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CREATION AND TEMPORALITY IN MEDIEVAL JEWISH PHILOSOPHY

T. M. Rudavsky

Of the many philosophical perplexities facing medieval Jewish thinkers, perhaps none has been as challenging or as divisive as determining whether the universe is created or eternal. Not unlike contemporary cosmologists who worry about the first instant of creation of the universe, or Christian scholastics who attempted to define the nature of an instant, so too medieval Jewish thinkers were aware of the philosophical complexities surrounding the issues of creation and time. Jews were immensely affected by Scripture and in particular by the creation account found in *Genesis* I-II. In the context of this tension, perhaps the most important word of Scripture is *b'reishit*, "in the beginning." The very term *b'reishit* designates the fact that there was a beginning, i.e., temporality has been introduced if only in the weakest sense that this creative act occupies a period of time. In this paper I shall focus my study upon Jewish philosophical attempts to clarify what is entailed by postulating a first instant of creation. I shall begin with early Rabbinical commentaries upon *Genesis*, and then turn to three paradigmatic medieval Jewish thinkers who, influenced by these Rabbinical texts, represent the range of positions taken with respect to this issue.

I. Introduction

Of the many philosophical perplexities facing medieval Jewish thinkers, perhaps none has been as challenging or as divisive as determining whether the universe is created or eternal. Not unlike contemporary cosmologists who worry about the first instant of creation of the universe, or Christian scholastics who attempted to define the nature of an instant, so too medieval Jewish thinkers were aware of the philosophical complexities surrounding the issues of creation and time. No Jewish philosopher denied the centrality of the doctrine of creation to Jewish dogma. Jews were immensely affected by Scripture and in particular by the creation account found in *Genesis* I-II. But like their Christian and Moslem peers, Jewish thinkers did not always agree upon what qualifies as an acceptable model of creation. In particular, medieval Jewish philosophers writing on creation were influenced by Aristotle's model of an eternally existing world. When trying to prove that the world was created by God in time, philosophers who wanted to support a biblical theory of creation in time had to reject Aristotle's position that time is infinite. For if, as Aristotle claimed, time is the measure of motion, and motion is of material stuff,



then infinite time implies the eternity of the universe. But inasmuch as accepting the eternity of the universe qualifies the role God plays in determining the act and materials of creation, Jewish thinkers were motivated to reject the Aristotelian characterization of time while at the same time continuing to accept his overall philosophical authority.

In the context of this tension, perhaps the most important word of Scripture is *b'reishit*, "in the beginning". The very term *b'reishit* designates the fact that there was a beginning, i.e. temporality has been introduced if only in the weakest sense that this creative act occupies a period of time.¹ In this paper I shall focus my study upon Jewish philosophical attempts to clarify what is entailed by postulating a first instant of creation. I shall begin with early Rabbinical commentaries upon *Genesis*, and then turn to three paradigmatic medieval Jewish thinkers who, influenced by these Rabbinical texts, represent the range of positions taken with respect to this issue.

II. Rabbinical Reflections upon Creation

Not surprisingly, early Rabbinical texts evince earnest grappling with the scriptural account of creation. Rabbinical sayings find their way into the philosophical corpus early on. Although the Rabbis were not technically philosophers, they nevertheless raised many questions which were incorporated into philosophical discussions.² One question addressed by the earliest commentators was whether the universe was created *ex nihilo* or out of a pre-existent reality. That the first statement in *Genesis* could be read to support a theory of pre-existent formless matter was recognized early on by the Rabbis.³ According to one Rabbinical dictum the word *b'reishit* refers to the fact that before the actual creation there pre-existed a number of things. Numerous Rabbinical texts suggest that the presently existing world came into being after a series of worlds that had been created and destroyed:⁴

1.1 Seven things were created before the world, viz. the Torah, repentance, the Garden of Eden, Gehenna, the Throne of Glory, the Temple, and the name of the Messiah.⁵

1.2 Six things came before the creation of the world, some created, some at least considered as candidates for creation...⁶

1.3 He has come to receive the Torah, answered He to them. Said they to Him: 'That secret treasure, which has been hidden by Thee for nine hundred and seventy-four generations before the world was created.'⁷

1.4 It is taught: R. Simeon the Pious said: These are the nine hundred and seventy four generations who pressed themselves forward to be created before the world was created, but were not created.⁸

The Rabbis clearly had no religious compunctions against suggesting that our world did not represent the first creative effort on the part of God; rather, they emphasized that entire worlds or generations pre-existed the creation of the universe. This interpretation would explain the emptiness and void (*tohu va-vohu*) which appeared to exist already when God initiated its original creative act. Rashi, for example, along with many other Rabbis, interpreted the first two sentences of *Genesis* as meaning that “when God created the heavens and earth, the earth was (already) empty and void (*tohu va-vohu*), and darkness (*hoshekh*) was upon the face of the deep.”⁹ The explicit implication of this reading is that God created the universe out of a pre-existing *tohu, vohu* and *hoshekh*. This pre-existent stuff was the result of at least one prior world.

With the postulation of pre-existent materials of creation, these texts therefore raise the difficult and tantalizing question of whether time itself pre-existed creation. In the following passage, it is suggested that time could have existed before the existence of the universe: “Said R. Tanhuma, ‘The world was created at the proper time. The world was not ready to be created prior to this time.’”¹⁰ One way to understand the phrase “prior to this time” is to posit the eternity of time. That is, introducing a temporal indicator to talk about the time when the world was created itself suggests that time antedated creation. But other Rabbis claim that time was created: “Rab Judah further said that Rab said: ‘Ten things were created the first day, and they are as follows: heaven and earth, Tohu, Bohu, light and darkness, wind and water, the measure of day and the measure of night.’”¹¹ Inasmuch as light and darkness, and the measure of day and night represent temporal markers, they come to represent, on the basis of this passage, the creation of time.

The similarity of these passages to Plato’s *Timaeus* is striking and did not go unnoticed by later Jewish thinkers. In fact, as we shall see, medieval Jewish philosophers were able to capitalize upon these similarities in order to emphasize the harmonization of Scripture and Greek philosophy. Like the Rabbis, Plato too worried whether the existence of the universe at a time implied the creation of time itself. Within the panoply of ancient Greek cosmologists, Plato is the first to identify time with the movement of the heavens. In his cosmological text the *Timaeus* Plato defines time as “an eternal likeness moving according to number — that to which we have given the name Time.”¹² This everlasting likeness is of the Living Being which is itself eternal. To this Living Being Plato attributes the domain of “is”, while “was” and “shall be” are “forms of Time that have come to be.”¹³ With respect to the thorny question of whether time was created along with the heavens or whether it pre-existed creation, Plato offers multiple responses, which have led scholars to postulate multiple interpretations of the text.¹⁴ For example in 38B Plato clearly suggests that time has come into being with the heavens. Other passages, however, suggest that time already existed prior to the creation of the heavens, giving rise to the notion of a primordial disorderly time. It is not clear, therefore, whether Plato ultimately adhered to one or two types of time. What is clear, though, is that created time measures the circular motion of the heavenly spheres. The sun, moon, and planets were “made to define and preserve

the numbers of Time."¹⁵ The periods of time — the day, month and year — are the basic units of measurement which cannot exist without the motions of the celestial bodies, the heavenly clock as it were. Neither time nor the celestial bodies can exist without the other.

What we have then is a striking confluence of themes in both the *Timaeus* and in *Genesis*. Both texts postulate the existence of a creator. Both impute to this creator the urge to create, the willful choosing to bring the universe into existence. Both recognize the importance of temporality in this creation process: the scriptural author(s) by focusing on the importance of the term "day" (*yom*) in the creation account, and Plato by introducing time as the ontological divide between the superlunar and sublunar spheres. And finally, both accounts allow for the possibility of creation occurring out of a "pre-existent matter," a chaotic, formless stuff upon which order is imposed.¹⁶ These similarities will play a crucial role in subsequent Jewish discussions of creation, for they allow thinkers such as Albo, and possibly even Maimonides, to reconcile a scriptural account of creation with a philosophically minded account without undermining their religious presuppositions.

III. *The First Instant of Creation*

We see, then, that the early Rabbis were aware of many issues surrounding creation, including the creation or eternity of time itself. These issues are reiterated throughout Jewish medieval philosophical literature. In part because of the introduction of Greek and Arabic texts, medieval works reveal a marked increase in interest in cosmology in general. Scholars have been careful to distinguish philosophical cosmology, which includes discussion of creation, from astronomy. Comprised primarily of natural philosophers and physicists, cosmologists followed Aristotle rather than Ptolemy in their quest to offer a theory of the universe as an ordered whole.¹⁷ The formative classical texts included Aristotle's *De Caelo*, supplemented by relevant passages from the *Metaphysics*, *Physics* and *De Generatione et Corruptione*. Both Plato's *Timaeus* as well as commentaries upon *Genesis* presented an additional dimension to this corpus.

Jewish texts in the early ninth - twelfth centuries reflect a strong Neoplatonic influence. In addition, the Islamic school known as *Kalam* permeated Jewish philosophical writing. By the time of Maimonides in the twelfth century, Jewish philosophers have to a large extent adopted an Aristotelian framework according to which reality is a continuous plenum in which time and matter are infinitely divisible. More specifically, Aristotle posits an eternal universe in which time is potentially, if not actually, infinite; neither time nor the universe was created. Jewish philosophers, however, who almost without exception are committed to the belief that God created the universe, must grapple with the implications of Aristotle's eternity thesis with respect to Scriptural theories of creation. For example, in light of the first verses of *Genesis*, they must determine whether this universe was created simultaneous with or subsequent to the creation of time. Furthermore, they must analyze the significance of the term *b'reishit* in the context of an Aristotelian theory of time. The writings of

Saadia Gaon, Maimonides and Joseph Albo, to which we now turn, attest to this tension.

Writing in tenth century Egypt (882-942), Saadia Gaon incorporated Kalam influences into his major philosophical work *Emunot ve-Deot* (*The Book of Doctrines and Beliefs*).¹⁸ The ostensible purpose of this work is to show that the truths of scientific inquiry can be reconciled with the tradition of Torah; to this end he examines a series of philosophical conundra, many of which are drawn from *Kalam* writings. In the chapter on creation Saadia presents eight arguments for the creation of the world which can be divided into two groups of four arguments each: the first group proves that the world must be finite (i.e. not eternal), and the second group that the world was created *ex nihilo* and not out of a pre-existent matter.

Although Saadia does not mention John Philoponus by name, it is clear that he draws from John Philoponus' argument that the infinite cannot be traversed.¹⁹ John Philoponus' major work *Contra Aristotelem* has been lost and survives only in quotations from Simplicius' commentaries on Aristotle's *De Caelo* and *Physics*.²⁰ In this work, Philoponus hopes to demonstrate the creation of the world by arguing that Aristotle's assumption of eternal motion leads to impossible implications. Philoponus' works were known to Arabic philosophers, and were transmitted by the Kalam school, through Saadia Gaon, to eleventh and twelfth century Jewish and Christian philosophers.²¹ For this reason his arguments are of crucial importance to later medieval attempts to refute Aristotle's arguments for the eternity of the universe.

In his arguments, Philoponus takes Aristotle's definition of the infinite (which Aristotle used to prove eternity) and turns it against itself, showing that in fact it precludes eternity. The three specific arguments offered by Philoponus can be summarized briefly as follows:

- 2.1. If the universe were eternal, the generation of any object in the sublunar universe would be preceded by an infinite series of generation. But an infinite cannot be traversed, and so no objects would be generated.
- 2.2. The eternity of the universe would imply an infinite number of past motions that is continually being increased. But an infinite cannot be added to.
- 2.3. The numbers of the revolutions of the heavenly bodies are multiples of one another and thus eternity would imply infinite numbers of past motions in varying multiplicities. But infinite numbers cannot be multiplied.²²

In *Contra Aristotelem* Philoponus presents two sets of arguments in support of creation, both of which are directed against Aristotle's eternity thesis. According to Simplicius he assumes as axiomatic that "it is impossible for an infinite number to exist in actuality or for anyone to traverse the infinite in counting and that it is also impossible that anything should be greater than the infinite, or that the infinite should be increased."²³ From this axiom he argues as follows. Imagine an infinite series of transforma-

tions which has taken place among the four elements. In an eternal world, these transformations would constitute an infinite series. But, using Aristotle's characterization of infinity, it is clear that an infinite number cannot exist actually or be traversed. So in an eternal world, the infinite series of transformations could never be completed and the particle now known to exist could never in fact have come into existence. "If then, the motion of the particular fire came to be, an infinite number of motions surely did not exist first."²⁴ Further, imagine that the scenario were expanded to the spheres. If the motion of the heavens is without a beginning, and if spheres revolve at unequal periods of revolution, then it is necessary that the sphere of Saturn has rotated with an infinite number of revolutions; but on this celestial model the sphere of Jupiter must have rotated with nearly three times more revolutions, the sun with thirty times more revolutions than Saturn, and that of the fixed stars more than ten thousand times greater. But, Philoponus, argues, "if it is not <even> possible to traverse the infinite once, is it not beyond all absurdity to assume ten thousand times the infinite, or rather the infinite an infinite number of times?"²⁵ Hence he concludes that the circular motion of the heavens is not eternal but must have had a beginning.

Now whether Philoponus' insights can be upheld as philosophically cogent in light of modern understandings of infinity (not to speak of heliocentrism itself) is doubtful. As Sorabji has argued, Philoponus has not demonstrably shown that the universe must have had a beginning. In fact, it is unlikely that this thesis can ever be supported with the absolute certainty required by Aristotelian demonstration.²⁶ But I agree with Sorabji that the importance of Philoponus' arguments lie in their providing medieval Jewish and Christian philosophers with the ammunition they so desperately needed to refute the eternity thesis.²⁷ It is precisely this ammunition which Saadia utilizes in his support of creation *ex nihilo*.

Saadia Gaon's fourth proof of creation "from time" draws upon John Philoponus' first proof of creation and is based on Philoponus' premise (2.1) that no infinite can be traversed. The argument proceeds as follows:

3.1 We know that time is threefold: past, present, and future.

3.2 Although the present is shorter than any instant, let us take the instant as one takes a point.

3.3 By (2.1) above, we know that it is not possible to traverse the infinite.

3.4 If we assume that time is infinite, it is "impossible for thought to penetrate to the furthest point of that which is infinite."

3.5 Hence if an individual should try in his thought to ascend from that present point in time to the "uppermost points", it would be impossible for him to do so.

3.6 On the same reasoning it is impossible that the process of genera-

tion should traverse an infinite period down to the lowest point so as ultimately to reach us.

3.7 But if the process of generation did not reach us, we would not be generated, and the beings now existent would not be existent.

3.8 However I find myself existent.

3.9 I therefore know that the process of generation has traversed time until it has reached me.

3.10 We therefore conclude that time must be finite.²⁸

Having argued that (3.9)—proof of the traversal of past time—supports his postulating the finitude of time, Saadiah then applies the argument to the traversal of future time as well. But he fully recognizes that (3.3) need further examination. It is in the context of supporting (3.3) that Saadiah raises a possible objection to the argument. Saadiah attributes to an anonymous heretic a variation of Zeno's celebrated paradoxes of motion:²⁹

3.11 The following objection has been made by "a certain heretic in conversation with one of the Believers in the Unity of God."

3.12 We know that any distance which an individual walks can be "divided into an infinite number of parts."

3.13 But we also know that an individual can in fact cover the distance between these two points.

3.14 Therefore it is possible to traverse an infinite distance.³⁰

In Saadiah's statement of Zeno's paradox, the heretic claims that inasmuch as any distance is infinitely divisible, the fact that a person can travel from one point to another demonstrates that the infinite can be traversed. In other words, (3.14) contravenes (2.1) and hence (3.3) must be rejected. How, then, can Saadiah account for (3.14), traversing an infinite distance, without abandoning his argument for the finitude of time? Aristotle's original solution was that the individual has an infinite amount of time in which to traverse the infinitely divisible distance in question. Saadiah, however, is more interested in *Kalam* solutions to the problem according to which one might apply the notion of the leap, or atomism. The *Kalam* philosopher al-Nazzam, for example, introduced the notion of the leap as a response to Zeno.³¹ Believing in infinite divisibility, but eschewing atomism, he adopted the idea of infinitely divisible leaps in order to explain how we can traverse an infinity of sub-distances. On this theory any journey involves a finite number of variably short leaps.³²

Rejecting this *Kalam* theory as untenable, Saadiah proposes his own solution which is a reflection of Aristotle's distinction between actual and

potential infinity. According to Aristotle, Zeno had confused two senses of indivisibility: a complete divided state as opposed to the process itself of dividing. The first Aristotle terms actual infinity, and the latter he terms potential infinity. Aristotle then argues that a solution to Zeno's paradoxes relies upon this latter sense of infinity: because infinite divisibility is a continuing process, the potency in question is thus actualized whenever the process is in effect.³³ This distinction between actual and potential infinity, mediated through the works of John Philoponus, is reflected in Saadiah's discussion.³⁴ Saadiah argues that Zeno's paradox is sophistical in that it fails to note that "the infinite divisibility of a thing is only a matter of imagination (*mahshavah*), but not a matter of reality (*po'al*)."³⁵ If, Saadiah argues, the infinite traversal had occurred in the past in the imagination alone, the paradox would be valid. But since the process of generation has traversed real time and reached us, (3.12) "cannot invalidate our proof, because infinite divisibility exists only in the imagination."³⁶ In answer to this paradox, then, Saadiah distinguishes between actual and potential traversal. Traversing a finite spatial distance is not the same as traversing infinity, because in this case there *is* no actual infinity, but only an infinitely divisible finite distance. That is, reminiscent of Aristotle's distinction, Saadiah's point is that the infinite exists potentially and not actually.

Aristotle had shown that a spatial magnitude is potentially infinite by division, meaning that it can be divided infinitely not in actuality but in potentiality; so too are number and time potentially infinite by addition, meaning that units of number and time can be infinitely added to a numerical or temporal sequence, not in actuality but in potentiality. For Aristotle this category of potential existence, as expressed by potential infinity (either by way of addition or division), is critical to his positing the eternity of the universe.³⁷ Saadiah accepts the Aristotelian idea of a potentially infinite divisibility but minimizes its significance.³⁸ The key to John Philoponus' argument was that the infinite cannot be traversed and the same is true in Saadiah's argument. But as Davidson points out, Philoponus and Saadiah differ on one important point. Philoponus was determined to provide a beginning instant not only for the sublunar realm but for the celestial domain as well; his denial of an infinite series of transformations on the sublunar realm had to apply equally to the celestial realm in which transformations do not occur. Saadiah, on the other hand, did not distinguish so sharply between the sublunar and celestial domains and so was able to concentrate upon a simpler consideration of traversal of a temporal series.³⁹ For Philoponus, therefore, the infinite refers to an infinite series of discrete units, whereas the infinite for Saadiah is construed as an infinite time continuum which is not reducible to discrete parts. This move simplifies the argument considerably for Saadiah.

But did Saadiah even recognize the difference between an infinite series and infinite continuum? Evidently not, for otherwise he would not have moved so seamlessly between time and space. As Davidson points out, Saadiah's response to this paradox is that the objection misleadingly adduces the traversing not of an 'actually' existing infinite, but of an infinite existing solely in 'imagination', whereas the actual proof relies on the fact that an actual infinite cannot be traversed.⁴⁰ That is, the objection

views distance not as an infinite continuum, but rather as an infinite series of discrete parts. By accepting the cogency of the objection, apparently Saadiah did not detect any distinction between the two.⁴¹ For Saadiah, then, Philoponus' arguments pertaining to traversing an infinite distance enabled him to support the creation thesis in a way which accorded with Scripture.

Similar considerations occur in the thought of Moses Maimonides (1135-1204), whose philosophical writings, especially *The Guide of the Perplexed*, represent some of the most far-reaching and influential Jewish philosophical work to this very day.⁴² Maimonides is unequivocal with respect to the purpose of the *Guide*, namely to dispel the perplexity of that individual who, steeped in the fundamentals of his religious system, nevertheless has encountered philosophical precepts which threaten to undermine his religious beliefs. The reconciliation of rational speculation and religious belief, philosophy and religion, comes to be the desideratum of this work. Of the many topics which demand reconciliation, the doctrine of creation is possibly the most intractable. To deny the creation of the universe on the part of the Deity threatens the entire fabric of Jewish belief, including belief in miracles, divine providence, and human freedom; on the other hand, to subscribe to the standardly accepted Jewish view of creation in time threatens belief in the scientific underpinnings of reality represented by Aristotle's corpus. Maimonides' analysis of creation and its relevance to cosmology occurs in two works, in *Mishneh Torah* III-IV and *Guide* I:72 and II:19-24. These two sets of texts present what recent scholars have considered to be conflicting cosmological accounts. Unraveling the source of conflict in these texts will enable us to determine more fully Maimonides' theory of creation.

The *Mishneh Torah* is a compilation of the entire oral law, including both the *Mishnah* and the *Talmud*, and is intended for a general, non-philosophical audience.⁴³ In this work Maimonides offers a description of the universe which captures elements of the current Ptolemaic cosmology: the spheres are organized in an orderly fashion, with no vacuum obtaining between spheres; epicycles are introduced to account for variation in revolution; and spheres are endowed with intelligible souls responsible for their orderly motion.⁴⁴ And yet, what complicates matters is that Maimonides offers a decidedly anti-Ptolemaic account in the *Guide* which appears incompatible with the *Mishneh Torah* account. The question, then, is whether Maimonides believes that the presentation given in the *Mishneh Torah* or in the *Guide* more accurately reflects a true account of the origin and nature of the universe.

Because the account presented in the *Guide* follows Aristotle's philosophical cosmology more closely than that of Ptolemy, I shall briefly summarize the relevant features of this cosmology. In the Aristotelian cosmology, the universe is a finite sphere whose center is at the earth. Nine primary concentric spheres (in turn divided into subsidiary spheres) rotate around the earth; these spheres form a compact whole with no vacuum. The superlunar heavens differ in composition from the sublunar bodies in that the former are composed of a single incorruptible element, *aether*, while the earth is comprised of the four elements. The ultimate source of

motion in this system is God, or the unmoved first mover.⁴⁵ But did God move the first moving sphere as an active, efficient cause, or as a passive, final cause? In attributing to all the celestial spheres a mover, the ultimate source of motion being God, Aristotle subsequently argued that there must be a plurality of spheres to account for the motion of each planet. In speculating upon the motion of the spheres, Aristotle reflects the Platonic view that time is inherent in the cyclical movement of the celestial spheres. If this movement of the spheres did not exist, there would be no time. Aristotle claims in a number of texts that time is defined in terms of motion and so there can be no time without motion.⁴⁶ On Aristotle's model, then, there was a series of concentric nested orbs, each moving in a natural, uniform, circular motion, all sharing the earth as a common center.⁴⁷

In *Guide* I.72 Maimonides presents a cosmological scheme which, while reflecting basic features of Aristotle's account, nevertheless shares as well some affinities with the Ptolemaic picture found in *Mishneh Torah*. This cosmological picture is then amplified in *Guide* II:19-24. Maimonides argues, following Aristotle, that both the matter and the form of the spheres differ from that of the four elements, as reflected in the different types of motion exhibited by them. But he then points to several problems with Aristotle's attempts to explain why the sphere moves from the East and not from the West, and why some spheres move faster than others. Maimonides rejects Aristotle's explanations on the grounds that "the science of astronomy was not in his [Aristotle's] time what it is today."⁴⁸

Having rejected Aristotle's analysis, Maimonides presents his own version in *Guide* II.24. His main thesis is that the underlying premise of Ptolemy's *Almagest*, namely that "everything depends on two principles; either that of the epicycles or that of the eccentric spheres or on both of them,"⁴⁹ is untenable. Maimonides' own contention is that these two principles are "entirely outside the bounds of reasoning and opposed to all that has been made clear in natural science."⁵⁰ In other words, Maimonides rejects Ptolemaic astronomy on the grounds that it conflicts with Aristotelian physics. The first principle is rejected on the grounds that the existence of epicycles implies that the "epicycle rolls and changes its place completely," hence undermining the Aristotelian dictum that things in the heavens are immovable.⁵¹ He then offers other considerations, in the name of Abu Bakr, against accepting the doctrine of epicycles.⁵²

Following this analysis, Maimonides presents the following theoretical perplexity:

If what Aristotle has stated with regard to natural science is true, there are no epicycles or eccentric circles and everything revolves round the center of the earth. But in that case how can the various motions of the stars come about? Is it in any way possible that motion should be on the one hand circular, uniform, and perfect, and that on the other hand the things that are observable should be observed in consequence of it, unless this be accounted for by making use of one of the two principles, or of both of them? This consideration is all the stronger because of the fact that if one accepts everything stated by Ptolemy concerning the epicycle of the moon and its

deviation toward a point outside the center of the world and also outside the center of the eccentric circle, it will be found that what is calculated on the hypothesis of the two principles is not at fault by even a minute...This is the true perplexity.⁵³

That Maimonides characterizes an astronomical conundrum as the “true perplexity” in a work whose *raison d’être* is devoted to defusing perplexities has not escaped scholars.⁵⁴ Does Maimonides really mean to suggest that the perplexities engendered by a religious individual who is introduced to philosophy are crystallized by difficulties pertaining to astronomy? Maimonides responds to this perplexity by defining the function of the astronomer in a way which suggests that in his view the heavens cannot ultimately be configured by humans.⁵⁵ But the underlying implication of the *Mishneh Torah* is that the heavens can be configured; in fact we saw that Maimonides himself gave such a configuration. If the *Mishneh Torah* represents the absolute codification of physical and metaphysical truth, what do we make of his account in the *Guide*?⁵⁶ In answer to this question, Kellner for one has argued that the *Mishneh Torah* “does not represent the most perfect possible exposition of that science available to him and most certainly does not represent the highest stage that astronomy can reach.”⁵⁷ On this reading the *Mishneh Torah* represents the conventional Ptolemaic wisdom of the time, as contrasted with the anti-Ptolemaic account given in the *Guide*.

But underlying this query lies a deeper concern, namely whether Maimonides really believes that the heavens can be configured. The description provided in *Mishneh Torah* would imply that human beings can have the sort of astronomical sophistication required to achieve knowledge of the celestial order; on the other hand, several key passages appear to undercut these implications. If it is not possible to achieve such knowledge, what does that say about our understanding of creation itself?

My own reading is an amplification of Langermann’s point that, in contradistinction to implicit suggestions in II.24, Maimonides does regard the true configuration of the heavens as something humanly attainable.⁵⁸ On this reading, Maimonides’ point is epistemological rather than ontological: it is not that the heavenly spheres are *per se* inaccessible to the human intellect, but rather that nobody yet has determined their true configuration.⁵⁹ The key passages for this interpretation are (4.1) and (4.2), both of which emphasize the epistemological, not the ontological, limits of human intellect:

4.1. To fatigue the mind with matters that “cannot be grasped by them” is a defect in one’s inborn disposition.

4.2. It is possible that somebody else may “find a demonstration by means of which the true reality of what is obscure for me will become clear to him.”⁶⁰

(4.1) warns against pushing human intellect beyond its dispositional limits; and (4.2) suggests that it is not inconceivable that *some* mind may

find a demonstration of these matters. In other words, there is nothing in the nature of the heavenly configurations *per se* which precludes their being known. That is, there is nothing in the science of astronomy which is *per se* beyond human grasp.

If that is so, the relevant implications to Maimonides' theory of creation are clear. Already in his Introduction to the *Guide*, Maimonides had listed the doctrine of creation as a subject so dangerous that it should be discussed only within the company of one individual. Maimonides' own discussion of creation is intentionally fraught with ambiguity and equivocity. As a result, interpretation of these chapters has become among the most hotly contested enterprise in recent Maimonidean studies. Scholarly readings have ranged from regarding Maimonides as a pious follower of Jewish belief, to a closet heretic adhering to Aristotelian eternity, to a skeptic whose true view espouses the inherent limitations imposed upon the human intellect in these matters.

In other papers I have argued that one key to reading Maimonides' views on creation lies in his theory of time.⁶¹ Without going into the details of this argument, suffice it to say here that in *Guide* II, in the context of his discussion of creation, Maimonides argues that "God's bringing the world into existence does not have a temporal beginning, for time is one of the created things."⁶² Maimonides does not want to suggest that time itself is eternal, for "if you affirm as true the existence of time prior to the world, you are necessarily bound to believe in the eternity [of the world]."⁶³ But neither will he claim that the creation of the world is a temporally specifiable action, for the world, on the Aristotelian definition of time, must be beginningless in the sense that it has no temporal beginning. Clearly then the temporal specificity of creation plays a critical role in Maimonides' theory.

This last point is emphasized in Maimonides' commentary on the word *b'reishit*. What does Scripture mean by saying that "In the beginning God created..."? In order to explain the sense of 'beginning' being used in this context, Maimonides turns in *Guide* II.30 to an interpretation of the two terms *tehilah* and *reishit*, both of which mean "start" or "beginning". As Klein-Braslavy has pointed out, Maimonides distinguishes between the two on the basis of causal priority.⁶⁴ While the term *tehilah* implies causal beginning, the term *reishit* refers not to a temporal priority of one event to another, but rather to its ontological genesis.⁶⁵ In other words, temporal anteriority is not the same as causal anteriority. On this basis Maimonides is able to allow for an interpretation of the word *b'reishit* in such a way as to accord with eternal creation. The *b'* prefix in the word *b'reishit* is not, on this reading, a temporal indicator, but rather fixes the event in question ontologically: it refers not to a temporal beginning but to an underlying ontological state. So that when we read the phrase in Genesis I.1 ("*b'reishit barah elohim*" = "in the beginning God created"), we should understand it to describe a nontemporal event, one which specifies that God is the creator of the universe, that is, its ontological ground of Being.

How then does Maimonides interpret those rabbis who understood the Creation account in *Genesis* to postulate a domain of temporality before the creation event? For example, how there can be 'one day', at the beginning

of creation, when the temporal indicators, i.e. sun and moon, were not created until the fourth day? In II.30 Maimonides quotes two Rabbinic authorities, Judah ben Simon and Abahu, both of whom suggest that "time existed prior to the existence of this sun."⁶⁶ Recognizing that their statements support an eternity thesis, Maimonides adopts two separate strategies. The first is simply to admit that their comments imply that "the order of time necessarily exists eternally *a parte ante*. That, however, is the belief in the eternity *a parte ante* of the world, and all who adhere to the Law should reject it."⁶⁷ Maimonides' second strategy is to subsume their comments as corollaries of those of Rabbi Eliezer. In II.13 Maimonides refers to Rabbi Eliezer, whose commentary on creation postulates creation by means of pre-existent matter. Maimonides depicts this commentary as admitting "the eternity of the world, if only as it is conceived according to Plato's opinion."⁶⁸ Without rejecting either of these statements, Maimonides claims that their comments are "only the counterpart of the passage in which Rabbi Eliezer says, 'Wherefrom were the heavens created.'"⁶⁹ Inasmuch as Maimonides is not bothered by the implications of the latter, so too can it be inferred that he is not bothered by the former. In this way Maimonides has opened the interpretative door to subsequent Jewish philosophers who will use Rabbi Eliezer's words to support a theory of pre-existent matter.

One such philosopher is Joseph Albo (d. 1444), who represents the intellectual bridge between the medieval and modern philosophical world. The author of *Sefer Ikkarim* [Book of Principles], Albo incorporated Maimonides' discussion of pre-existent matter into his own examination of creation, which is couched in the context of developing a theory of time. He is one of the first Jewish philosophers to espouse the view that time is a phenomenon of the imagination, a motif introduced by Crescas and recurring in Spinoza. Albo's discussion of time occurs in the context of demonstrating that God is independent of time. For Albo, God's independence of time comprises both eternity (*ha-kadmut*) and perpetuity (*ha-nitzhiyyut*) and is upheld as a basic principle:⁷⁰

The third dogma is that God is independent of time. This means that God existed before time, and will exist after time ceases, therefore His power is infinite. For everyone who is dependent upon time is necessarily limited in power, which ends with time. Since, therefore God is not dependent upon time, His power is infinite.⁷¹

That God is prior to all existing things, including time, was a commonplace of Aristotelian thought. But inasmuch as this view was not held by his teacher Crescas, [who argued that time is independent of the physical world and had existed prior to it], so Albo must be ready to explain to Crescas' followers his own position *vis a vis* primordial time.⁷² By God's priority Albo means that nothing was prior to God, not even non-existence; God has always existed "in the same way without change."⁷³ Similarly God's eternity means that nothing is posterior to God, not even time. For if time outlasted God either *a parte ante* or *a parte post*, then God would exist at one instant of time and not at another; this, of course, would undermine

God's necessary existence.

These comments lead Albo to examine the nature of time and creation more closely. God's eternity holds, he claims,

even if by time we mean unmeasured duration (*hameshekh habilti meshoar*) conceived only in thought, existing always, both before the creation of the world and after its cessation, but without the order apparent from the motion of the sphere, since the sphere was then neither in motion nor existent.⁷⁴

Only measured time cannot exist without motion. Time itself, according to Albo is not dependent upon motion and even preexisted the world. This non-Aristotelian motif is developed more fully. In another context Albo compares the commandments to time inasmuch as both time and commandments are not actual existents (*bilti nimtza'im be'poal*) :

[just as] time is not an actual existent, for the past is no longer here, the future is not yet, and the present is merely the now which binds the past to the future. The now itself is not real time (*zeman al derech ha-emet*), since it is not divisible, whereas time is divisible, pertaining as it does to continuous quantity (*hacamah hamitdabek*). The now is related to time as the point is related to the line. Time is therefore not an actual existent, and yet it gives perfection of existence to all things existing in time.⁷⁵

Albo then distinguishes between "plain time" and "the order of time" as follows:

Our Rabbis are of the opinion that time in the abstract (*ha-zeman be-shilluah*) is such a duration. Time measured or numbered through the motion of the sphere they call "order of times" (*sefer zemanim*), not simply time (*zeman s'tam*). According to this there are two species of time, the one is numbered and measured by the motion of the sphere, to which are applicable the terms prior and posterior, equal and unequal. The other is not numbered or measured but is a duration (*hemshekh*) existing prior to the sphere, to which the words equal and unequal do not apply.⁷⁶

Whereas plain time is neither numbered nor measured, the order of times is numbered and measured by the motion of the diurnal sphere. In contrast to ordered time, plain time is eternal duration. Albo then raises two perplexities pertaining to time. The first puzzle is whether time originates in time or not. The solution is that although time has no origin and does not come to be in time, the "order of time" originates in time.⁷⁷ The second puzzle concerns the instant: "The now (*ha-'atah*), it is said, divides the past from the future. There is therefore a time before the first now, and hence time and the sphere are eternal."⁷⁸ Albo's answer, relying on his two-fold notion of time, is that Aristotle's argument refers only to the "order of times" and not to "plain time": plain time in which there is no motion "has not the elements prior and posterior, and it is not subject to

measure because measure cannot apply to time without motion. The terms prior and posterior apply to it [plain time] only figuratively and loosely."⁷⁹ To Rabbi Judah ben Simon's related dictum that the order of time pre-existed creation, Albo is quick to point out that Rabbi Judah really meant that the time which is measured by the motion of the sphere is called "order of times" and is contrasted to time simply (*hazeman be-shilluah*) which has no priority, posteriority, or order.⁸⁰

But Albo recognizes that ultimately this solution does not resolve the issue. Quoting the famous Rabbinic passage that one must not explore what is above, below, before and behind, Albo accedes that he has not really explained "how there can be a duration before the creation of the world which has in it neither prior nor posterior."⁸¹ Or as Harvey has succinctly argued, Albo has not succeeded in explaining how, *within* the "order of times", there can be a first instant which has no "before."⁸²

IV. Conclusion

In his rich and comprehensive study "Time in Judaism," Steensgaard has stated that because medieval Jewish philosophy was primarily derivative, "it makes little sense to search for [the concept of time] among the Jewish philosophers of religion of the Middle Ages."⁸³ Nothing, however, could be further from the truth. That medieval Jewish philosophers were influenced by speculative schools at critical points in their history has rarely, if ever, been contested by scholars. But to reject the ideas of Jewish philosophers as merely derivative and not worthy of study is to ignore the creativity which can arise out of cultural and philosophical influences. In contradistinction to Steensgaard, I have attempted in this paper to demonstrate that medieval Jewish discussions of creation reflect a complexity which is nuanced by the subtle interweaving of biblical, Rabbinical and Greek philosophical traditions.

This subtle interweaving has given rise to a sophisticated literature which focuses upon the very first instant of creation. Not surprisingly, early Jewish writings disagree over how best to interpret *Genesis I*. Some rabbis attest to the pre-existence of matter, time, and entire generations, while others insist that nothing pre-existed the creation of our world. These early Rabbinical writings are incorporated into medieval Jewish discussions of creation and time. By the twelfth century, I have suggested that Jewish philosophers are working with a conception of creation and time drawn clearly from Aristotelian sources. Questions of infinite divisibility, omniscience, eternity, and temporal order abound. Saadiah Gaon reflects the *Kalam* preoccupation with traversal of an infinite series, a preoccupation which can be traced back to Zeno's paradoxes of motion. Saadiah uses the impossibility of traversing an actual infinite to demonstrate that the universe must have had a first temporal instant.

We have seen that Maimonides is sympathetic to an Aristotelian theory of time. And yet much of his effort has been aimed at showing that the Scriptural view of creation is inconsistent with this theory. Maimonides is unwilling to support Aristotle's denial of creation altogether, however. His own view, then, is a version of eternal creation according to which an eter-

nally existing world has been sustained by a Creator, but not in a temporal context. In the sense that there is no one instant in which the world is brought into existence, it is eternal; in the sense, however, that God is the ontological ground of the world, it is created. Albo, on the other hand, introduces into Jewish thought the distinction between 'plain time' which is unmeasured, and 'order of time' which is measured by the motion of the celestial spheres. Harkening back to Plotinus, Albo allows for the introduction of an imaginary realm to time which is independent of physical motion of the diurnal spheres.

Ultimately what is at stake for all these thinkers is how to reconcile disparate models of creation and temporality. My initial suggestion was that accepting Aristotle's eternity thesis of the universe, represented in this context by the infinity of time, required serious modifications on the part of theologically minded thinkers committed to a belief in an efficacious Deity. Unlike Saadiah Gaon who eschewed eternity altogether, both Maimonides and Albo introduce elements of eternity into their philosophical cosmology. Unwilling to reject the possibility of infinite time, they have both incorporated the idea of pre-existent time into their cosmology. However, they have managed to maintain the efficacy of a creator Deity, thus retaining the creation paradigm presented in Scripture. Like the early Rabbis, they have demonstrated that the "gates of interpretation are never closed," that Scriptural texts and traditions can be deconstructed to accommodate competing philosophical models. Let me suggest in closing that Judaism's contribution to philosophical theology ultimately lies in the the creativity of this interpretative process.

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NOTES

1. Cf. André Neher, "The View of Time and History in Jewish Culture," in *Cultures and Time*, ed. Louis Gardet et al. (Paris: The Unesco Press, 1976), 50: "The primordial element is 'time' itself. Creation was manifested in the appearance of time. This time is entirely new. That is the significance of the verb *bara*."

2. For a discussion of the ways in which these rabbinic discussions influence subsequent Jewish philosophers, see Norbert Samuelson, *Judaism and the Doctrine of Creation* (Cambridge: Cambridge University Press, 1994), 140ff. By the term 'early Rabbis' I mean to include primarily those Rabbis whose works were included in *Genesis Rabbah*, a collection of Tannaitic and Amoraic commentaries upon *Genesis*. Samuelson also discusses in this context individuals such as Ibn Ezra, Nahmanides and Sforno whose commentaries upon *Genesis* are included in the *Miqraot Gedolot*, which are the standard printed Rabbinic bibles. I shall not touch upon these latter thinkers in this brief study.

3. For a survey of early Jewish views on this topic see Alexander Altmann, "A Note on the Rabbinic Doctrine of Creation," *Journal of Jewish Studies* 7 (1956), 195-206; Jonathan A. Goldstein, "The Origins of the Doctrine of Creation Ex Nihilo," *Journal of Jewish Studies* 35 (1984), 127-135. In this paper Goldstein tries to argue, against recent scholars, that early Jews and Christians in fact had a theory of creation *ex nihilo* which was tied to conceptions of bodily

resurrection.

4. See Efraim Urbach, *The Sages: Their Concepts and Beliefs*, trans. I. Abrahams (Jerusalem: Magnes Press, 1975), 211 for discussion of these passages.

5. *Nedarim* 39b.

6. *Genesis Rabbah* I.4.

7. *Shabbat* 88b.

8. *Hagigah* 14a.

9. *Rashi Commentary*

10. *Genesis Rabbah* 9:2.

11. *Hagigah* 12a.

12. *Timaeus* 37D.

13. *Timaeus*, 37E.

14. For a discussion of the issues and texts involved in this debate, cf. Richard Sorabji, *Time, Creation and the Continuum* (London: Duckworth, 1983), 272-275.

15. *Timaeus*, 38C.

16. For a discussion of additional similarities between *Genesis* and Plato's *Timaeus*, cf. Samuelson, *op. cit.*, 194-197.

17. Edward Grant, "Cosmology," in *Science in the Middle Ages*, ed. David Lindberg (Chicago: University of Chicago Press, 1978), 266.

18. In this paper, unless otherwise noted, Saadia's text will be based on the English translation of Alexander Altmann, *The Book of Doctrines and Beliefs*, in *Three Jewish Philosophers* (New York: Atheneum Press, 1972). This edition contains excellent footnotes. A complete English translation of the Arabic text *Amanat wal-i'tiqadat* can be found in *The Book of Beliefs and Opinions*, trans. Samuel Rosenblatt (New Haven: Yale University Press, 1948).

19. See Herbert Davidson, *Proofs for Eternity, Creation and the Existence of God in Medieval Islamic and Jewish Philosophy* (Oxford: Oxford University Press, 1987) for detailed comparison of Saadia's arguments with those of John Philoponus.

20. For a detailed discussion of the history and transmission of these texts, see Davidson, *op. cit.*, 86ff; Sorabji, *op. cit.*, 197ff. Some of Philoponus' relevant texts can be found in *Philoponus: Against Aristotle on the Eternity of the World*, trans. Christian Wildberg, (Ithaca, N.Y.: Cornell University Press, 1987).

21. For a history of this transmission see Davidson, *op. cit.*, 86-116. Davidson notes at least thirteen medieval discussions which draw upon Philoponus' position that infinity cannot be traversed.

22. See texts in Sorabji, *op. cit.*, 214-5.

23. Wildberg, *op. cit.*, 144.

24. Wildberg, *op. cit.*, 145. See Davidson, *op. cit.*, 88. Philoponus expands this argument, claiming that "...if on the one hand the ascent (*anodos*) took place *ad infinitum*, complete things would not precede the incomplete, and the actual not the potential; but if on the other hand <the motions> are limited <in number>, then the first <motion> which evidently exists together with the universe, has made a beginning which starts from something actual and complete for the subsequent motions." Wildberg, *op. cit.*, 145.

25. Wildberg, *op. cit.*, 146.

26. Some scholars have taken the inability to provide demonstrative argument to lie at the heart of Maimonides' discussion of creation in *The Guide of the Perplexed*. See below, pp.12ff.

27. Sorabji, *op. cit.*, 177.

28. The argument is presented in Saadia Gaon, *The Book of Doctrines and Beliefs*, 56: "I know that time is threefold: past, present, and future. Although

the present is shorter than any instant, I take the instant as one takes a point, and say: If a man should try in his thought to ascend from that point in time to the uppermost points, it would be impossible for him to do so, inasmuch as time is now assumed to be infinite and it is impossible for thought to penetrate to the furthest point of that which is infinite... The same reason will also make it impossible that the process of generation should traverse an infinite period down to the lowest point so as ultimately to reach us. Yet if the process of generation did not reach us, we would not be generated, from which it necessarily follows that we, the multitude of generated beings, would not be generated and the beings now existent would not be existent. And since I find myself existent, I know that the process of generation has traversed time until it has reached us, and that if time were not finite, the process of generation would not have traversed it."

29. The original source for Zeno's paradoxes of motion is Aristotle, *Physics* 6.9. For a history of the transmission of these paradoxes, cf. Sorabji, *op. cit.*

30. Saadiah Gaon, *The Book of Doctrines and Beliefs*, 57. "It has come to my notice that a certain heretic in conversation with one of the Believers in the Unity of God, objected to this proof. He said 'It is possible for a man to traverse by walking that which has an infinite number of parts. For if we consider any distance which a man walks, be it a mile, or an ell, we should find that it can be divided into an infinite number of parts.'"

31. Maimonides describes Nazzam's theory of the leap in greater detail in *Guide* I.73 prop 3. See also the discussion in Sorabji, *op. cit.*, 385ff.

32. Sorabji, *op. cit.*, 388.

33. Cf. Aristotle, *Physics* 3.6 206a 16-18ff; 263b 2-8.

34. Davidson has pointed to the similarity between Saadiah's formulation and al-Kindi's formulation of the same argument. In response to the challenge posed by assuming (3.4), Al-Kindi tries to show that it is not possible for "time to have infinity in actuality, either in the past or future." In Al-Kindi's argument, time is construed as a continuum capable of both infinite addition and division. Assuming that the infinite cannot be traversed, however, Al-Kindi simply rejects the possibility of (3.4) altogether on the grounds that "since there is a definite time (the present) all time must be finite." In this way he rejects the Aristotelian distinction between actual and potential infinity as applied to time. Cf. Alfred Ivry, *Al-Kindi's Metaphysics* (Albany, N.Y.: SUNY Press, 1974), 74. "Before every temporal segment there is (another) segment, until we reach a temporal segment before which there is no segment, i.e. a segmented duration before which there is no segmented duration. It cannot be otherwise — if it were possible, and after every segment of time there was a segment, infinitely, then we would never reach a given time — for the duration from past infinity to this given time would be equal to the duration from this given time regressing in times to infinity; and if (the duration) from infinity to a definite time was known, then (the duration) from this known time to temporal infinity would be known, and then the infinite is finite, and this is an impossible contradiction." Al-Kindi's argument then continues as follows: "Furthermore, if a definite time cannot be reached until a time before it is reached, nor that before it until a time before it is reached, and so to infinity; and the infinite can neither be traversed nor brought to an end; then the temporally infinite can never be traversed so as to reach a definite time. However its termination at a definite time exists, and time is not an infinite segment, but rather is finite necessarily, and therefore the duration of body is not infinite, and it is not possible for body to be without duration. Thus the being of a body does not have infinity; the being of a body is, rather, finite, and it is impossible for body to be eternal."

35. Saadiah Gaon, *The Book of Doctrines and Beliefs*, 57. Altmann notes that

the term imagination (*wahm; mahshavah*) is sometimes used by the Arabic philosophers in the sense of 'potentially'.

36. *Ibid.*

37. Ivry points out that this acceptance of the ontological legitimacy of potential existence enables Aristotle to consider the universe as eternal, though in actuality we perceive only finite time, movements and magnitude. Ivry, *op. cit.*, 151. See *Physics* III:6 206a 16ff; 7 207b 2.

38. In contradistinction, Maimonides would view Saadia and Al-Kindi's refutations of infinity as spurious on the grounds they are too restrictive with respect to potential infinity. See further discussion of this point in Ivry, *op. cit.*, 153.

39. Davidson, *op. cit.*, 96.

40. Davidson, *op. cit.*, 97.

41. Davidson, *op. cit.*, 97.

42. Unless otherwise noted, page references to the *Guide* will be to Maimonides, *The Guide of the Perplexed*, ed. and trans. Shlomo Pines (Chicago: University of Chicago Press, 1963).

43. Maimonides, *Mishneh Torah: The Book of Knowledge*, trans. Moses Hyamson (Jerusalem, 1962).

44. For the details of this cosmology, cf. Maimonides, *Mishneh Torah*, 37a-38a.

45. Cf. *Metaphysics* 7.7.

46. See *De Caelo* I.9 279a 8 ff. A similar point is propounded in *Physics* IV.12.

47. Ptolemy, however, recognized that Aristotle could not account for variations in the observed distances of the planets. He therefore introduced eccentric and epicyclic circles to account for planetary motions. Medieval philosophers were faced, therefore, with a dilemma: they could either reject the earth's centrality and abandon a vital part of Aristotelian physics, or they could accept a cosmology that was untenable from the perspective of the astronomers. Grant goes on to describe a third alternative as well, namely one in which additional orbs are introduced according to which the variation in planetary distances was incorporated into a system of concentric planetary spheres. In this way both Aristotelian and Ptolemaic systems are salvaged. For a brief introduction to the vast secondary literature dealing with this issue, cf. Grant, *op. cit.*, 280ff; Pierre Duhem, *Medieval Cosmology*, ed. and trans. Roger Ariew (Chicago: University of Chicago Press, 1985).

48. *Guide* II.19, 308. See also the comment in II.24 to the effect that in Aristotle's time "mathematics had not been brought to perfection."

49. *Guide* II.24, 322.

50. *Ibid.*

51. *Ibid.*, 322-3.

52. In his article "The True Perplexity: *The Guide of the Perplexed* Part II, ch 24," in *Perspectives on Maimonides*, ed. Joel L. Kraemer (Oxford: Oxford University Press, 1991), Y. Tzvi Langermann points out that it is not at all clear whether Maimonides himself subscribes to all these arguments.

53. *Guide* II.24, 326-7.

54. Surely that is one of the bases of Langermann's article "The True Perplexity." The intriguing question, of course, is whether Maimonides thought that all the issues in the *Guide* could ultimately be traced back to this basic perplexity.

55. The original text is found in *Guide* II.24, 326-7.

56. Menachem Kellner, "On the Status of the Astronomy and Physics in Maimonides' *Mishneh Torah* and *Guide of the Perplexed*: a Chapter in the History

of Science," *British Journal for the History of Science* 24 (1991), 454.

57. Kellner, *op. cit.*, 461.

58. Langermann, *op. cit.*, 165.

59. On Langermann's reading, Maimonides is alluding to our inability to understand the nature of the fifth element of which the heavens are formed, and not to the actual physical configuration of the heavens as a whole.

60. Cf. *Guide* II.24.

61. T.M. Rudavsky, "Creation and Time in Maimonides and Gersonides," in *God and Creation: An Ecumenical Symposium*, ed. David Burrell and Bernard McGinn (Notre Dame, Ind: Univ. Notre Dame Press, 1990), 122-146.

62. *Guide* II.13, 282.

63. *Ibid.*

64. See Sarah Klein-Braslavy, *Maimonides' Interpretation of the Story of Creation* (Heb) (Jerusalem: Israel Society for Biblical Research, 1987), 115.

65. For further elaboration of this point, see Klein-Braslavy, *op. cit.*, 81-2, 86-7.

66. *Guide* II.30, 349.

67. *Guide* II.30, 349.

68. *Guide* II.26, 331.

69. *Guide* II.30, 349.

70. Joseph Albo, *Sefer Ikkarim (Book of Principles)*, ed. and trans. Isaac Husik (Philadelphia: 1946), I. 130.

71. Albo, *Sefer Ikkarim*, II. 108-9.

72. For a discussion of Albo's sources, cf. Warren Zev Harvey, "Albo's Discussion of Time," *The Jewish Quarterly Review*, 71 (1981), 213. In what follows, I am very much indebted to Harvey's article.

73. Albo, *Sefer Ikkarim*, II, 109.

74. Albo, *Sefer Ikkarim*, II, 110.

75. Albo, *Sefer Ikkarim*, III, 259.

76. Albo, *Sefer Ikkarim*, II, 110-111.

77. Albo, *Sefer Ikkarim*, II, 111.

78. Albo, *Sefer Ikkarim*, II, 111.

79. Albo, *Sefer Ikkarim*, II, 111-112.

80. Albo, *Sefer Ikkarim*, II, 113.

81. Albo, *Sefer Ikkarim*, II, 112.

82. Harvey, *op. cit.*, 223.

83. In his richly evocative and informative article "Time in Judaism," in *Religion and Time*, ed. A. N. Balslev and J.N. Mohanty (Leiden: E.J. Brill, 1993), 63-108, Paul Steensgaard spends a scant two pages on the medieval Jewish philosophical tradition.