

CHAPTER ONE

Time and Cosmology in Athens and Jerusalem

Introduction

My purpose in this chapter is to trace the development of the concept of time in early Jewish and Greek writings with an ultimate eye to the impact of these texts upon the medieval period. I shall first examine biblical and rabbinic discussions relevant to our theme, and then turn to conceptions of time in Greek philosophy. In short, I shall concentrate upon those canonical texts within Jewish and Greek tradition which reflect an understanding and awareness of time and temporality. My concern in this chapter is not so much to present a comprehensive study of time in the Rabbis and in Greek philosophy, but rather to emphasize those elements that influence and reappear in medieval Jewish writings.

Biblical Conceptions of Time

For reasons having to do as much with contemporary theological concerns as with pedagogical research, modern biblical scholars have devoted much time trying to uncover a "theory of time" in the Hebrew scriptures. The enterprise has been fraught with frustration, however, and has not reached a scholarly consensus. That linguistic analysis of biblical temporal terms has yielded little fruit is obvious, especially in light of the ostensible lack of significant discussion in Scripture having to do with time per se. The word *'et* is the most important word in biblical Hebrew for time and tends to mean the moment or point of time at which something happens.¹ The point of time can change over into a longer period of time. Other words used for time indications include *mo'ed*, *zeman*, *'olam*, and *yom*. The term *mo'ed* means "place of meeting," and with reference to time, comes to mean "appointed

time." It emphasizes—more than *'et*—conscious designation and arrangement. The term *zeman* occurs only three times in the latest period (Nehemiah 2:6; Esther 9:27, 31) and means, like *mo'ed*, appointed day. By Mishnaic times the term *zeman* takes over and it is the most commonly used term in medieval texts.² The term *'olam*, frequently translated as "world" in rabbinic texts, refers as well to time or duration in the Bible.³ The term *yom* can be used to indicate the era of an important event or the day of someone's birth, death, and so on. Additional temporal words that are occasionally used include *rega'*, *qetz*, *aḥarit*, *qedem*, and *dor*.

Despite the overwhelming use of such temporal terms, there is very little discussion, however, concerning the underlying ontology of time. Within biblical scholarship we can discern three interpretative schools that reiterate the distinction drawn in the introduction between cyclical and linear time. On the first reading, primitive societies, represented by the Jews and biblical culture, are presumed to reflect a cyclical view of time rooted in the cyclicity of nature and the repeatedness of natural events. Modern society, on the other hand, is associated with an abstract linear conception of time rooted in history and temporal flow. Some scholars place the Greeks and Jews both into the cyclical camp, others place the Jews into the linear camp, and yet others place the Greeks alone into the linear camp as forerunners of an abstract theory of time.⁴ Thus Gurevich, for example, maintains that whereas for the Greeks reality is static and unchanging, it is "with the Jews that time as of ontological import is introduced."⁵ On this conception, it is the Jews, through Scripture, who introduced the ontology of time and temporality to Western thought. A more moderate version of this thesis is that while the early Hebrews and Greek philosophers were both interested in temporality, they developed theories of time which differed conceptually in important ways. Malina follows Gurevich and others in contrasting a modern, technological, linear oriented temporality, on the one hand, to a premodern, agrarian, cyclical temporality, on the other. Malina suggests that whereas modern society is future-oriented in that "people live achievement-directed lives focused on relatively distant goals [in which] the present always serves as a means to some more distant end,"⁶ premodern peasant societies, in contrast, value the present over the future: they "have the present as first-order temporal preference. Secondary preference is past. The future comes in as third choice."⁷ Based on this distinction, Malina then contrasts the peasant view with our modern, abstract view of time, which he characterizes as "linear, a unidirectional, past, present and future, that is separable into various discrete compartments."⁸ According to Malina, the Mediterranean cultures, best represented by biblical society, knew nothing of this abstract time; clock time came into existence during the Industrial Revolution.⁹

Barr, however, rejects these typologies of time altogether. Barr points

out that, in contradistinction to the commonly held view, the Greeks did not always hold a cyclic view of time, the Hebrews sometimes did hold a cyclic view of time, and what the Greeks viewed as cyclic (if they did) was not the same thing as what the Hebrews regarded as a straight line (if they did).¹⁰ Further, Barr argues that we can no more deduce a Hebrew view of time from the verbal tense system of Hebrew than we could deduce the Platonic and Aristotelian philosophies of time from the tense system of Greek.¹¹ It is "the very serious shortage within the Bible of the kind of *actual statements* about 'time' or 'eternity' which could form a sufficient basis for a Christian philosophical-theological view of time,"¹² which has forced Biblical exegetes into trying to get a view of time out of the *words* themselves. But such an approach, according to Barr, has led to disastrous claims, for example, that because the Hebrew verb does not express the temporal differences between past, present, and future, there is no actual temporal difference in Hebrew.¹³

It is important to keep in mind Barr's caveats when looking for a metaphysics of time in Biblical and Rabbinic texts. For the Rabbis were not philosophers and were not interested in elucidating a philosophical theory of time per se. With the exception, perhaps, of Ecclesiastes, there is very little speculation of a specifically metaphysical nature in biblical texts, little awareness of time as a metaphysical construct. Nevertheless, let me suggest that the historicity of the Bible associated with linear temporality can be underscored through three defining moments. The first is represented by the moment of creation, the very instant in which God gave momentum to temporality, thrusting it forward. Secondly, the people Israel is marked by a covenant with God; this covenant defines the ongoing, linear relationship between a Deity and its people. The eschatological tenor of the prophets reinforces those moments in which the covenant is in jeopardy. Religious eschatology culminates in the kingdom of heaven, which represents the final consummation of past and present into the future.¹⁴ The third defining moment occurs during the revelation at Sinai, the moment at which the Israelites receive the Tablets of the Law and commence the journey as the "chosen" people of God.

The linear thrust of history has its metaphysical counterpoint in Ecclesiastes, a work devoted, among other things, to expressing the futility of temporal flow. Chapter 3 of Ecclesiastes can be read in several ways. Most obvious is the prevalence of God's predetermination of all human events: that "everything has its appointed time and there is a season for every event under the sky" (Eccl. 3.1) points to the futility of human striving in light of God's predetermining of all events in their appointed time. This predetermination is reinforced in (Eccl. 3.11), "Everything He has made proper in its due time." And yet the predetermination of temporal events brings with it the comfort of cyclicity as well as the recognition that a providential deity

controls human affairs. In recognizing that “there is a time to be born, a time to die, a time to plant and a time to uproot,” (Eccl. 3:2) our sage underscores the comforting reality that events do not happen randomly, out of sequence. Rather events have both an inner and outer sequence that is repeated on a cyclic basis. Planting and uprooting, living and dying, mourning and dancing, these all occur and recur with constant regularity, reinforcing the motif of time as recurrence. Death too is a constant motif, underscoring the futility of human endeavors. “Again, I saw that beneath the sun the race is not to the swift, nor the battle to the brave, nor is bread won by the wise, nor wealth by the clever, nor favor by the learned, for time (*’et*) and accident overtake them all,” (Eccl. 9:11) and human beings are “trapped in a time of misfortune, when it befalls upon them suddenly” (Eccl. 9:12). Time, then, comes to represent not only the predetermined order into which human beings are thrust, but the cruel means by which they are yanked out of this order into nonexistence, notwithstanding all efforts to the contrary. Ecclesiastes emphasizes the futility of marking time in light of its repetitiveness: “What has been, already exists, and what is still to be, has already been, and God always seeks to repeat the past” (Eccl. 3:15).

Rabbinical Models of Time and Creation

What we have then is a model of time that transcends simple binary dualism, that recognizes that temporality can be construed as both linear and cyclic in one and the same textual tradition. Both the linearity of historical events and the cyclicity of natural cycles must be recognized in this model.¹⁵ Given the pre-eminence of ritualized events in Judaism, the marking of time assumes overwhelming importance in the rabbinic period. Inasmuch as the Rabbis are equally concerned with the daily rituals and events that are performed at specific times, so the exact determination of temporal demarcations, for example, “day,” “twilight,” “cycle,” becomes of paramount importance in rabbinic literature. The following passage attests to the extent to which the Rabbis attempt to define a temporal unit:

Until what time do they plow an orchard [of fruitbearing trees] during the sixth year of the Sabbatical cycle]? The House of Shammai say, “so long as [the plowing continues] to benefit the produce [of the sixth year. That is, after the crop of the sixth year has ripened and been harvested, the farmer no longer may plow in his orchard].” But the House of Hillel say, “[One may continue to plow] until Pentecost [of the sixth year].” And the opinion of the one is close to the opinion of the other.¹⁶

In this passage the Rabbis are concerned with determining when the sabbatical year (the seventh year in which fields must be allowed to remain fallow) technically begins: How do we demarcate the end of one year and the beginning of the next? That is, do we need a fixed time, or can utilitarian considerations be used to define the beginning of the seventh year? Although the two camps disagree over what ought to constitute the end of the sixth harvest cycle, it is interesting to note that neither group presupposes an absolute, fixed criterion of temporality. Both Shammai and Hillel opt for pragmatic considerations having to do with the actual harvest. Such rabbinic discussions anticipate the later scholastic *incipit-desinit* literature in which the "Oxford calculators" work at determining the exact starting and ending points of an infinitely divisible continuum.¹⁷ In both cases, obviously, what is at stake is the precise instant at which a unit (temporal or quantitative) is said to begin. It is this problem that occupies generations of Jewish philosophers as well, in the context of the issue of creation of the universe.

Not surprisingly, early rabbinical texts evince earnest grappling with the scriptural account of creation. The act of creation represents the positing of conceptual order upon a disordered reality. This initial ordering action occurred at the first instant of creation, when God brought order into a disordered state. 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.¹⁸ Scholars have pointed to three cosmological traditions that emerged within rabbinic texts: creation from an eternal matter, creation *ex nihilo*, and emanation theory. Each of these traditions has had far-reaching implications with respect to medieval philosophical texts. The first tradition, creation of the world out of a pre-existing matter, is rooted in Gnostic writings as well as in Plato's *Timaeus*; in response to these authorities, the Rabbis were concerned to determine whether the world was created out of a primordial matter or out of nothing.¹⁹ 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. According to one rabbinical dictum the phrase *be-re'ishit* (in the beginning) 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:²⁰

- 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.²¹
- Six things came before the creation of the world, some created, some at least considered as candidates for creation . . .²²

- 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."²³
- 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.²⁴

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*) that appeared to exist already when God initiated his 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 (*hoshkeh*) was upon the face of the deep."²⁵ The explicit implication of this reading is that God created the universe out of a pre-existing *tohu*, *vohu*, and *hoshkeh*. This pre-existent stuff was the result of at least one prior world. Ibn Ezra, however, is a bit more circumspect, suggesting that, in contradistinction to the commonly accepted notion of creation *ex nihilo* (*yesh me'ayin*), the meaning of the term *bara'* is "to cut (*ligzor*) or set a boundary (*vele-shum gvul nigzar*). The intelligent person will understand what I am alluding to."²⁶ By this Ibn Ezra intimates that a pre-existent matter is cut, or limited by form.

The second and third doctrines presumably found their adherents as well. Several references in scripture, for instance, 2 Maccabees 7:28 to creation "out of things non-existent," have been utilized by scholars to support a rabbinic doctrine of creation *ex nihilo*. But as Altmann and Goldstein emphasize, this tradition emerged late in Jewish sources as a response to Gnosticism and was not incorporated fully into Jewish thought until the medieval period.²⁷ In a similar vein, David Winston offers compelling argument supporting his claim that "not only was an unambiguous doctrine of creation *ex nihilo* missing in Jewish-Hellenistic literature, but even in Rabbinic literature such a doctrine appeared at best only in a polemical context."²⁸ Winston argues further, drawing upon the work of Wolfson, that the first explicit formulation of the notion of creation *ex nihilo* appeared in second century Christian literature and was amplified by both Saadia Gaon and Maimonides in their reference to creation "not from a thing" (*lā min shay'*) as opposed to creation from "no-thing" (*min lā shay'*).²⁹ As we shall see in chapter 2, Crescas' formulation of creation *lo' mi-davar* (not from a thing) reflects this former expression.

Yet a third motif is the doctrine of emanation developed in some midrashic sources. According to this theory, the original light in Genesis I.3 was created as an emanation from God's glory, or from God's garments. On this theory, light is actually created first, as an archetype, from which the world unfolds. For example, in the following text. "Rab Judah further said that Rab said: 'Ten things were created the first day, and they are as follows: heaven and earth, *Tohu*, *Yohu*, light and darkness, wind and water, the measure of day and the measure of night,' " light is clearly introduced as one of the original ten ontological fundamentals out of which everything else is created.³⁰ As Altmann has argued, such passages served as a prototype for later Neoplatonic writings, culminating in the mystical doctrines of the *Sefer Bahir*, *Sefer Yetzirah*, and Zoharic texts.³¹

With the postulation of pre-existent materials of creation in both the first and third creation theories, these texts therefore raise the second difficult question of whether time itself pre-existed creation. Does the phrase *be-rei' shit* already imply temporality, that is, does creation occur in time, or is time created along with the creation of the universe? 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.' "³² 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. In the text mentioned earlier, namely "Rab Judah further said that Rab said: 'Ten things were created the first day, and they are as follows: heaven and earth, *Tohu*, *Yohu*, light and darkness, wind and water, the measure of day and the measure of night,' "³³ inasmuch as light and darkness, and the measure of day and night represent temporal markers, they come to represent the creation of time. This point is reiterated when Nahmanides, in commenting on the phrase "And God called the light day," claims that "He states here that time was created and He fixed the span of day and span of night."³⁴ Nahmanides reiterates the creation of time in commenting on the phrase "and God divided the light from the darkness":

It is also possible for us to explain that when the heavens and earth emerged from nothingness into the something which is mentioned in the first verse, time came into being. For although our time consists of minutes and hours which belong to light and darkness, yet from the moment when the "something" came into existence "time" was attached to it. On this assumption heaven and earth were created and remained as they were for the space of a night without light; and He said "let there be light" and there was light, and

He decreed that it should remain for the same space of time as the preceding (night) and later should be removed from the elements and so "there was evening and there was morning."³⁵

In this passage Nahmanides incorporates several motifs: the notion that the original created time differs from our own "clock-measured" time, that created substance and created time must exist simultaneously, and that the original evening was measured by the absence of light.

A final question concerns how to understand the word "day" (*yom*), on day one, if those astronomical markers most associated with measuring day and night have not been created until day four. There are several distinct problems involved here. The first concerns how to reconcile the method of reckoning a day (i.e., a day and a night) from sunrise to sunset with the accepted Israelite practice of connecting the day-time with the preceding night, that is, the custom of regarding sunset as the starting point of the day.³⁶ A second issue has to do with the ontological status of days one to three with respect to the other days of creation. If the temporal markers were not created until the fourth day, it makes no sense to designate measured temporality prior to the fourth day. Rashi, for example, emphasizes the uniqueness of day one on the grounds that on the first day, the entire universe becomes existent. Nahmanides' exoteric interpretation of the text states that "the 'days' which are mentioned in the account of the creation were at the creation of heaven and earth real days, composed of hours and minutes, and there were six like the six days of work, as is indicated by the simple sense of the verse."³⁷ This reading is reinforced by the astronomical reminder that "day one" can refer to the "circuit of the heavenly sphere round the whole earth in twenty-four hours. For every minute of them is morning at different places and evening in the places opposite to them."³⁸ But Nahmanides also offers an esoteric interpretation, suggesting that the term "day" can refer to the *Sefirot*, on the grounds that "every change (*ma'amar*) producing an existence is called a day."³⁹ This latter interpretation does not, however, account for any difference between the days.

In his commentary upon Genesis, Sforno addresses the problem of measuring the first days of creation a bit differently. Sforno interprets the phrase *be-rei' shit* as postulating "a first indivisible moment (*rega' ri'shon bilti mithaleq*) before which there is no time."⁴⁰ The term *bara'* (created) suggests creation from nothing, and hence a period "in which no time occurs at all."⁴¹ Turning then to the issue of light in Genesis 1.5, Sforno argues that even though there was no actual time of light and dark, God adopted our terminology in describing the difference between day and night: "Even though he separated the light and the dark so that they would be used for different time periods without the help of rotating spheres, he differentiated them gradually in (such) a way that there was between them a time of

evening when night came and a time of morning when day came."⁴² Finally Sforino turns to the comprehensive process of creation. Commenting upon the significance of the seventh day, he states: "(God completed all creative activity) at the beginning of the seventh day, which is an indivisible moment (*ha-rega' bilti mithaleq*) which [marks] the beginning of future time but is not a part of it. As our Sages said, may they be remembered for a blessing, 'one enters into it by a hair's breadth.'⁴³ As Samuelson has suggested, Sforino refers to a time instant so brief that it has no duration at all. The first six days of creation have no duration and so *measurable* time does not begin until the seventh day.⁴⁴ If by measurable Sforino means passage from past to future, the seventh day represents the first *measurable* day of the universe. The time span from the first to the seventh day is an indivisible atom of time, a *rega' mithaleq* which is identical to the first day or temporal instant.

Finally let me turn to the architectonic of time according to which time assumes a mythos of its own. This architectonic is captured by what Higgins has called "liturgical *curcus*" which is most applicable to religious ritual and practice. In medieval Christian practice, for example, liturgical time refers to the specific times for reciting prayer, the ringing of the ecclesiastical bells at appropriate times, the setting of the ecclesiastical calendar, and so on.⁴⁵ A similar point can be made with respect to Jewish attitudes toward liturgical time. Yerushalmi has suggested that while in the Bible there is a sense of chronology, a genuine sense of the flow of historical time, the Rabbis in contrast "seem to play with Time as though with an accordion, expanding and collapsing it at will."⁴⁶ Even a casual glance at rabbinic texts supports Yerushalmi's claim, for in rabbinic texts the ordinary chronological barriers of time have truly been ignored, and all ages interact with one another. Witness, for example, the importance of ritualized, recursive, readings of Scripture, during which temporality becomes atemporal.⁴⁷ Each reading of the weekly Torah portion hearkens back not only to other weekly portions read sequentially during the year, but to previous years' readings as well, thus elevating the event to an atemporal plane. The cyclicity of temporally individuated events is emphasized in their yearly, monthly, or weekly repetition.

The religious calendar orients celebrants in time through the use of regularly repeated rituals; this temporal system structures the life of the community.⁴⁸ Such time is not just chronological time but is connected with repetitions: temporal repetition is one essential attribute of ritual. In short, myth and ritual are connected through temporality. Calendars are not restricted to purely practical functions, that is, to refer to points in time and to time durations. They also represent a process of human cognition in which the experience of time is conceptualized, structured and comprehended. "Calendars make sense of the dimension of time by imposing a rational, human structure upon it. Calendars represent at once a way of describing

time and of establishing conceptual order amidst a seemingly disordered world."⁴⁹

Time, Order, and Creation in the Greek Philosophical Tradition

Obviously we cannot, in this work, present a complete account of time in the Greek philosophical tradition.⁵⁰ Nevertheless, I should like to emphasize several motifs and arguments that are extremely influential upon subsequent medieval Jewish discussions. The earliest sustained philosophical discussions of time occur in the fragments of the Presocratic philosophers Heraclitus (540 BCE) and Parmenides (515 BCE) in the context of trying to account for change in reality. Heraclitus attempts to support his contention that flux and becoming are alone real, and that permanence and constancy are merely apparent. Every physical object is subject to temporal change, hence Heraclitus' emphasis upon the eternal flux of reality, and his insistence that all is in flux.⁵¹ Parmenides, however, disagrees with Heraclitus and argues that only the permanent and enduring are real, and all time, flux, motion and change are unreal. In contradistinction to Heraclitus who emphasized the ontological priority of change, Parmenides denies that change can occur.⁵²

It is Plato who, against the backdrop of his Presocratic predecessors, tries to resolve the paradoxes of change and permanence. The influence of Parmenides can be felt most fully when we turn to Plato's most explicitly cosmological dialogue, the *Timaeus*; it is this dialogue that has exerted an enormous influence upon Jewish cosmogonic and cosmological writing. In the *Timaeus*, Plato distinguishes between eternity (*aiónios*) and everlastingness (*aidios*): everlastingness is "the nearest approach to eternity of which sensible things are capable."⁵³ On Plato's account, the Demiurge created the cosmos out of his goodness, not jealousy.⁵⁴ Desiring all things to be like him, the Demiurge instills order into inherent chaos. More specifically, the Demiurge creates the cosmos according to an eternal model that is independent of him. There can be only one cosmos since uniqueness is itself a perfection.⁵⁵ The Demiurge is not omnipotent, however: he works with eternal forms that he did not create, and he inherits the domain of chaos, which is independent of his creative powers. The Demiurge is ultimately only concerned with the world of becoming. That the Demiurge is not identical with the Form of the Good is evidenced by the fact that the Demiurge uses the idea of good in order to impose order, but the Demiurge is not good in himself.

We now turn to the heart of our discussion, namely the relation of time to creation. First, Plato distinguishes between the sphere of eternity and that of time. Because of the importance of this passage to subsequent Neoplatonist thought, I shall present it in its entirety:

So as that pattern is the living Being that is everlasting (*aidios*), he sought to make this universe also like it, so far as might be, in that respect. Now the nature of that Living Being was eternal (*aionios*), and this character it was impossible to confer in full completeness on the generated thing. But he took thought to make, as it were, a moving likeness of eternity (*aion*); and at the same time that he ordered the Heaven, he made, of eternity that abides in unity, a likeness moving according to number which is eternal (*aionios*)—that to which we have given the name Time.⁵⁶

In this passage it is clear that the Living Being, identified with the domain of pattern or forms, is eternal and hence not subject to time. The world-soul and the world-body, which characterize the world of becoming, cannot be eternal because they comprise “motion”; hence the Demiurge makes them a “moving likeness of eternity.” Time is then defined as a likeness of eternity which is the measure of the world-soul and world-body, or more specifically an “everlasting likeness” moving according to number. The contrast between eternity and time is characterized more fully as Plato turns to the creation of days and nights. Plato states that the domains of “was” and “will be” belong to becoming and hence to time, whereas the domain of “is” “alone really belongs to it [everlasting being (*aidios*)] and describes it truly.”⁵⁷ Unlike the domain of “was” and “will be,” the domain of “is” denotes “that which is always (*aei*) in the same state immovably . . . nothing belongs to it of all that Becoming attaches to the moving things of sense.”⁵⁸ Eternity (*aion*) is distinguished from time in that the domain of eternity is outside time, and change through time, altogether. What is not clear from these passages is whether Plato’s depiction of eternity comprises duration.⁵⁹ We shall return to the importance of this issue shortly, in the context of Plotinus’ theory of time.

When time actually comes into being, however, is a problematic issue and subject to much interpretative ink. In *Timaeus* 38b Plato suggests that inasmuch as time came into being with the heavens, it would appear that before creation there is no time: “Be that as it may, Time came into being together with the Heaven, in order that, as they were brought into being together, so they may be dissolved together.”⁶⁰ Other early passages in the *Timaeus* suggest that time itself was created along with the cosmos as a whole.⁶¹ But later passages in the dialogue support the interpretation that time may pre-exist the creation of the heavens.⁶² In contradistinction to those passages adduced earlier that suggested *ex nihilo* creation, other passages suggest that time existed, in some ontological measure, before creation.⁶³ The very fact that temporal words are used in (38b) points to the existence of time. Sorabji and Vlastos both offer the suggestion that while orderly time began with the orderly universe, before that there existed a domain of “disorderly time,” along with motion and matter.⁶⁴ If we take

seriously, however, Plato's definition of time as "a likeness moving according to number," which is aligned with the creation of the heavenly spheres, and if we emphasize the importance of these celestial spheres with respect to the measure of time, then it is not possible that time pre-exist the creation of the heavens. Sambursky rightly emphasizes the lack of symmetry between time and space in that whereas space is intermediate between Being and Becoming, time is at the level of things becoming.⁶⁵ As we shall see below, this asymmetry is eliminated by Plotinus, who introduces the domain of intelligible space, which functions as the analogue of intelligible time.⁶⁶ It is here that the discontinuity between time and space appears most explicitly in the *Timaeus*. For unlike time, which is the measure of motion, space is the necessary precondition for the coming into being of motion. And so while it is perfectly possible for *chora* to pre-exist the creation of the heavens, it is not possible for time to so pre-exist.

Like that of Plato, Aristotle's theory of time and motion is profoundly affected by cosmological considerations. For Aristotle, the prime example of time and motion is the relation between time and the circular motion of the heavens. Time is therefore a circle, measured by the circular motion of the heavens.⁶⁷ When Aristotle turns to issues of creation and time, he does so against the fabric of Plato's *Timaeus*. In *De Caelo* 1.10 he summarizes the positions of his predecessors, in particular that of Plato, who claimed that the cosmos had a beginning but is everlasting. Aristotle presents a number of arguments against Plato, claiming, for example on the basis of observation, that generated things are *seen* to be always destroyed. A second argument is that if the cosmos came into being, it must have a cause of change; but if that cause is present already, it could function again and allow for the dissolution of the cosmos. Aristotle then argues that a universe that is ungenerated and indestructible at all times is not capable of nonexistence and rules out the possibility in which things exist for an infinite time and then cease to exist for an infinite time.⁶⁸ Aristotle then applies these and other considerations to Plato's arguments in the *Timaeus*, arguing that it is impossible for something to be at once generated and indestructible.⁶⁹

The eternity of the cosmos is integrally related to Aristotle's conception of time. In answer to the question whether time was generated, Aristotle develops Plato's notion of the instant or "now" (*to nún*) as a basic feature of time. The instant is defined as the middle point between the beginning and end of time. Since it is a boundary or limit, it has no size and hence cannot be considered to exist: it is a durationless instant. Since instants do not in and of themselves exist, it might be argued that time itself does not exist. That is, the past and future do not now exist, and the present "now" is not a part of time since, as we have already noted, it is sizeless. Because the extremity, or limit, of time resides in the instant, Aristotle claims that time must exist on both sides of it: "Since the now is both a

beginning and an end, there must always be time on both sides of it.⁷⁰ And in *Metaphysics* 12.6 Aristotle claims that there can be no “before” or “after” if time does not exist, for both terms imply the existence of relative time. “For there could not be a before and an after if time did not exist.”⁷¹ For these reasons time must be uncreated. Aristotle’s basic argument, centered on his definition of the “now” as the midpoint between “before” and “after,” is that in order to account for the coming into existence of any present instant, there must exist a prior actual instant; but in the case of the first instant, there could be no prior instant, actual or potential.⁷²

Aristotle’s emphasis upon an ungenerated cosmos is reinforced in his analysis of the relation between time and motion. It is this relationship that reappears throughout the history of medieval and early modern philosophy. Aristotle claims in a number of texts that time is defined in terms of motion and so there can be no time without motion. For example, in *De Caelo* Aristotle argues that time is an integral part of the cosmos. He had already postulated that there can be no body or matter outside of the heavens, since all that exists is contained within the heavens. Since, however, time is defined as the number of movement, and there can be no movement without body, it follows that there can be no time outside of the heavens. “It is obvious then that there is neither place nor void nor time outside the heaven, since it has been demonstrated that there neither is nor can be body there.”⁷³ Whatever does exist beyond the heavens must be “changeless and impassive.”⁷⁴ A similar point is propounded in *Physics* 4.12.

Aristotle develops this characterization further in his classic discussion on time in *Physics* 4.10–14.⁷⁵ Having asked of time whether “it belongs to the class of things that exist or that of things that do not exist,”⁷⁶ he rejects various considerations which might lead one to think that time does not exist. Time, he claims, is connected with movement, noting that

when the state of our own minds does not change at all, or we have not noticed its changing, we do not realize that time has elapsed, any more than those who are fabled to sleep among the heroes in Sardinia do when they are awakened; for they connect the earlier ‘now’ with the later and make them one, cutting out the interval because of their failure to notice it. So just as, if the ‘now’ were not different but one and the same, there would not have been time, so too when its difference escapes our notice the interval does not seem to be time.⁷⁷

The interesting question raised by this example, one to which medieval commentators will return,⁷⁸ is not, as Bostock has argued, whether we can notice if time has passed when we notice that things have not changed, but rather whether changeless times can be in fact perceived at all. Bostock claims that Aristotle’s premise is false because “we notice that time has passed not only when we notice that things have changed but also when we

notice that they have not: that is, to be aware of rest, no less than to be aware of movement, is equally to be aware of the passing of time." He gives as an example noticing a clock's ticking, and noticing the "nothing" that happens between each tick.⁷⁹ But Bostock's counterexample to Aristotle misses the point, for it is precisely the "noticing the nothing between each tick" that, in Aristotle's paradigm, would constitute motion or change. Aristotle's point is that we notice time *only* when we notice change, but the noticing itself can constitute a change.

From the epistemological point that "we perceive movement and time together," Aristotle draws an ontological conclusion, namely that "hence time is either movement or something that belongs to movement."⁸⁰ It is not just that we cannot perceive changeless time, but that time itself does not exist when there is no change. This leads to a definition of time in terms of the movement of the "now:" "When we do perceive a 'before' and an 'after,' then we say that there is time. For time is just this—number of motion in respect of 'before' and 'after' . . . time is only movement in so far as it admits of enumeration. . . . Time then is a kind of number."⁸¹ What we see in this important and influential passage is that time is defined as the "number of motion;" without something to measure, and without a unit of measure, there can be no time. But what does it mean to say that time is a kind of number? Aristotle distinguishes two meanings to the term number: what is counted, or the countable, and that by which we count, and then associates time with the first kind of number, claiming that time is that which is counted, and not the measure used to count.⁸² Thus, to know how long a process takes is a matter of being able to count or measure its duration. In other texts, however, Aristotle seems to conflate these two functions.⁸³

Aristotle then stipulates two important qualifications to his characterization of time in terms of movement. First he points out that "not only do we measure the movement by the time, but also the time by the movement, because they define each other."⁸⁴ Further, he argues that time is the measure not only of motion but of rest as well. "For all rest is in time. For it does not follow that what is in time is moved, though what is in motion is necessarily moved. For time is not motion, but 'number of motion:' and what is at rest also can be in the number of motion."⁸⁵ We shall return to the importance of this passage in chapter 3 when we examine Crescas' emphasis upon the measure of rest. Finally, Aristotle raises an important query concerning the relationship between time and the rational perceiver:

Whether if soul did not exist time would exist or not, is a question that may fairly be asked; for if there cannot be some one to count there cannot be anything that can be counted, so that evidently there cannot be number; for number is either what has been, or what can be counted. But if nothing but

soul, or in soul reason, is qualified to count, there would not be time unless there were soul, but only that of which it is an attribute . . .⁸⁶

This passage raises the important question of whether time exists if there is “no soul” to perceive it. Aristotle himself does not provide an answer to this query, but his suggestion is fairly straightforward: inasmuch as time is a kind of number and its function lies in counting, there can be no time if there is “no soul” doing the counting.⁸⁷ Later commentators, however, latched upon the issue and it became the basis for subsequent idealist descriptions of time.⁸⁸ For Aristotle, then, time falls into the category of accident which exists in motion. What this means is that we have a perception of time only when we perceive motion.

Ancient Greek Astronomy and Cosmology

These Platonic and Aristotelian conceptions of time reappear in the context of ancient astronomy and cosmology. That cosmology and astronomy comprised separate disciplines was already explicitly indicated in early textual traditions. In his commentary upon Aristotle’s *Physics*, for example, Simplicius reflected the long-standing tradition of distinguishing between the two, stating that:

It is the business of physical inquiry to consider the substance of the heaven and the stars, their force and quality, their coming into being and their destruction, nay, it is in a position even to prove the facts about their size, shape, and arrangement; astronomy, on the other hand, does not attempt to speak of anything of this kind, but proves the arrangement of the heavenly bodies by considerations based on the view that the heaven is a real kosmos, and further it tells us of the shapes and sizes and distances of the Earth, Sun and Moon, and of eclipses and conjunctions of the stars, as well as of the quality and extent of their movements. . . . The things, then, of which alone astronomy claims to give an account it is able to establish by means of arithmetic and geometry.⁸⁹

In the medieval world, two rival cosmologies, that of Aristotle and that of Ptolemy, competed for acceptance. Influenced by Aristotle’s physical and natural works, many cosmologists followed Aristotle rather than Ptolemy in their quest to provide a comprehensive theory of the universe.⁹⁰ The formative classical texts included Aristotle’s *De Caelo*, supplemented by relevant passages from the *Metaphysics*, *Physics*, and *De Generatione et Corruptione*. Plato’s *Timaeus* and commentaries upon Genesis presented an additional dimension to this corpus.

In the Aristotelian cosmology, the universe is a finite sphere whose center is at the earth and bounded by the sphere of the fixed stars. Nine primary concentric spheres (in turn divided into subsidiary spheres) rotate around the earth; these spheres form a compact whole, much like the skins of an onion, with no vacuum. First came the other three terrestrial elements, water, air, and fire. Surrounding the sphere of fire were the crystalline spheres in which were placed the seven planets: the Moon, Mercury, Venus, the Sun, Mars, Jupiter, and Saturn. Beyond the last planet came the fixed stars, identified with the sphere of the "prime mover," and then nothing.⁹¹ The sphere of the moon separated the universe into the sublunar, or terrestrial, region, and the superlunar or celestial region. The superlunar heavens differed in composition from the sublunar bodies in that the former were composed of a single incorruptible element, *aether*, while the earth was comprised of the four elements. One of the purposes of *aether* was to account for the movements of the celestial bodies that Aristotle argued could not move in the same way as did the terrestrial elements. For according to Aristotle, elements in the sublunar realm were subject to the four kinds of change, while elements comprised of *aether* only underwent one kind of change, eternally uniform motion in a circle. Another reason was that the four terrestrial elements could not account for the vast distance between the earth and the outermost sphere; only an element not subject to contraries, Aristotle argued, could exist sufficiently long to fill this space.⁹²

The ultimate source of motion in this Aristotelian system is God, or the unmoved first mover.⁹³ But did God move the first moving sphere as an active, efficient cause, or as a passive, final cause? Aristotle had attributed to all the celestial spheres a mover, the ultimate source of motion being God. Medieval thinkers, however, introduced immobile created intelligences to explain celestial motion. These separate intelligences move the orbs with both intellect and will.⁹⁴ Each sphere has a soul or internal moving source; Maimonides identifies these spheres with angels.⁹⁵

And yet, although cosmology and astronomy represented separate disciplines, as it were, nevertheless they intersected in the area of theory formation. As Pederson has argued, tensions centered around the metaphysical status of mathematical theories in science.⁹⁶ For on the one hand the universe, as described by Aristotle in *De Caelo*, was a material entity based on the laws of physics. On the other hand, mathematical astronomy made use of geometrical devices that violated these very physical laws. More specifically, both Aristotle and Ptolemy agreed that there must be a plurality of spheres to account for the motion of each planet. These spheres, as we have seen, were nested contiguously. On Aristotle's model there was a series of concentric orbs, each moving in a natural, uniform, circular motion, all sharing the earth as a common center. Ptolemy, however, recognized that

Aristotle could not account for variations in the observed distances of the planets. This recognition led to the postulating of an alternative cosmological scheme.

In his two astronomical works *Almagest* and *Hypothesis of the Planets*, Ptolemy argued that the planets were carried about by a system of eccentric and epicyclical spheres.⁹⁷ In the *Almagest* Ptolemy had proposed that his astronomical theory was merely a method the purpose of which was to “save the appearances,” or account for the observed phenomena.⁹⁸ In his *Hypothesis of the Planets* he provided the mechanical explanation for his system; this work, although not available in a Latin translation, reached Western Europe most likely through Arabic translations.⁹⁹ On Ptolemy’s model, each concentric planetary orb contained at least three partial eccentric and epicyclical spheres. That this system of eccentric and epicyclical spheres contravened the concentric spheres of Aristotle was not lost upon Ptolemy or his followers. In particular, Ptolemy’s insistence that partial eccentric orbs had centers other than the earth violated Aristotle’s dictum that all celestial spheres move around the earth with uniform motion.¹⁰⁰ And yet most medieval astronomers found that Ptolemy’s system did a better job of “saving the appearances” of astronomical data. As Grant has argued, “the medieval conflict between the Aristotelian and Ptolemaic systems centered on efforts to demonstrate that eccentric and epicyclical orbs did not imply consequences that were subversive and destructive of Aristotelian cosmology and physics.”¹⁰¹ In other words, medieval philosophers were faced with a dilemma: they could either reject the earth’s centrality and abandon a vital part of Aristotelian physics in the name of astronomical and mathematical purity, or they could accept a cosmology that was untenable from the perspective of the astronomers.¹⁰²

Plotinus and the Neoplatonist Tradition

The last important Greek philosophical influence upon Jewish philosophy is Neoplatonism, which was largely based on the writings of Plotinus and Proclus. Jewish Neoplatonism dates from the ninth century and provided the philosophical context for the thought of many cultivated Jews of the eleventh and twelfth centuries; during the Arabic period it was complemented by elements stemming from Islamic religious traditions. For serious Jewish thinkers, the speculations of certain Neoplatonist philosophies provided epistemological and metaphysical notions that were quite compatible with their own attempts to characterize the nature of God and his nature and relation to humans. Although not all Jewish thinkers supported Neoplatonism, it was extremely influential on the formation of Jewish thought during the late Hellenistic, Roman, and medieval periods.¹⁰³

The Islamic school of Neoplatonism most clearly influenced medieval Jewish writers. The work of Plotinus was transmitted in a variety of ways, most notably through the *Theology of Aristotle* (a paraphrase of books 4, 5, and 6 of the *Enneads*), and through doxographies, collections of sayings of Plotinus that were circulated among religious communities. The *Theology of Aristotle* exists in two versions. The shorter (vulgate) version, belonging to a later period and found in many manuscripts, was the version first published by F. Dieterici. The second, longer version exists in three fragmentary manuscripts in Hebrew script, discovered by Borisov in Leningrad.¹⁰⁴ Two other influential works are worthy of note as well. Proclus' *Elements of Theology* was transmitted to Jewish thinkers in the period between the early ninth and late tenth centuries through an Arabic translation, *Kalām fī māḥd al-khāir*. Known to Latin thinkers as the *Liber de causis*, this work was translated in the twelfth century from Arabic into Latin most likely by Gerard of Cremona and was generally attributed by medieval philosophers to Aristotle.¹⁰⁵ And finally, the *Book of Five Substances* attributed to Empedocles was originally written in the ninth century in Arabic and translated into Hebrew in the fourteenth–fifteenth centuries. Published by David Kaufmann in 1899, this pseudo-Empedoclean work represents a variant of Ibn Ḥasday's Neoplatonism and was highly influential upon the work of Ibn Gabirol, especially in its placement of "spiritual matter" as the first of the five substances.¹⁰⁶ Because of the importance and influence of this tradition upon subsequent Jewish philosophy, a brief examination of Plotinus' theory of time is thus in order.

Plotinus' distinction between time and eternity is carried out against the background of Plato's characterization of time in the *Timaeus* as the "moving image of eternity," as well as Aristotle's description of time in *Physics* 4 as the measure of motion. Plotinus attacks Aristotle's theory of time, which he sees as the only main alternative to a Platonic theory. The main distinction in Plotinus is between that which is outside of time altogether, and that to which temporal predicates apply.¹⁰⁷ In contrast to the Aristotelian view we have just elaborated, Plotinus and his followers develop a theory of time according to which time does not depend upon external objects and their motion for its existence. On this view, the essence of time is not motion but rather duration. In *Enneads* 3.7 Plotinus rejects the view that makes time dependent upon physical motion. Rather, he connects it with the "the Life of the Soul in a motion of change from one stage of life to another."¹⁰⁸

Plotinus begins with a critique of his predecessors' conception of eternity. He first states and rejects the view of Plato that eternity is the "intelligible substance itself," identified with the whole of the cosmos, on the grounds that it rests on a faulty view of predication.¹⁰⁹ Turning then to Aristotle's view that "eternity exists in virtue of Rest," Plotinus rejects this view as well for a number of reasons: it does not allow for motion to be

eternal, it does not explain how rest contains within itself the concept of 'always,' and it fails to note the critical difference between time, which is sometimes extended, and eternity which is never extended.¹¹⁰

Plotinus is now ready to offer his own conception of eternity. Plotinus defines eternity as

A life which remains always in the same state, always having the whole present to it—not one thing now and then another, but everything at once, and not different things now, and afterward different things, but a partless completion, as if all things existed together in a single point, and never flowed forth, but remained there in the same state, and did not change, but were always in the present, because none of it has gone by, nor shall it come to be, but it is just what it is.¹¹¹

In this important and influential definition, we note that eternity always has the whole present to it; it is changeless, always present. By this Plotinus means that lacking in nothing, all future [unactualized states] are irrelevant to the life of intellect. Hence "was" and "will be" are inapplicable to it. The domain of eternity does not undergo affection or change, nor does it expend any of its energy. Eternity is "all at once, and is everywhere full yet unextended."¹¹² Plotinus is ostensibly aware of the dilemma of speaking about eternity using temporal predicates. Because eternity always is, it never "is not" and cannot be other than it is. What Plotinus seems to want to say is that "always" (*aei*) implies completeness and not temporality. Because it is partless and does not derive its being from time, the terms "before" and "after" do not apply to it. Only temporal beings have need of a future. Eternity is totally devoid of temporality: it "does not get its being from any extent of time, but is prior to any extent of time."¹¹³

In contrast to eternity, then, time represents the domain of incompleteness. Temporality is the image of the eternal. Plotinus examines and rejects the three conventionally accepted notions of time that tie time to motion and measure: against the Stoics he argues that time cannot be identified with movement; against Aristotle he argues that time is not the number of movement; and against Epicurus he argues that time is not an attribute of movement. In all three cases, these philosophers have failed to distinguish time itself from that which is in time or measured in time.¹¹⁴ For Plotinus, time is a function of the movement of the life of the soul: it is "the product of the spreading out (*diastesis*) of life."¹¹⁵ Time is dependent upon soul, and so upon the return of the soul to the One, time itself will disappear. But the origin of time, and the soul, is unclear in Plotinus. Originally time "was not yet time, but it too was at rest in Eternity."¹¹⁶ Due, however, to the "officious nature" of world-soul, the world-soul moved away [and down] from eternity, and time moved with it; in this move away from Eternity the

world-soul “produced time as the image of eternity” when it produced the sensible world in imitation of the intelligible world.¹¹⁷ What is interesting about this myth of generation is that in the beginning, time was both in eternity and yet distinguishable from it. Plotinus does not explain what accounts for the initial discontent of the soul, nor does he explain why time moves along with the soul away from eternity.¹¹⁸

Both Plotinus and Plato agree that time came into existence with the universe, but for Plotinus the reason has to do with the co-generation of the soul. They also agree that day and night were created as markers of time. Time itself, however, is not a measure independent of the soul. Just as eternity exists in the intelligible domain, so too time exists in soul and with soul. Inasmuch as this spreading out or duration of soul is unmeasured and undetermined, it is ultimately incomprehensible.¹¹⁹ One implication of the fact that time is not tied to the external world is that time acquires a subjective existence in the mind of its cognizers. Augustine has captured this notion succinctly in his famous dictum that “it seems to me that time is nothing other than an extension (*distentio*) but of what it is an extension I do not know. It would be surprising if it were not an extension of the mind (*animus*) itself.”¹²⁰

Conclusion

Let me briefly summarize the main features of the various systems we have examined. I have depicted in this chapter those elements within biblical and rabbinic thought, as well as within Greek philosophy, which pertain to the themes of time and creation. Both the Jewish and Greek philosophical traditions have contributed important ingredients. From Scripture comes the unambiguous statement of a “Beginning.” From the Rabbis comes an understanding of the nuances inherent in interpreting the first instant of creation. Plato’s theory of temporality must be read against the backdrop of the distinction between the domain of being and that of becoming. Reflecting the influence of Parmenides, Plato emphasizes the timelessness of the domain of being, in contradistinction to the flux and temporal change of the domain of becoming. Time, associated with motion, is created along with the heavens. There is room, however, for the suggestion that a “pre-existent” time exists in conjunction with the “pre-existent chaos” out of which the Demiurge creates the cosmos. In contradistinction to Plato, we can articulate the following features of time in Aristotle’s work. First, time is inconceivable without motion, implying as it does the existence of a corporeal object in motion. Eternal incorporeal beings cannot have time associated with them. Because of this close association to matter and motion, time cannot exist prior to their existence; neither time nor the heavens is

generated. And finally, it is clear, despite the indication of dependence upon human consciousness, that time does have a kind of reality outside the mind.

The similarity of certain passages to Plato's *Timaeus* is striking and did not go unnoticed by later Jewish thinkers. In fact, as we shall see, later 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, as we have seen, is the first to identify time with the movement of the heavens. We have seen that Plato defines time as "an eternal likeness moving according to number—that to which we have given the name Time."¹²¹ This everlasting likeness is of the Living Being which is itself eternal. With respect to the thorny question of whether time was created along with the heavens or whether it pre-existed creation, we have seen that Plato offers multiple responses that have led scholars to postulate multiple interpretations of the text.¹²² 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."¹²³ 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.¹²⁴ 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.