding ethics in philosophy. This judgment entails that most of Western natural philosophy (at least since Descartes) is not capable of providing a rational account of ethics.

This comparative study of creation suggests a different picture of reality, one in which space is determinate and objects indeterminate, both exist in relationship as events of this world, and events are best understood as motions that are more determinate than their objects but less determinate than their space. In fact, all that is definite about them is where they came from (the nothing of undifferentiated space) and where they are going (to the total something of a self-fulfilled God). From this perspective everything has moral value—objects are judged in the context of their activities, which in turn are judged either negatively as regressions in the direction of their origin (creation) or as progress toward their end (redemption). Ontology ultimately is to be understood in terms of ethics. The ought determines the character of the is, and not the other way around.

The most obvious expression in the Torah of this moral analysis is the verse "You shall be holy because I the LORD your God am holy" (Leviticus 10:2 and 20:26 are the primary references. Also relevant is Leviticus 11:44–45). The critical point is that right moral behavior cannot be determined solely from empirical nature, because the concept of creation teaches us not that the world is good but that the world ought to become good. To learn what is good, we must turn to face our neighbors (that is, those who are nearest to us) in lived life, to our God in prayer and meditation, and to our sacred texts in intellectual study. All of these ways may guide our search toward the asymptotic ideals of the beautiful, the good, and the true, who are in the end the divine unity of which our prayer book speaks. The texts point from the Creator and creation of physics, through the Revealer and revelation of human relationships, to the Redeemer and redemption in the ideal end of the world.

REFERENCES

Descartes, René. 1978. *Philosophical Works of Descartes*. Cambridge: Cambridge Univ. Press.

Fox, Everett. 1995. *The Five Books of Moses: Genesis, Exodus, Leviticus, Numbers and Deuteronomy. The Schocken Bible: Vol. I. A New Translation with Introductions, Commentary, and Notes*. New York: Schocken.

Levinas, Emmanuel. 1985. *Ethics and Infinity*. Trans. Richard A. Cohen. Pittsburgh, Pa.: Duquesne Univ. Press.

Maimonides, Moses. 1963. *The Guide of the Perplexed*. Shlomo Pines English translation. Chicago: Univ. of Chicago Press.

Samuelson, Norbert M. 1994. *Judaism and the Doctrine of Creation*. Cambridge: Cambridge Univ. Press.